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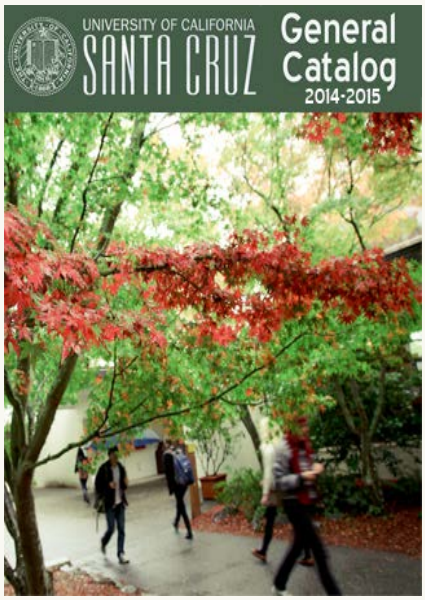
As of 2012, the UCSC General Catalog is no longer available in print. Past years' catalogs are available online in pdf format beginning with the 2003-04 edition. Printed catalogs prior to 2003-2004 are available in the Office of the Registrar.



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Welcome to UC Santa Cruz. Congratulations on choosing this extraordinary university for your studies. Our talented faculty and dedicated staff stand ready to make your time here stimulating and rewarding.

At UCSC, we talk about the "transformational student experience." That phrase is rooted in the spirit of daring and adventure that students bring to this beautiful campus. Year after year, students—both undergraduate and graduate—embrace our founders' vision of UCSC as a special place that nurtures intellectual curiosity and encourages collaboration, all while fostering a sense of fun and community along the way.

Maybe it's our location. Nestled among the redwoods and overlooking the Monterey Bay, UCSC is a place of unmatched natural beauty. I still stop and marvel at the views. You may grow accustomed to meeting deer on campus footpaths, but I doubt you'll ever stop appreciating these impromptu encounters with the natural world. Let these surroundings inspire and uplift you.

Maybe it's the people. From the lecture hall to the soccer field, you will make new friends here. Your peers will sustain you, and our faculty will inspire you. As a major research university, UCSC is home to scholars who have not completed their own search for knowledge, meaning, and understanding. They are leaders in their fields and pioneers of interdisciplinary exploration. They are eager to partner with you in your quest—for discovery, creative expression, and, yes, transformation.

Maybe it's the opportunities. At UCSC, we are dedicated to providing challenging classroom experiences, robust opportunities to learn outside the classroom, and extracurricular activities that range from athletics and art to student government, sustainability, and service.

The truth is, it's all this and more. This is an extraordinary time in your life. I hope you will take advantage of everything the campus has to offer. Delve deep. The rewards are plentiful.

Again, welcome to UCSC. I look forward to seeing you on campus.

Sincerely,

GEORGE BLUMENTHAL
CHANCELLOR

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Introducing UCSC

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The University of California

The University of California was chartered as a land-grant college in 1868. From its rural beginning, the university has developed into one of the world's most distinguished universities, acclaimed for its research, scholarship, and dedication to undergraduate and graduate education. There are 10 University of California campuses located regionally throughout the state: Berkeley, Davis, Irvine, Los Angeles, Merced, Riverside, San Diego, San Francisco, Santa Barbara, and Santa Cruz. In addition, there are some 800 associated research institutes, laboratories, agricultural field stations, and extension centers serving California and the nation. The university is the primary state-funded academic agency for research. Its library collection, with 37 million volumes, is among the best in the country.

The University of California faculty, more than 16,000 in number, is distinctive in its 31 living Nobel Laureates and 419 members of the National Academy of Sciences—more than any other college or university system. Faculty membership in the American Academy of Arts and Sciences totals 489.

The University enrolls more than 183,000 undergraduates selected from the top 12.5 percent of the state's high school graduates and approximately 50,000 graduate students. The 1.7 million living alumni enrich the nation with public service and leadership.

The Santa Cruz Campus

Since its inception in 1965, the University of California, Santa Cruz, has been dedicated to excellence in undergraduate education, graduate studies, and research. UCSC students can take advantage of innovative academic planning combined with the research resources and scholarship strengths of the University of California system. At UC Santa Cruz, a program of general education is enhanced with opportunities for academic specialization.

Among the faculty and emeriti drawn to UC Santa Cruz by the opportunity for innovative teaching and scholarship are 14 members of the National Academy of Sciences, 26 members of the American Academy of Arts and Sciences, and 35 members of the American Association for the Advancement of Science. Numerous faculty have been awarded Guggenheim Fellowships, and several have been awarded national awards for distinguished teaching. Furthermore, three faculty members, three bachelor's degree recipients, and two Ph.D. recipients have been named MacArthur Fellows, and since 1972, when UC Santa Cruz began participating in the program, about 120 Fulbright scholarships have been awarded to UC Santa Cruz students and alumni. Five UC Santa Cruz alumni have been awarded Pulitzer Prizes; one has won the coveted journalism award twice.

Planned enrollment of the campus for the 2014-2015 academic year is approximately 17,100 students, of whom 1,550 will be graduate students. UCSC seeks and welcomes students, faculty, and staff of diverse ethnic and cultural experiences and the campus plans to increase both its enrollment and resources and to diversify its educational and research opportunities over the next few years. New facilities are being built to meet current and

future needs. The McHenry Library has been expanded by more than 75 percent, and the original building has been seismically reinforced. The 27,000-square-foot Digital Arts building was completed in 2010.

The residential colleges are an important part of the Santa Cruz undergraduate experience. The 10 colleges divide the university into smaller communities, each serving as a social and intellectual gathering place for 1,400 to 1,700 students and 30 to 110 faculty fellows from a variety of academic disciplines. Every undergraduate student affiliates with a particular college while participating in a campuswide academic program. All of the colleges are interdisciplinary, and all academic majors are open to students from all colleges.

Each college has a distinctive quality derived from its core course and extracurricular programs and from its faculty and their academic disciplines. Detailed descriptions of the 10 colleges can be found in The Colleges section of the catalog.

Undergraduate education. The campus offers 65 major programs within the arts, engineering, humanities, physical and biological sciences, and social sciences—as well as interdisciplinary-major programs and minors. A complete list of academic programs and concentrations appears on the Fields of Study chart, and detailed descriptions begin in the Programs and Courses section of the catalog.

The major and minor programs are administered by departments. In most cases, departments are composed of faculty in the same field, but interdisciplinary programs draw on faculty from several fields.

With few exceptions, letter grades are assigned in all credit courses. In addition, academic performance in each course may be recorded by a narrative performance evaluation. (See Evaluating Academic Performance.)

Undergraduate education at Santa Cruz is focused on the individual student. UCSC's college core courses give first-year students a small-seminar experience in their first year; intensive work in writing, discussion, and critical reasoning; as well as an orientation to academic life. To fulfill UCSC's rigorous comprehensive requirement, every senior must pass a comprehensive examination or complete an equivalent body of work.

Individual research is encouraged, and hundreds of research papers coauthored by Santa Cruz undergraduates and their professors have been published in journals. Undergraduate research opportunities are highlighted at http://ugr.ue.ucsc.edu/home.

Annually, more than 500 Santa Cruz students broaden their academic careers through the UC Education Abroad Program (EAP), which allows students to incorporate full-time study abroad as UC credit toward their degrees. The EAP provides a vital international connection for academic and personal growth in an increasingly interdependent world (see International Education Office).

The UCSC campus strongly encourages undergraduate students to take advantage of the many opportunities for public service such as those provided through the campus's field programs, colleges, and Career Center. Individual studies, apprentice teaching, field studies, and internships can be important parts of the undergraduate experience (see Field Programs).

Graduate education. The UCSC campus offers graduate programs in more than 30 fields. Within the graduate programs, there are a range of options for concentrated study in a specialized field. Graduate study at Santa Cruz emphasizes close interaction between faculty and students, independent student research, supervised teaching experience, and interdisciplinary work. Further graduate information is provided in the Graduate Education section of the catalog.

Research. The UC Santa Cruz campus hosts a number of major research units. UC Observatories, the Santa Cruz Institute for Particle Physics (SCIPP), and the Institute of Marine Sciences conduct state-of-the-art research on topics ranging from the discovery of planets outside our solar system, to the detection of new sub-atomic particles, to the ecology of marine mammals. UC Santa Cruz is also a primary partner in inter-UC campus initiatives—such as the Institute for Quantitative Biomedical Research (QB3) and the Center for Information Technology Research in the Interest of Society (CITRIS)—which focus on human health and the use of information technology to solve social, environmental, and

health care problems. A range of topical centers, including the Center for Cultural Studies, the Center for Jewish Studies, the Center for Labor Studies, Feminist Critical Race and Ethnic Studies, the Linguistics Research Center, and the Dickens Project, promote interdisciplinary research in the humanities. Research enterprises within the arts benefit from the Arts Research Institute and the Center for Documentary Arts and Research. The Center for Agroecology and Sustainable Food Systems, the Center for Integrated Water Research, the Chicano/Latino Research Center, and the Santa Cruz Institute for International Economics provide pioneering directions for research in social sciences. Engineering at UCSC has focused on strategic initiatives that include the Institute for Scalable Scientific Data Management, the Institute for the Biology of Stem Cells, the Center for Games and Playable Media, the Center for Sustainable Energy and Power Systems, and the UCSC Genome Technology Center. Beyond these organized research enterprises, UCSC has a wide suite of investigator-driven research that spans the width and breadth of campus inquiry. For additional information see Resources for Learning and Research.

The central UC Santa Cruz campus occupies 2,000 acres on the west side of the city of Santa Cruz, on Monterey Bay, about 75 miles south of San Francisco and 35 miles southwest of San José. Expansive meadows at the campus entrance gradually slope up to a redwood forest that covers most of the site. Each residential college is within easy access of the campus's central core, which includes an extensive library, science laboratories, lecture halls, art studios, theater arts and music centers, a student union, and athletic facilities. Although the campus is spread out over many acres of hilly terrain, its programs are accessible to people with mobility impairments (see Disability Resource Center).

The city of Santa Cruz is a well-known recreational area and center for the arts. Mild weather, miles of beaches, and many cultural opportunities combine to make Santa Cruz an enjoyable place to study and live.

Accreditation. The University of California, Santa Cruz, is accredited by the Accrediting Commission for Senior Colleges and Universities of the Western Association of Schools and Colleges (WASC), 985 Atlantic Avenue, Suite 100, Alameda, CA 94501, (510) 748-9001, an institutional accrediting body recognized by the Council for Higher Education and the U.S. Department of Education.

Specific degree programs at UC Santa Cruz are also accredited by the Accreditation Board for Engineering and Technology (Computer Engineering and Electrical Engineering), the American Chemical Society Committee on Professional Training (Chemistry), and the California State Commission on Teacher Credentialing (Education).

Persons interested in reviewing accreditation documents should contact the Office of the Vice Provost for Academic Affairs, Kerr Hall, (831) 459-2351, or vpaa@ucsc.edu.

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UCSC General Catalog 2014-15

This catalog contains the basic information about UC Santa Cruz. A complete list of academic programs and concentrations, both graduate and undergraduate, appears in the Fields of Study.

The next part of the catalog is divided into sections describing various aspects of the campus: undergraduate admission and financial information, the undergraduate academic program (including advising and support services), graduate education (including information on graduate student admission, expenses, and financial support), research programs and facilities, and the 10 residential colleges and student life.

The academic programs and courses offered at UCSC are described in detail in the programs and courses section. The listings are alphabetical, with appropriate cross-references.

The Santa Cruz teaching staff and their academic qualifications, the University of California administration, and the Santa Cruz campus administrative staff appear in the teaching and administration section.

The catalog constitutes the campus's document of record. While every effort is made to ensure the correctness and timeliness of information contained in this catalog, changes are likely to occur after publication. On an ongoing basis, the university is examining ways to bring the greatest possible efficiency to the delivery of its programs and curricula. This process may result in changes in services, teaching and administrative staff, and curricula and courses that could not be reflected in this catalog, which was prepared well in advance of the 2014-15 academic year. Updates to course information are available in the quarterly Schedule of Classes and the Class Search. (Additional web sites are referenced throughout this catalog. However, they are maintained by individual units and may not reflect approved general information, curricula, or course information.) In addition, several publications are available that include detailed information about specific subjects such as graduate programs, housing, and financial aid.

It is the responsibility of the individual student to become familiar with the announcements and regulations of the university that are printed in this catalog and other campus publications. The catalog is the document of record for major and program requirements. It is updated annually on the web.

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Fields of Study

Programs and concentrations. Links go to the detailed discussion of each program, including its courses, later in the catalog.

	Undergraduate Education			Graduate Education				
	B.A.	B.S.	Minor	Certi-ficate	M.A. / M.F.A.	M.S.	Ph.D.	Designated Emphasis
American literature: see Literature								
Academic English								
Anthropology	•		•				•	•
Archaeology							c	
Cultural anthropology							c	
Physical anthropology							c	
Applied Mathematics			•					
Applied Mathematics and Statistics						•	•	
Applied Linguistics								
Applied physics		•						
Art	•							
Art history: see History of art and visual culture								
Asian studies: see East Asian studies								
Astronomy and astrophysics							•	
Astrophysics (see also Physics [Astrophysics])			•					
Bilingual-multicultural education: see Education								
Biochemistry and molecular biology		•						
Bioengineering		•						
Assistive Technology: Motor		c						
Assistive Technology: Cognitive/Perceptual		c						
Bioelectronics		c						
Biomolecular		c						
Rehabilitation		c						
Bioinformatics		•	•					
Biomolecular engineering and bioinformatics						•	•	
Biological Sciences								
Biology	•	•	•					
Bioeducation	c							
Ecology and evolution		•						
Ecology and evolutionary biology					•		•	•
Human Biology		•						
Marine biology		•						
Molecular, cell, and developmental biology		•			•		•	
Neuroscience		•						
Plant sciences		•						
Chemistry	•	•	•			•	•	
Biochemistry		c						
Environmental chemistry		c						
Chinese language								
Classical studies (see also Literature)	•		•					
Cognitive science (see also Psychology)		•						
Community studies	•							
Computer engineering (2)		•	•			•	•	
Computer systems		c						
Digital hardware		c						
Networks		c						
Robotics and control		c						•
Systems programming		c						
Computer science	•	•	•			•	•	

Computer science: Computer game design		•						
Creative writing: see Literature								
Critical Race and Ethnic Studies	•							•
Dance: see Theater arts								
Digital arts and new media (3)					•			
Drama: see Theater arts								
Dramatic literature: see Theater arts								
Earth sciences		•	•			•	•	
Environmental geology		c						
Ocean sciences		c						
Planetary sciences		c						
Science education		c						
East Asian studies			•					
Ecology and evolution		•						
Ecology and evolutionary biology					•		•	
Economics	•		•				•	
Applied economics and finance						•		
Business management economics	•							
Global economics	•							
Education (4)			•		•		•	•
Science, technology engineering, and mathematics			•					
Bilingual-multicultural education					c			
Multiple subjects credential (elementary)					c			
Single subjects credential (secondary)					c			
Language, literacy, and culture							c	
Learning and teaching							c	
Mathematics and science education							c	
Social and cultural contexts of education							c	
Teachers and teacher development							c	
Electrical engineering		•	•			•	•	
Electronics/Optics		c						
Communications, signals, systems, and controls		c						
English: see Literature and see Linguistics								
Environmental studies	•						•	•
Environmental toxicology: see Microbiology and Environmental Toxicology								
Feminist studies	•						•	•
Culture, power, and representation	c							
Law, politics, and social change	c							
Science, technology, and medicine	c							
Sexuality studies	c							
Film and digital media	•		•				•	
Critical studies	c							
Integrated critical practice	c							
Production	c							
French language								
French literature: see Literature								
Games and Playable Media						•		
Geology: see Earth sciences								
German language								
German literature: see Literature								
German studies	•							
Global information and social enterprise studies			•					
Greek language: see Greek and Literature								
Greek literature: see Literature								

Hebrew language								
History	•		•		•		•	
Americans and Africa	c							
Asia and the Islamic world	c							
Colonialism, nationalism, and race							c	
Europe	c							
History of gender							c	
History of art and visual culture	•		•					
Religion and visual culture	c							
History of consciousness							•	•
Human Biology		•						
Italian language								
Italian literature: see Literature								
Italian studies	•		•					
Japanese language								
Jewish studies	•		•					
Languages								
Language studies								
Chinese	c		c					
French	c		c					
German	c		c					
Italian	c		c					
Japanese	c		c					
Spanish	c		c					
Latin American and Latino studies	•		•				•	•
Latin language: see Latin and Literature								
Latin literature: see Literature								
Legal studies	•		•					
Linguistics (see also Language studies)	•		•		•		•	
Theoretical linguistics	c				c		c	
Literature (5)	•		•		•		•	•
Creative writing	c							
English-language literatures	c				c		c	
French literature	c				c		c	
German literature	c							
Greek and Latin literatures	c							
Italian literature	c							
Modern literary studies	c				c		c	
Pre- and early modern studies	c				c		c	
Spanish/Latin American/ Latino literatures	c				c		c	
World literature and cultural studies	c				c		c	
Marine biology		•						
Marine sciences: see Ocean sciences								
Mathematics	•		•		•		•	
Computational mathematics	c							
Mathematics education	c							
Pure mathematics	c				c		c	
Medieval studies: see Literature								
Microbiology and environmental toxicology						•	•	
Molecular, cell, and developmental biology		•			•		•	
Music (6)	•				•		•	
Electronic music			•					
Jazz			•					
Network and Digital Technology	•							
Neuroscience		•						
Ocean sciences						•	•	

Biology (see also Marine biology)						c		
Biological oceanography							c	
Chemical oceanography							c	
Chemistry						c		
Earth Sciences						c		
Geological oceanography							c	
Physical oceanography							c	
Physics						c		
Philosophy	•		•		•		•	•
Photography: see Art								
Physics (1)		•	•			•	•	
Physics (Astrophysics)		•						
Physics Education		•						
Plant sciences		•						
Playwriting: see Theater arts								
Politics	•		•				•	•
Portuguese language								
Psychology (5)	•						•	
Cognitive psychology							c	
Developmental psychology							c	
Social psychology							c	
Religious studies								
Robotics Engineering		•						
Russian language								
Science communication: Science writing				•				
Social documentation					•			•
Sociology (5)	•		•				•	•
Spanish for Heritage speakers								
Spanish language								
Spanish literature: see Literature								
Spanish Studies	•							
Language and Linguistics	c							
Literature and Culture	c							
Statistics			•					•
Statistics and Applied Mathematics						•	•	
Sustainability Studies			•					
Technology and information management		•	•			•	•	
Theater arts	•		•		•			
Dance	c		•					
Design and technology	c							
Drama	c							
Visual Studies							•	•
Western civilization: see Literature								
Women's studies (see Feminist Studies)								
Writing								
Yiddish Language								

Combined majors. In addition, students may complete a combined major leading to a B.A. degree in a number of designated fields. Combined majors currently available include those in Earth sciences/anthropology, economics/mathematics, environmental studies/biology, environmental studies/Earth sciences, environmental studies/economics, Latin American and Latino studies/global economics, Latin American and Latino studies/literature, Latin American and Latino studies/politics, and Latin American and Latino studies/sociology. Students also have the option of pursuing a double major.

c = concentration, or emphasis, within a program. Some programs give students the option of following a general course of study or selecting a concentration; other programs require students to choose a concentration. Consult the program on the page indicated.

1 Combined B.S./M.S. in physics is available with concentrations in:

a) Materials and device physics
b) Energy and the environment
c) Computational physics
d) Medical biophysics

2 A combined B.S./M.S. program in computer engineering is also available.

3 A master of fine arts (M.F.A.) degree is awarded in digital arts and new media.

4 Because California state law requires prospective teachers to earn a bachelor's degree in an academic discipline other than education, no undergraduate major is offered. All teaching credentials are earned postbaccalaureate. UCSC offers the professional clear Cross-cultural, Language and Academic Development

(CLAD) and Bilingual Cross-cultural, Language and Academic Development (BCLAD) multiple subjects credentials, which are used in self-contained elementary classrooms (K–6) where all subjects are taught by the same teacher. UCSC also offers the CLAD and BCLAD single subjects credentials, which are used in departmentalized settings where the teacher is responsible for one subject (7–12). A Doctor of Education (Ed.D.) in collaborative leadership is also available.

5 An intensive major is also available.

6 B.M. degree in music also available. Doctorate of musical arts (D.M.A.) degree in composition also available.

Degrees

B.A. = Bachelor of Arts
B.M. = Bachelor of Music
B.S. = Bachelor of Science
D.M.A. = Doctor of Musical Arts
Ed.D. = Doctor of Education
M.A. = Master of Arts
M.F.A. = Master of Fine Arts
M.S. = Master of Science
Ph.D. = Doctor of Philosophy

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Fall Quarter 2014	
Fall quarter begins	September 27
Instruction begins	October 2
*Veterans Day	November 11
*Thanksgiving recess	November 27–28
Instruction ends	December 12
Final examinations	December 15–18
Fall quarter ends	December 18
Campus closure	December 24–January 1
Winter Quarter 2015	
Winter quarter begins	January 5
Instruction begins	January 5
*Birthday of Martin Luther King Jr.	January 19
*Presidents' Day	February 16
Instruction ends	March 16
Final examinations	March 17–20
Winter quarter ends	March 20
Spring Quarter 2015	
Spring quarter begins	March 30
Instruction begins	March 30
*Memorial Day holiday	May 25
Instruction ends	June 5
Final examinations	June 8–11
Spring quarter ends	June 11
Commencement	June 12–14

*Academic and Administrative Calendar

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Undergraduate Admission

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Undergraduate admission to the University of California is based on academic achievement, as well as a wide range of personal accomplishments and educational contexts. Minimum admission qualifications are the same for each UC campus, but each campus uses faculty-approved selection criteria when the number of qualified applicants exceeds capacity.

If you are considering applying to UC Santa Cruz, the Office of Admissions wants to help you learn more about the campus and its distinctive educational programs. For more information, see admissions.ucsc.edu.

If you are able to visit the campus, you may wish to take a student-led tour. The Office of Admissions offers tours on weekdays, and reservations are required. Visit our web site at admissions.ucsc.edu/campustours for information and reservations for campus tours, including a link to a virtual tour for those unable to visit the campus in person. Please see admissions.ucsc.edu/transferworkshops for information and reservations for transfer information sessions.

The University of California, Santa Cruz, continues to take positive steps to increase the diversity of the student population, including applicants coming from low socioeconomic backgrounds, students with disabilities, current members of the military, military veterans, and non-traditionally aged students. In addition, the campus welcomes students from throughout the U.S. and the world. The university does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy (pregnancy, childbirth, and medical conditions related to childbirth), disability, age, medical condition (cancer-related), ancestry, marital status, citizenship, sexual orientation, or status as a military veteran or special disabled veteran in admission to or participation in its programs, activities, or services.

Educational Opportunity Programs at UCSC are designed to encourage students from educationally and/or economically disadvantaged backgrounds to prepare for and enter the university. For a description of these programs, see Educational Opportunity Programs.

Admission by Exception. Special consideration may be given to a limited number of applicants who do not meet the minimum UC requirements. Admission by Exception is granted to a very small percentage of those considered for admission. Such factors as academic accomplishments in light of a person's life experiences and/or special circumstances, socioeconomic background, special talents and/or achievements, contributions to the community, and the quality of the applicant's personal statement are taken into consideration when reviewing applicants seeking Admission by Exception.

Graduation rates. The following graduation-rate information is listed in compliance with the 1990 Title I: Federal Right-to-Know Act, Section 103. Fifty-five percent of the students who entered as first-year students in 2009 graduated in four years; 74 percent of those who entered in 2008 graduated in five years; and 72 percent of those who entered in 2007 graduated in six years. In recent years, those who entered as first-year students took an average of 4.2 years to graduate, and students transferring to UCSC as juniors averaged

2.4 years. These graduation rates are well above the national averages.

In accord with the Education Amendments of 1976, Section 493A, more detailed information regarding retention is available on the Institutional Research web site at planning.ucsc.edu/irps/retengrad.asp.

Admission Procedures

The University of California Application for Undergraduate Admission and Scholarships may be accessed beginning August 1 through admissions.ucsc.edu.

In addition to the application, the above site includes a wealth of information for prospective UC students about undergraduate education, admission, financial aid, and various topics of interest.

Application Filing Periods

Applications for the fall quarter must be submitted during the month of November. Applications for winter quarter admission are accepted only as enrollment allows. Check the Office of Admissions in mid-June to see whether UCSC is accepting applications for winter quarter. UCSC does not accept applications for spring quarter admission.

Quarter of Attendance	Application Filing Period
Fall quarter 2015	November 1–30, 2014
Winter quarter 2016	July 1–31, 2015
Fall quarter 2016	November 1–30, 2015
Winter quarter 2017	July 1–31, 2016

Application Fees

The application fee is $70 ($80 for international nonimmigrant applicants) to apply to one campus of the university. For each additional campus you select, you must pay an extra $70 fee ($80 for international nonimmigrant applicants). These fees are subject to change and are not refundable. The online application includes payment instructions.

Fee Waivers

The University of California will waive application fees for up to four campuses for certain students who otherwise would be unable to apply for admission. To qualify for the fee waiver, you must meet specific requirements related to your family income and size. The fee waiver is for U.S. citizens and permanent residents only.

Students who qualify for fee waivers and who select more than four campuses must pay $70 for each additional choice. Methods of obtaining fee waivers are listed below.

An online fee waiver form is available to applicants when they apply. The application automatically determines if you are eligible for the fee waiver as soon as it is complete.

High school students: Use the College Board fee waiver. It is available from your school counselor.

EOPS community college students: If you are enrolled in Extended Opportunity Programs and Services (EOPS) at a California community college, obtain a fee waiver authorization from the EOPS Office.

Admission as a Freshman

The university considers you a freshman applicant if you have graduated from high school and have not enrolled in a regular session at any college or university. If you attend a summer session immediately after graduating from high school, you are still a freshman applicant.

The admission and selection process to UC Santa Cruz reflects the academic rigor and

preparation needed for admission to a major research institution. Meeting the minimum qualifications for the university does not guarantee you admission as a freshman. Students are encouraged to achieve well beyond the minimum qualifications to enhance their chances for selection.

UC Santa Cruz uses a holistic approach in selecting freshmen for admission. Applicants are thoroughly reviewed to determine the full spectrum of their academic and personal achievements, viewed in the context of their academic and personal opportunities. UCSC uses 14 faculty-approved criteria to determine an individualized, single score for each applicant.

Information regarding the admission and selection process for UC Santa Cruz can be accessed at admissions.ucsc.edu. This site provides information on the minimum qualifications for the University of California for both residents and nonresidents of California, including international students (see also Admission of Students from Outside California and Admission of International Students).

High School Preparation for University Work

Carefully planned high school course work provides you with the best preparation for your undergraduate university studies, and allows for advanced preparation for your chosen field of study. Most important, students who master certain basic knowledge and skills in high school substantially increase their chances of success at the university. (Requirements for transfer students are explained in the Admission as a Transfer Student section.)

The basic foundation of UC qualifications is the completion of college preparatory courses required for admission (see "a-g" Subject Requirement below). However, you should take courses beyond the minimum levels in reading, writing, and mathematics in order to be adequately prepared for basic university courses that you may be expected to take freshman year.

A well-prepared student will have mastered the equivalent of four years of English composition and literature with a focus on expository writing; four years of mathematics, including a precalculus course in the senior year; two to three years of a language other than English; two to three years of laboratory science; two or more years of history and social sciences; and one or more years of visual or performing arts.

You should also give careful thought to the general field of study, and perhaps the specific major, you want to pursue at the university. By making this decision in advance, you can plan to take additional courses in high school related to the field.

Subject Requirement

a. History/social science—two years required. Two years of history/social science, including one year of world history, cultures, and geography; and one year of U.S. history or one half year of U.S. history and one half year of civics or American government.

b. English—four years required. Four years of college preparatory English that include frequent and regular writing, and reading of classic and modern literature. No more than one year of ESL-type courses can be used to meet this requirement.

c. Mathematics—three years required, four years recommended. Three years of college preparatory mathematics that include the topics covered in elementary and advanced algebra and two- and three-dimensional geometry. Approved integrated math courses may be used to fulfill part or all of this requirement, as may math courses taken in the seventh and eighth grades that your high school accepts as equivalent to its own math courses.

d. Laboratory science—two years required, three years recommended. Two years of laboratory science providing fundamental knowledge in at least two of these three foundational subjects: biology, chemistry, and physics. Advanced laboratory science courses that have biology, chemistry, or physics as prerequisites and offer substantial additional material may be used to fulfill this requirement. The last two years of an approved three-year integrated science program that provides rigorous coverage of at least two of the three foundational subjects may be used to fulfill this requirement.

e. Language other than English—two years required, three years recommended.Two years

of the same language other than English. Courses should emphasize speaking and understanding, and include instruction in grammar, vocabulary, reading, composition, and culture. American Sign Language and classical languages, such as Latin and Greek, are acceptable. Courses in languages other than English taken in the seventh and eighth grades may be used to fulfill part of this requirement if your high school accepts them as equivalent to its own courses.

f. Visual and performing arts discipline (VPA)—one year required.One year-long course of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art.

g. College preparatory electives—one year required. One year (two semesters), in addition to those required in "a-f" above, chosen from the following areas: visual and performing arts (non-introductory level courses), history, social science, English, advanced mathematics, laboratory science, and a language other than English (a third year in the language used for the "e" requirement or two years of another language).

Reading. University students must be able to read and understand scholarly publications, analyze what they read, and question themselves about an author's intentions, viewpoint, arguments, and conclusions. You should read commentaries and essays as well as textbooks, and a wide variety of other material—including literature, biography, nonfiction, and criticism—in addition to what you are required to read in class.

Writing. You must learn to write clearly and skillfully in English and to think critically and analyze what you learn in class and in your reading, so that you can present your ideas in a clear and persuasive manner.

University students proficient in composition must be able to understand the assigned topic, select and develop a theme by argument and example, use words and sentences that clearly and precisely express what they mean, demonstrate an understanding of the rules of standard English, and punctuate and spell correctly.

Mathematics. A number of fields of study require preparation in mathematics beyond the three years necessary for admission to UCSC. All majors in engineering and the physical, mathematical, and life sciences include courses in calculus, as do programs leading to professional degrees in medicine, dentistry, optometry, and pharmacy. Moreover, many majors in the social sciences, business, and economics require statistics and/or calculus.

The recommended four years of high school mathematics should include basic operations with numerical and algebraic functions; operations with exponents and radicals; linear equations and inequalities; polynomials and polynomial equations; functions and their graphs; trigonometry, logarithms, and exponential functions; and applications and word problems.

Senior-Year (12th-Grade) Program. The senior year should be used to prepare you for your first year at the university and should include honors and advanced courses, as well as courses that will strengthen overall preparation. A challenging, successfully completed senior-year program is a natural bridge between high school and university course work in the intended major. A strong senior program can enhance your chances for admission to UC Santa Cruz.

High School Proficiency Examination

While the University of California expects all freshman applicants to have graduated from high school, in lieu of the regular high school diploma, the university will accept the following:

- Certificate of Proficiency, awarded by the State Board of Education upon successful completion of the California High School Proficiency Examination
- General Educational Development (GED) Certificate
- Proficiency tests from other states and other countries

Transfer Credit

Transfer credit may be granted to a freshman applicant for acceptable college courses taken while still in high school if an official transcript is received from the college where the course work was completed.

Transfer credit is granted for specified College Board Advanced Placement Examinations completed with a score of 3, 4, or 5 and for specified International Baccalaureate Higher Level Exams completed with a score of 5, 6, or 7. A score of 30 or higher on the International Baccalaureate Diploma is also awarded transfer credit.

Transfer credit is granted for specified GCE and Hong Kong A-Level Examinations.

Students should be advised that college courses taken before or after attending UCSC may duplicate AP, IB, and/or A-Level Examinations. Additionally, exams may duplicate each other (for example, an AP or IB exam in the same subject area). If the student does duplicate an exam with another exam of the same subject content, and/or an exam with a college course, UCSC awards credit only once.

Admission as a Transfer Student

The University of California defines a transfer applicant as a student who has been a registered student in a college or university, or in college-level extension classes following high school graduation. Summer session attended immediately following high school graduation is excluded in this determination. If you are a transfer applicant, you cannot disregard your college record and apply for admission as a freshman.

The admission and selection process for transfers to UC Santa Cruz reflects the academic rigor and preparation needed for admission to a major research institution. Meeting the minimum qualifications for the university does not guarantee you admission as a transfer student. It is expected that students will have completed the lower-division courses required by their intended major prior to transfer.

Transfer applicants are thoroughly reviewed to determine their full spectrum of academic and personal achievements, including transfer course work completed for their intended major. UCSC uses faculty-approved criteria to determine which transfer students will be selected for admission. UC Santa Cruz gives the highest priority to junior-level transfer students coming from California community colleges.

Information regarding the admission and selection process for UC Santa Cruz can be accessed at admissions.ucsc.edu. This site provides information on the minimum qualifications for the University of California for students in California, in other states, and outside the U.S.

UC Santa Cruz Transfer Admission Guarantee (TAG) Program

UC Santa Cruz's TAG (Transfer Admission Guarantee) Program is designed for California community college transfer students at the junior level. The benefits of participating in UCSC TAG include early review of academic records, notification that admission to UCSC is guaranteed (subject to the conditions of the program), opportunities for advising about major preparation and general education and/or Intersegmental General Education Transfer Curriculum (IGETC) requirements, informational mailings, and invitations to events. All California community colleges participate in the UC Santa Cruz TAG program.

The UC TAG application must be submitted online between September 1 and September 30, 2014, for fall 2015 consideration. UCSC accepts transfer admission agreements for fall quarter only.

Further information may be found at admissions.ucsc.edu/apply/transfer-students/tag.html.

UC Transfer Admission Planner (TAP)

The UC Transfer Admissions Planner is an online tool designed to help prospective UC students transferring from California community colleges track and plan their course work, including those students who are seeking a Transfer Admission Guarantee (TAG) with one of the seven participating UC campuses.

Further information may be found at uctap.universityofcalifornia.edu/students/index.cfm.

Credit for Courses Taken Elsewhere

The university gives unit credit to transfer students for courses they have completed at other accredited colleges and universities, including courses taken at recognized institutions outside of the U.S. To be accepted for credit, your courses must be comparable to those offered at the university, as determined by the UC Santa Cruz Admissions Office. The UC Santa Cruz department sponsoring your major decides which transfer courses may be used to satisfy major requirements.

A total of 70 semester units (105 quarter units) of lower-division credit toward a university degree may be earned at other colleges/universities. Only subject credit will be granted for courses taken in excess of that cap. Please note that credit from another University of California campus is exempt from this limitation.

Applicants will not be considered for admission if they have completed 90 semester units (135 quarter units) or more of UC-transferable upper-division and lower-division combined credit. If students have earned all of their credits as lower-division credits, they are not affected by this limit. All course work completed at California community colleges is considered lower division. Advanced Placement (AP) or International Baccalaureate Higher Level (IBH) credit is permitted to exceed the 90 semester unit maximum by the number of AP or IBH units granted.

Opportunities to take courses at UC Santa Cruz as a nonmatriculated student are available through Summer Session, Open Campus/Concurrent Enrollment through UC Extension, and Intersegmental Cross-Enrollment.

UC Santa Cruz Transfer Services

The Office of Admissions provides information to all students who wish to transfer to UC Santa Cruz. For prospective transfer students and their families, the Office of Admissions offers Transfer Information Sessions. Transfer Information Sessions are small-group meetings in which an Admissions adviser presents information about transfer admissions matters and transfer-related student services. Please note that pre-evaluations of transcripts are not available as part of the sessions. These sessions are designed for students who have not yet applied to UCSC. Students and their families may make reservations at admissions.ucsc.edu/transferworkshops.

Student-led guided tours take place year-round and also require advance reservations. Please see admissions.ucsc.edu/campustours to make a reservation.

In addition, UCSC Admissions counselors visit many community colleges in California. Check with your counseling department or transfer center to determine whether a UCSC counselor will be visiting your community college.

UCSC Office of Admissions Transfer Preparation Program (TPP)

The UC Santa Cruz Transfer Preparation Program (TPP) supports prospective transfer students from California community colleges and assists them in enrolling at UC Santa Cruz, as well as at other campuses. TPP representatives work most closely with students who are attending one of the 13 community colleges in the region to plan a successful transfer program, but will assist any California community college student who has questions.

The Transfer Preparation Program also collaborates with programs and initiatives that strengthen the transfer process and support individual students in making a successful transition to a four-year institution.

Further information may be found at admissions.ucsc.edu/apply/transfer-students/transfer-preparation-program/index.html.

Admission of U.S. Students from Outside California

UCSC welcomes students from across the U.S. to enhance our vibrant campus community. Out-of-state applicants must meet the same admission qualifications as California students, but with a higher GPA. Detailed information is provided at admissions.ucsc.edu/apply/out-of-state-students/index.html. Information for all nine general campuses of the University of California can be viewed at www.universityofcalifornia.edu/admissions/.

Students who are not California residents are assessed nonresident tuition in addition to educational and registration fees. Residency for fee purposes is determined after admission based on documentation provided in a Statement of Legal Residency: registrar.ucsc.edu/fees/residency.

For more information about undergraduate out-of-state admissions, please see http://admissions.ucsc.edu/apply/out-of-state-students/index.html or e-mail outofstateadmissions@ucsc.edu.

Admission of International Students

The University of California welcomes students from countries throughout the world to enhance our vibrant campus community. The academic credentials of applicants from other countries are evaluated by Admissions specialists in accordance with UC faculty-approved regulations governing admission.

UC Santa Cruz accepts applications from international students for the fall quarter, and students should begin application inquiries a year before the quarter of desired admission. Openings for the winter quarter may be limited. If you are interested in applying for winter, check with the Office of Admissions. For information, write to admissions@ucsc.edu or the Office of Admissions, University of California, Santa Cruz, 1156 High Street, Santa Cruz, CA 95064.

If your native language is not English, you must certify proficiency in English by one of the following methods: earning a score of 80 or higher on the Internet-based Test of English as a Foreign Language (a minimum score of 550 on the paper-based TOEFL), or earning a minimum score of 7.0 on the International English Language Testing System (IELTS) exam, earning a score of 560 or higher on the Writing section of the SAT Assessment test, or completing two transferable English composition courses with grades of B or higher in a U.S. college or university.

A financial certificate and official academic records will be required if you are admitted to the university. Generally, nonimmigrant students must provide documentation that sufficient funds will be available to cover nonresident tuition, educational fees, and living expenses. The university does not offer need-based financial assistance to international students.

For more information about undergraduate international admissions, please see admissions.ucsc.edu/apply/international-students/index.html or send e-mail to internationaladmissions@ucsc.edu.

For information about services for international students, see the International Education Office at ieo.ucsc.edu/intl-students/index.html.

Readmission

If you are an undergraduate who wants to return to UC Santa Cruz after an absence of a portion of a quarter or more, you must file an Application for Readmission. The application form is available online at advising.ucsc.edu/student/read. The completed application should be filed, along with the nonrefundable $70 application fee, with the Office of Admissions during the appropriate period:

Quarter of Attendance	Application Filing Period
Fall quarter	November 1–April 1
Winter quarter	July 1–October 1
Spring quarter	October 1–January 2

If during your absence you attended another UC campus, an official transcript must be submitted to the Office of Admissions before your application will be sent to your college for approval. If you attended another collegiate institution, your UC Santa Cruz college may require a transcript. If you left for health reasons, clearance from the Cowell Student Health

Center is required. You must pay all outstanding bills owed to the university before you will be permitted to register.

Admission to Special Categories

For information on applying for admission in the categories described below, please contact the Office of Admissions at admissions@ucsc.edu.

Second Bachelor's Degree

If your educational goals have changed substantially since receiving your bachelor's degree, you may be eligible to pursue a second undergraduate degree at UCSC. Applications from students interested in pursuing a second baccalaureate program will be considered as campus enrollment allows. Priority is given to applicants who have not yet had the opportunity to complete a bachelor's degree.

You must meet regular university admission qualifications, and your experience or previous scholarship record must show potential for academic success in your proposed area of study. Additional selection criteria will be applied, and admission is subject to approval by the appropriate department.

For a second degree, you must fulfill major and residence requirements, as well as system-wide requirements in American History and Institutions and the Entry Level Writing Requirement. You must enroll for at least three quarters and are usually restricted to six quarters total.

Limited Status

If you have already completed an undergraduate degree and you have a particular reason to take specific undergraduate university classes, you may be eligible to enroll in a nondegree program as a limited-status student. Applications from students interested in limited-status enrollment are permitted as campus enrollment allows. Priority is given to applicants who have not yet had the opportunity to complete a bachelor's degree.

Your proposed program of study must either prepare you for graduate or professional school or satisfy some definite educational need or interest. Participants generally enroll full-time for a specified period that does not exceed three quarters. You must meet regular university admission qualifications, and your experience or previous academic record must show potential for success in your proposed program. Additional selection criteria will be applied, and admission is subject to approval by the appropriate department.

Nondiscrimination and Affirmative Action Policies

The University of California, in accordance with applicable federal and state law and university policy, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy [see note 1], physical or mental disability, medical condition (cancer related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services [see note 2].

The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities. University policy also prohibits retaliation for bringing a complaint of discrimination or participating a complaint process or investigation pursuant to this policy.

Inquiries regarding the University's student-related nondiscrimination policies may be directed to Student Judicial Affairs, (831) 459-1738, or e-mail sja@ucsc.edu.

Inquiries regarding the University's affirmative action, equal employment opportunity, and nondiscrimination policies as they relate to student employment may be directed to the Office for Diversity, Equity, and Inclusion, (831) 459-3676 or e-mail cbene@ucsc.edu.

Inquiries regarding UCSC's Policy on Sexual Assault, the UC Policy on Sexual Harassment and Procedures for Reports of Sexual Assault(s) and Sexual Harassment and/or violations of Title IX may be directed to Title IX Coordinator/Sexual Harassment Officer Tracey Tsugawa, (831) 459- 2462, or e-mail ttsugawa@ucsc.edu.

Student inquiries regarding disability or disability accommodations may be addressed to the

Director, Disability Resource Center, (831) 459-2089; or e-mail drc@ucsc.edu.

Students with disabilities who are unable to resolve accommodation or discrimination concerns may contact the campus ADA Compliance Officer by phone, (831) 459-4380, or e-mail ashish@ucsc.edu.

For additional information about University policies related to nondiscrimination and affirmative action, see the Nondiscrimination Policies section of the catalog.

NOTES:

1 Pregnancy includes pregnancy, childbirth, and medical conditions related to pregnancy or childbirth.

2 Service in the uniformed services includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services.

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2014-15 General Catalog

Expenses

In determining the cost of attending UCSC each quarter, students should consider both required fees and personal expenses. The figures below are provided to help you draw up a realistic personal budget. If you then conclude you will need financial assistance in order to attend UCSC, you should read the Financial Aid section below. Fees and additional financial information for graduate students appear in the Graduate Studies section. Tuition, fees, and other charges are subject to change without notice by the UC Regents. For the most current fee information, check Undergraduate Student Fees.

Required Fees

Required fees are due and payable before the start of each quarter. At the beginning of each quarter, you will need sufficient funds to cover housing, charges, and book costs. For many financial aid recipients who are enrolled at least half time, tuition and fees on the student account are paid automatically with approved student aid funds. If you are a financial aid recipient, please note that checks and direct deposits for scholarships, grants, and loans in excess of university charges are not available to you untilafter enrollment each quarter.

The Student Services Fee funds student services that provide a supportive and enriching learning environment and that are complementary to, but not part of, the instructional program. Programs include, but are not limited to, services related to the physical and psychological health and well-being of students; social and cultural activities and programs; services related to campus life; and educational and career support.

Tuition helps support student financial aid and related programs; administration; libraries; operation and maintenance of facilities; the university's operating budget; and all costs related to instruction, including faculty salaries.

Santa Cruz Campus Fees help support a wide range of student services, including college and campuswide student government, extracurricular programs and recreation facilities, campus child care, community and public service projects, Educational Opportunity Programs and scholarships, and free-fare use of the local transit systems. Campus fees paid by graduate students are provided on the web at Student Fees.

In addition, all students, including international students, are assessed a mandatory Health Insurance Premium. The Cowell Student Health Center provides the primary care services for the plan while a contracted insurance company provides major medical and hospitalization insurance. Dependent coverage is also available. Detailed information is available at the Health Center web site or by contacting the Student Health Insurance Office, (831) 459-2389.

Waivers from the mandatory health insurance premium are available if you can show that your private insurance provides coverage equal to or better than the student health insurance plan. Deadlines for applying for a waiver are listed in the Schedule of Classes.

Some courses charge an additional Course Materials Fee. These fees recover the cost of

materials, supplies, equipment, and support services not covered by the normal instructional budget. The fees are reviewed and approved annually by the Miscellaneous and Course Materials Fee Advisory Committee. The list of specific courses charging fees in 2013–14 is available in the quarterly Schedule of Classes and on the web at Course Fees.

Nonresident Tuition

If you are a resident of a state other than California or of another country, you must also pay nonresident tuition, the nonresident educational fee, and other required fees (university registration and Santa Cruz campus fees). The criteria for residency appear in Appendix A.

Non–U.S. citizens note: Regardless of how long you live in California, only U.S. citizens and holders of immigrant visas may become qualified for resident classification.

Undergraduate Budget, 2014–15

	California Residents		Nonresidents	
Students Living On Campus	One Quarter	F–W–S Quarters	One Quarter	F–W–S Quarters
Required Tuition and Fees				
Student Services Fee (formerly University Registration Fee)	$324.00	$972.00	$324.00	$972.00
Tuition (formerly Educational Fee) (a)	3,740.00	11,220.00	11,366.00	34,098.00
Campus Based Fees	401.62	1,204.86	401.62	1,204.86
USHIP Health Insurance (waivable) (see above)	805.00	2,415.00	805.00	2,415.00
Subtotal	$5,720.62	$15,811.86	$12,896.62	$38,689.86
Estimated Personal Expenses (b)				
Room and board	$4,910.00	$14,730.00	$4,910.00	$14,730.00
Books and supplies	480.00	1,440.00	480.00	1,440.00
Personal Expenses	600.00	1,800.00	600.00	1,800.00
Transportation	191.00	573.00	191.00	573.00
Subtotal	6,181.00	18,543.00	6,181.00	18,543.00
Total Budget	$11,901.62	$34,354.86	$19,077.62	$57,232.86

a) Undergraduates who are unable to maintain a full-time program of study because of employment responsibilities, family obligations, or health problems may be eligible for a 50 percent reduction in tuition. One quarter at $1,870; two quarters at $3,740.

b) Estimated personal expenses for students living off campus total $4,790 per quarter or $14,370 for three quarters. Estimated personal expenses for students living with family total $3,286 per quarter or $9,858 for three quarters.

Late Fees

You may be assessed late fees if you fail to make university payments or enroll by the specified deadlines. For example, late fees are assessed on a graduated basis for each month there is an unpaid balance on your university account. Late fee amounts of $50 each are assessed for a late registration payment and/or late enrollment, $25 for a late housing

payment, and $12.50 for miscellaneous fees. Deadlines are published in The Navigator (the undergraduate campus handbook) and the Schedule of Classes, both of which are online, and they appear on the Statement of Account.

Estimated Personal Expenses

The figures given for estimated personal expenses are for a single undergraduate living on campus. Expenses will be higher for married students, students with children, and graduate students. The information is as current and as realistic as possible; however, expenses for students vary in accordance with lifestyles, priorities, and obligations.

Room and board (in college residences). Rates for room and board in the college residence halls depend on the type of accommodation and meal plan. The current rates may be found on the campus Housing Office website (http://housing.ucsc.edu/). The room and board amount of $14,730 in the Undergraduate Budget table above is the average cost for an on-campus student with the average meal plan and additional flexi dollars.

Personal Expenses. This budget item covers a broad range of expenses including clothing, laundry, personal grooming, recreation, and health maintenance. It also covers minimum expenses for modest travel to visit family.

Rates are paid quarterly. The rate ranges listed above do not cover periods of academic recess, nor does the budget above. Housing charges are normally payable at the beginning of each quarter. However, students may arrange with the Campus Housing Office to pay monthly.

More detailed information on room and board expenses for the individual colleges appears in a brochure distributed as part of the admission process or available from the Campus Housing Office, 104 Hahn Student Services Building, (831) 459-2394.

Fee Refunds

Students who cancel their registration before the first day of instruction in a given quarter are refunded all required fees minus a $10 service charge. New undergraduate students who cancel their registration before the first day of instruction are entitled to a refund of all required fees except the nonrefundable $100 undergraduate Statement of Intent to Register (SIR) Fee (applied toward the Student Services Fee).

Once the quarter has begun, students must petition for withdrawal. The percentage of fees refunded is determined by the effective date of the withdrawal, according to the schedule at the left, in which day 1 is the first day of instruction. A student is not eligible for university services after the effective date of withdrawal.

A student entering the armed forces before the sixth week of the quarter is entitled to a full refund of the Student Services Fee—provided no course credit is received.

More detailed information on withdrawal and refund procedures is included in the quarterly Schedule of Classes and The Navigator, both online at the Registrar's web site, and in the Graduate Student Handbook. Information on refunds of room and board charges is contained in the campus housing contract, provided to all applicants for on-campus housing. For more information on how withdrawing affects your financial aid, refer to the Financial Aid and Scholarship Office web site at financialaid.ucsc.edu.

Schedules of Refunds

All Continuing and Readmitted Students and New Students Not Receiving Federal Financial Aid

Number of calendar days	Percentage of fees refunded*
1st day of instruction	100
2-7	90
8-18	50
19-35	25

36 and over	0

New Students Who Receive Federal Financial Aid and Withdraw during Their First Academic Term

Number of calendar days	Percentage of fees refunded*
1st day of instruction	100
2–7	90
8–14	80
15–21	70
22–28	60
29–35	50
36–42	40
43 and over	0

* For new students, the nonrefundable $100 Undergraduate Statement of Intent to Register Fee is withheld from the University Registration Fee; the schedule of refunds applies to the balance of fees. Percentages listed (days 1–35 or days 1–42) should be applied individually to Nonresident Tuition, the Educational Fee, the University Registration Fee, and Santa Cruz campus fees. The Health Insurance Fee is nonrefundable.

Deferred Payment Plan

The Deferred Payment Plan (DPP) provides an alternative method of budgeting and paying registration fees. Fees not covered by scholarships, loans, or other financial aid, can be paid in monthly installments. Students have a choice of applying for a three-month plan for individual quarterly fees, or, at the beginning of the fall quarter only, for a nine-month plan to be used for the fall, winter, and spring quarters. A nonrefundable application fee of $25 for the three-month plan, or $60 for the nine-month plan, is billed to the student account upon receipt of the DPP application. Any student in good financial and academic standing may apply for DPP. Students receiving financial aid sufficient to cover registration fees in full are not eligible for this plan. For more information about how to apply for DPP, application deadlines, and campus policies regarding the program, contact the Office of Student Business Services, 203 Hahn Student Services Building, (831) 459-2107, e-mail oarinfo@ucsc.edu, or visit sbs.ucsc.edu.

Financial Aid

The university maintains a robust financial aid program of grants, scholarships, loans, and part-time employment for undergraduate students who require financial assistance. The Financial Aid and Scholarship Office administers these resources to help bridge the gap between the cost of education and what parents and students can reasonably contribute.

If you are a dependent student, the contribution expected from you and your parents is determined through an analysis of your family's financial strength, considering such variables as income, number of dependents, living expenses, and savings and investments (excluding your primary residence). Federal, state, and university policies and procedures are applied. The same analysis is used for married and independent students with the exception of parent information. The federal definition of an "independent student" is used to determine your dependency when you complete the Free Application for Federal Student Aid (FAFSA).

The UC Blue and Gold Opportunity Plan is a Financial Aid Initiative that ensures that undergraduate California residents whose families earn a total income less than $80,000,

meet application deadlines, and who demonstrate enough financial need are guaranteed to receive gift aid from all sources to cover UC system-wide tuition and fees. Qualified students must be in their first four years of attendance (first two for transfer students).

No student will receive more scholarship and grant support than the calculated financial need. All sources of scholarship and grant awards (federal, state, institutional, and private sources, including outside agency scholarships) will count toward covering fees and meeting the Blue and Gold Opportunity Plan commitment. The majority of students who meet the income eligibility standard receive much more grant and scholarship funding than the plan covers.

In addition to the minimum funding under the Blue and Gold Opportunity Plan, undergraduates with sufficient financial need will receive additional grant support to help defray other educational expenses (e.g., books, living expenses, and transportation).

Application Deadlines

The Free Application for Federal Student Aid (FAFSA) may be submitted online at http://www.fafsa.ed.gov/ on or after January 1 preceding the academic year you wish to receive aid. Submit the FAFSA each year before the priority deadline of March 2 to be eligible for all types of aid. A "FAFSA on the Web Worksheet" is available at the same web site to help you prepare for completing the FAFSA.

Students admitted for fall quarter will receive an estimated financial aid award in April.

The Financial Aid and Scholarship Office may require additional documentation from applicants. These applicants will be sent an e-mail instructing them to login to MyUCSC and view their "To Do List," where required documents are requested (e.g., copies of student and parent tax returns or other forms). These documents must be received by the deadline on the "To Do List" for a student to be considered for all sources of aid administered by UC Santa Cruz. Cruz. The deadline for 2014-15 is June 2.

Conditional awards for admitted students may change as a result of our review of documentation.

Applicants who submit documents after our deadlines will be considered for aid based on availability.

Students admitted for winter quarter must have submitted a FAFSA by their admission notification date. Items requested on your MyUCSC "To Do List" must be submitted by December 2. Award notifications will be made as soon as possible after you are admitted/readmitted and all requested financial aid documents are received.

Types of Aid

If you apply for financial aid and meet the application deadlines, you are considered for all types of aid described below. Based on your financial need, your financial aid package may include a combination of grants, scholarships, loans, and work opportunities.

Grants

- UC Santa Cruz Grants are awarded to students based on financial need.
- Cal Grant A & B (eligible California residents) are awarded by the California Student Aid Commission to California residents who meet eligibility requirements and who demonstrate financial need and academic achievement. In addition to submitting a FAFSA or Dream Application*, first time applicants must also complete and submit the Cal Grant GPA Verification Form no later than March 2. Cal Grant A and B awards pay Tuition and Student Services Fees at UC and are $12,192 for 2014-15. Cal Grant B Access awards are $1,473.

*Note: The passage of California Dream Acts—AB130 and AB131—extended eligibility for certain types of institutional and state aid to students, including undocumented students, who qualify for benefits under another California law—AB540—which exempts students from paying nonresident supplemental tuition. We refer to our students as "Dreamers" and encourage applying for financial aiid using the CA Dream Application.

- Federal Pell Grants are offered to eligible undergraduate students who demonstrate

significant financial need based on the expected family contribution (EFC). Awards are variable depending upon the EFC; the maximum Pell Grant for 2014–15 is $5,730.

- Federal Supplemental Educational Opportunity Grants are awarded to undergraduate students who demonstrate significant financial need. These grants supplement the UC Santa Cruz Grant program. Students must meet application deadlines to be considered. The maximum award is $3,000.

Scholarships

- UC Santa Cruz Scholarships range from $250 to $10,000 per year. (The average award is about $1,500.) Funding comes from private donors, alumni, and the university. Entering UCSC students are considered for scholarships based on responses to scholarship questions on the UC Application for Undergraduate Admission. Your application essay will serve as your scholarship essay. Selected students are notified throughout the academic year. All continuing students are automatically considered for scholarships based on various factors including cumulative GPA.
- Regents Scholarships are the most prestigious merit scholarships awarded to undergraduates. Freshman Regent Scholars receive a total of $20,000 paid over four years. New junior transfers and continuing students selected in the junior year receive the Regents Scholarship for a total of $10,000 paid over two years. The scholarship amount varies for continuing students based on the year in college and year appointed.
- Other Scholarships: Some campus scholarships are restricted to students from particular geographic areas, family backgrounds, or are limited to students in particular majors, classes, or colleges. The donors have different reasons for giving, and their varied interests are reflected in the wide range of scholarships available. Merit and restricted scholarship awards range up to $5,000.

Need-Based Loans

- Federal Perkins Loans are offered to first-year students. Repayment begins nine months after a student falls below half time enrollment or graduates from the university. During repayment, the interest rate accrues at 5 percent annually.
- Federal Direct Subsidized Student Loans are funded by the federal government and can be borrowed up to the federal limits based on student status (please see Direct Loan Limit Chart below). Students pay an origination fee of up to 1.073 percent in 2014–15, which is deducted from the total accepted amount of the loan. Repayment begins six months after a student falls below half time enrollment. Interest rates for 2013–14 are fixed at 3.86 percent for subsidized loans. Interest rates on new loans are determined by the Department of Education in July.

Non-Need-Based Loans

The following loans are available to both undergraduate and graduate students:

- Federal Direct Unsubsidized Student Loans are funded by the federal government and can be borrowed up to the federal limits based on student status (please see Direct Loan Limit Chart below). Unsubsidized loans are offered to students who do not demonstrate financial need or who have exhausted all need based aid. Interest accrues on unsubsidized loans from the date the loan is disbursed. The 2013–14 interest rate was fixed at 3.86 percent for undergraduate students. The student pays an origination fee of up to 1.073 percent in 2014–15 which is deducted from the total accepted amount of the loan. Students may begin repaying principal and interest on Federal Direct Unsubsidized Student Loans immediately, pay only interest immediately, or defer both principal and interest until they are no longer enrolled in school at least half time.
- Federal Direct Parent Loans for Undergraduate Students (PLUS). Parents of dependent students can apply for a PLUS loan and may borrow up to the full cost of attendance as defined by the UCSC Financial Aid and Scholarships Office. Applicants must pass a modest credit check through the Department of Education for the loan to be approved. The 2014 interest rate is fixed at 6.41 percent. Borrowers pay an origination fee of 4.288 percent that is deducted from the loan amount. Loan repayments begin 60 days after the last disbursement for the academic year (the last disbursement is typically the first day of spring quarter). Parents do have the option to defer payment, similar to the student's ability to defer on their Federal Direct loan above. See your loan servicer for more

information.

Annual and Lifetime Federal Direct Student Loan Limits

	Subsidized Loans	Unsubsidized Loans	Combined Subsidized and Unsubsidized Loans
Dependent Students			
Freshman	$3,500	$2,000	$5,500
Sophomores	$4,500	$2,000	$6,500
Juniors and Seniors	$5,500	$2,000	$7,500
Lifetime Loan Limits	$23,000	$31,000	
Independent Students[1]			
Freshman	$3,500	$6,000	$9,500
Sophomores	$4,500	$6,000	$10,500
Juniors and Seniors	$5,500	$7,000	$12,500
Lifetime Loan Limits	$23,000	$57,000	
Graduate Students	N/A	$20,500	$20,500
Lifetime Loan Limits		$138,500	

Refers to students who answered "yes" to any dependency status question on the FAFSA. These loan limits also apply to dependent undergraduate students whose parents were denied a PLUS loan due to adverse credit history.

Other Loans

The University of California develops and publishes lists of private lenders who offer the most favorable terms for UC borrowers. Lender lists may be found on UCSC's Financial Aid and Scholarships web site under Private Loans.

Federal Work-Study

Federal Work-Study gives students the opportunity to work part-time to earn money to help cover expenses while enrolled at UC Santa Cruz. Students who demonstrate financial need may be offered Work-Study.

Some on-campus and community jobs are posted online at the Career Center web site http://careers.ucsc.edu/. Not all campus jobs are posted with the Career Center. Another way to locate on-campus jobs is through networking. Examples include talking to students, staff, and faculty at your college, in your dorm and dining hall, and in the academic departments. The Career Center can help you with résumé writing and job-search strategies. Jobs are competitive, and this award does not guarantee a position.

Loan Forgiveness Programs

The federal government will forgive all or part of a student loan under certain circumstances. Examples of these include performing volunteer work or military service and practicing medicine in certain communities. For a summary of such exemptions, visit http://www.studentaid.ed.gov/repay-loans/forgiveness-cancellation.

More Information

For more information about applying for financial aid, application, rights and responsibilities, and document deadlines contact the Financial Aid and Scholarship Office at (831) 459-2963 or visit us at 205 Hahn Student Services Building.

Veteran Services

The Veteran Services staff in the Office of the Registrar acts as a liaison between the Department of Veterans Affairs and students who as veterans, veterans' dependents, or reservists receive education benefits. The staff also assists with the California Department of Veterans Affairs' college fee-waiver program for children of veterans who have service-

connected disabilities or who have died from service-related causes. Students who are California residents apply for the college fee-waiver program through their home county Veterans Services Office.

Students who are veterans or veterans' dependents should contact the Veteran Services office at UCSC as soon as they receive notification of admission to UCSC to ensure timely processing of their benefit claims.

Veteran Services staff members are located at 190 Hahn Student Services Building. For more information, visit the Veteran Services web site, call (831) 459-2709, or e-mail vets_benefits@ucsc.edu.

During their transition to the university and while they are enrolled as UCSC students, military veteran students are provided a broad range of academic and support services by the Veterans Education Team Support (VETS) through Services for Transfer and Re-Entry Students (STARS). The Veterans Center is located at Kresge College right inside the entrance, off the main parking lot. Contact the VETS staff at (831) 459-1520, or send an e-mail to vets@ucsc.edu, or visit the STARS web site.

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Planning Your Academic Program

Planning Your Academic Program

At UC Santa Cruz, the academic year is organized on the quarter system. Three quarters—fall, winter, and spring—constitute the regular academic year. Most UCSC courses are equivalent to 5 quarter credits and require approximately equal amounts of work: about 15 hours per week per course. You are normally expected to enroll in 15 credits each quarter; enrolling in a reduced or expanded course load requires special approval. If you maintain a B average at UCSC, you may enroll in more courses without special approval. For specific information on how courses are organized, see programs and courses.

Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

PDF of 2014-15 General Catalog

You are normally expected to graduate in four years. To do so, you must pass an average of 45 credits per year, for a total of 180 credits. In order to complete certain majors with extensive course requirements, junior transfer students may need to spend more than two years at UC Santa Cruz.

The requirements for a bachelor's degree are explained in the following section. Your adviser can help you plan a program that fulfills these requirements efficiently while meeting your own educational goals (see Advising: From Course Selection to Careers).

Here is what you can expect during four years at Santa Cruz:

During your freshman year, you complete your college core course and satisfy the Entry Level Writing Requirement. You also begin to take foundation courses for potential majors, along with courses that satisfy general education requirements.

If you are uncertain about your choice of major, you may intentionally explore different fields of study during your first two years at Santa Cruz by taking foundation courses that will help you both identify whether a major is a good fit for you and will satisfy prerequisites for declaring the major. You are expected to be declared in a major by the end of your second (sophomore) year; transfer students are expected to be declared in a major by the deadline in their second quarter at UCSC. Students interested in majors requiring heavy course prerequisites, such as music and most majors in the physical and biological sciences and engineering, should be certain they start the appropriate sequences in the first year; information is available through your major advising office.

During your junior and senior years at Santa Cruz, you concentrate on the upper-division requirements for your major and complete your comprehensive requirement, as well as complete your general education requirements. If you entered UCSC without having fulfilled the requirement in American history and institutions, you will need to do so before you graduate.

Transfer students should complete any lower-division requirements for their intended major that are offered at their current campus and may also find it helpful to complete courses that fulfill campus general education requirements. The Office of Admissions can help you select appropriate courses, and you should also consult with your community college adviser.

Graduation Requirements

To qualify for a bachelor's degree, you must meet the following conditions, which are explained in more detail in the following sections:

- Earn a minimum of 180 credits, each with a grade of D or better (or Pass)
- Satisfy the university requirements in American history and institutions and in Entry Level Writing (English composition)
- Meet the UCSC residence requirement
- Satisfy each of the campus general education requirements with a course grade of C or better (or Pass)
- Satisfy requirements of your UCSC college
- Complete an approved major program, including its comprehensive requirement, with grades of Pass, C, or better in all courses satisfying major requirements. Some majors require grades higher than C to qualify to declare the major. In some majors, courses graded Pass may not be used to satisfy major requirements.
- Have a grade-point average of at least 2.0 in all letter-graded courses taken at UCSC and other University of California campuses
- Have no more than 25 percent of your UCSC credits graded on a Pass/No Pass basis. This includes any credits completed in the Education Abroad Program or on another UC campus in an intercampus exchange program. Departments may require that some or all courses used to satisfy the major must be taken for a letter grade.

As a UC Santa Cruz student, you are responsible for selecting the courses necessary to fulfill graduation requirements and prepare for advanced study or a career. It is essential that you consult regularly with academic advisers about course selection.

Keep your own records, including not only records of your UCSC courses, grades, and progress, but also your transcripts from other institutions, admission test scores, transfer credit information, and performance evaluations.

Transfer students may be able to use some of the courses they completed at other schools to help meet the 180-credit requirement. (Semester-

system credits can be multiplied by 1.5 to derive equivalent quarter-system credit.) The UCSC Office of Admissions determines which courses are transferable.

University Requirements

The Santa Cruz campus administers three requirements for graduation from the University of California: (1) American history and institutions, (2) Entry level writing requirement, and (3) UCSC residence. These requirements are described in detail below.

American History and Institutions

Every candidate for a bachelor's degree must demonstrate knowledge of American history and institutions. You may fulfill this requirement in one of the following ways:*

- By achieving a score of 550 or higher on the SAT Subject Examination in U.S. History
- By achieving a score of 3, 4, or 5 on the College Board Advanced Placement Examination in U.S. History, or by achieving a score of 5, 6, or 7 on the IBH History of the Americas Examination
- By satisfactorily completing a college-level course in U.S. history and institutions
- By certification of completion of the requirement on a transcript from an accredited California institution of higher education
- By completing an acceptable history or government course in high school that satisfies the subject requirement for admission to the university, described in Subject Requirements.

*Note: Alternatives for satisfying this requirement vary among the campuses of the University of California. If you plan to transfer to another UC campus, consult its general catalog for information on this point.

Entry Level Writing Requirement

Every candidate for a bachelor's degree must demonstrate an acceptable level of ability in English composition. Before your fourth quarter of enrollment, you must fulfill this requirement in one of the following ways:

1. Score 680 or higher on the Writing section of the SAT Reasoning test.
2. Score 30 or higher on the ACT Combined English/Writing test .

3. Score 3 or higher on the College Board Advanced Placement Examination in English (Language or Literature).
4. Score 5 or higher on the International Baccalaureate Higher Level Examination in English: Literature (formerly IB HL English A1).
5. Score 6 or higher on the International Baccalaureate Standard Level Examination in English (Language A).
6. Complete with a grade of C or better an acceptable college course in English composition worth 4 quarter or 3 semester units.
7. Achieve a passing score on the UC Analytical Writing Placement Examination, given in the spring every year (freshmen who are admitted to UC will receive detailed information in April about the exam; nonresidents may take the exam in the fall after enrolling).
8. Complete an appropriate English course at UC with a grade of C or better.

California high school seniors who have been admitted to UCSC must take the systemwide UC Analytical Writing Placement Examination, given in May, unless they have already satisfied the requirement.

Residence

Every candidate for a bachelor's degree must be registered at UCSC for a minimum of three terms. In addition, of the final 45 quarter credits, 35 must be in regular courses of instruction that you have taken as a registered student at UCSC (including during the summer session). Courses taken through University Extension or the Intercampus Visitor Program do not constitute regular courses and therefore do not satisfy residence requirements.

The credit requirement for residence is applied differently to students participating in the Education Abroad Program (EAP) and the University of California in Washington, D.C. (UCDC), program. Students may satisfy the requirement in either of two ways. The first way is for students to complete 35 of their final 45 credits before leaving the Santa Cruz campus to participate in EAP or UCDC. In this scenario, students do not have to return to Santa Cruz for any additional course work after they have finished EAP or UCDC. The second way to fulfill the residence requirement is for students to complete 35 of their last 90 credits at the Santa Cruz campus, with a minimum of 12 credits completed at UCSC

after their return from EAP or UCDC.

General Education Requirements

The general education requirements are designed to introduce you to various kinds of information, reasons for learning, and approaches to acquiring knowledge, as well as to promote responsible use of what is learned. Obviously, general education requirements alone cannot achieve these ends. You are urged to look for as many opportunities as possible to gain a richer understanding of your own cultural heritage and social situation; insight into countries, societies, and eras besides your own; proficiency in another language; understanding of the nature of ethical and moral choice; and expanded knowledge of science and technology. The formal requirements described here should be considered foundations for exploration.

New General Education Requirements for Students Entering Beginning Fall 2010

Complete list of Courses That Fulfill General Education Requirements

Beginning in fall 2010, all new students are required to fulfill a new set of guidelines for general education requirements that were approved by the UCSC Academic Senate in 2009. Students who began prior to fall 2010 and transfer students who entered another collegiate insitution prior to that time may opt to change to the new requirements or fulfill the previous general education requirements, if catalog rights allow. See Catalog Rights for more information. Contact your college adviser if you have questions.

The general education requirements are meant to accomplish several goals:

- Provide students with a base of knowledge and skills that future learning can build on.
- Expose students to a broad range of disciplines and methodologies, to better prepare them for a world of complex problems and rapid changes.
- Enhance the abilities of students to approach problems in appropriately analytical ways.

Prepare students to function as responsible and informed participants in civic life, considering pressing societal issues (such as the environment, the economy) productively and from a variety of perspectives.

Each area has a general education code associated with it, and only those courses carrying that code satisfy the requirement. The codes appear in the course descriptions in this catalog and in the "General Education" field on the MyUCSC Class Search page. See a list of courses that fulfill General Education requirements. The list is subject to change. Students should check the Schedule of Classes each quarter for the most up-to-date information. Students following the new general education requirements should review the requirements for their proposed or declared major(s) to ascertain whether some of their general education requirements will be fulfilled by completing their major. As a general rule, each course satisfies only one of the new general education requirements.

General Education Requirements Beginning in Fall 2010

Category	General Education Code	Number of Required Credits
Cross-Cultural Analysis	**CC**	5
Ethnicity and Race	**ER**	5
Interpreting Arts and Media	**IM**	5
Mathematical and Formal Reasoning	**MF**	5
Scientific Inquiry	**SI**	5
Statistical Reasoning	**SR**	5

Textual Analysis	**TA**	5
Perspectives (choose one from the following three categories) Environmental Awareness Human Behavior Technology and Society	PE-E PE-H PE-T	5
Practice (choose one from the following three categories) Collaborative Endeavor Creative Process Service Learning	 **PR-E** **PR-C** **PR-S**	2
Composition	**C1 & C2**	10
Disciplinary Communication	**DC**	5*

*Students satisfy the DisciplinaryCommunication (DC) requirement by completing one to three upper-division courses required for their major, totaling a minimum of five credits and must be taken at UCSC. The DC requirement must be completed at UCSC—transfer courses do not apply to this requirement.

Cross-Cultural Analysis (CC code: one 5-credit course or equivalent). Courses in cross-cultural analysis prepare students for a world with increased interaction and integration among peoples, companies, and governments. These courses encourage a broader and deeper understanding of cultures and societies outside the United States. Such courses might focus on an in-depth examination of one culture, or one aspect of such culture (for example, art, music, history, language). Alternatively, these courses help students develop skills of cross-cultural comparison and analysis. A third option comprises courses that explore topics that are inherently cross-cultural such as international relations or the processes of economic globalization. Whatever the approach, these courses all aim to help students develop the openness and sensitivity

necessary for cross-cultural understanding.

Ethnicity and Race (ER code: one 5-credit course or equivalent). Courses in Ethnicity and race prepare students for a state and a world that are increasingly multiethnic and multiracial. Beyond familiarizing students with the culture and/or history of one or more ethnic or racial groups, these courses also aim to develop theoretical and practical understanding of questions such as (but not limited to): how categories of ethnicity and race are constructed; the role they can play in identity formation; how ethnicity and race have historically been used to justify forms of enforced inequality; and the contributions of people of various ethnicities to society and to political change. These courses are particularly concerned with how ethnicity and race may intersect with other categories, such as gender, class, or sexual orientation, to shape self-understanding and patterns of human interaction.

Interpreting Arts and Media (IM code: one 5-credit course or equivalent). Interpreting Arts and Media courses explore the complex ways in which information of all kinds is represented by visual, auditory, or kinesthetic means, or through performance. These courses build in-depth understanding of one or more forms of artistic media: that is, media in which nontextual materials play primary roles. They offer skills in the practice, analysis, interpretation and/or history of one or more of these media, as well as the ability to analyze the means by which they encode and convey information.

Mathematical and Formal Reasoning (MF code: one 5-credit course or equivalent). In a world in which much thinking and discourse is directed by emotion and association, formal or mathematical models teach the value of dispassionate analysis. Mathematical and formal-reasoning courses emphasize the development of mathematical, logical, and/or formal reasoning skills. Mathematics-based courses that satisfy this requirement are focused on teaching significant problem-solving skills, and are often oriented toward particular application areas. Other courses that satisfy this requirement train students in formal reasoning skills and/or in the construction and use of formal models. Formal reasoning domains include mathematical proof, logic, and applied logic. Some examples of formal models are: computer programming languages, generative grammars (from linguistics), supply and demand models, and formal music theory.

Scientific Inquiry (SI code: one 5-credit course or equivalent).

Courses in Scientific Inquiry teach students about the essential role of observation, hypothesis, experimentation and measurement in the physical, social, life, or technological sciences. In these courses, students acquire key concepts, facts, and theories relevant to the scientific method. By the end of the course students should be able to articulate an understanding of the value of scientific thinking in relation to issues of societal importance.

Statistical Reasoning (SR code: one 5-credit course or equivalent). In today's globalized, media-saturated information society, we are continually presented with—or asked to present—numerical data. Statistical-reasoning courses prepare students to interpret quantitative claims and make judgments in situations of statistical uncertainty. The goal of statistical-reasoning courses is to teach skills for effective reasoning about probability and the use of quantitative information. Students acquire an understanding of making informed decisions in the presence of uncertainty. Topics addressed in statistical-reasoning courses include ways of (mis)representing data; correlation vs. causation; statistical inferences; experimental design and data analysis; understanding orders of magnitude.

Textual Analysis and Interpretation (TA code: one 5-credit course or equivalent). Even in our current multimedia world, the written word remains a major vehicle of communication. Many fields, from literature and history to law, government, science and religion, depend heavily on the understanding and interpretation of written documents. Textual analysis and interpretation courses have as their primary methodology the interpretation or analysis of texts. The aim of these courses is to develop higher-order reading skills and to train students how to read attentively, to think critically and analytically, to produce and evaluate interpretations, to assess evidence, and to deploy it effectively in their own work. These abilities are not only necessary for academic success, but also for full participation in civic life at every level.

Perspectives (one 5-credit course or equivalent from any of the three following categories):

Perspectives: Environmental Awareness (PE-E code). The interactions between people and the earth's environments are subtle, complex, and influenced by a variety of natural, scientific, economic, cultural, and political factors. Courses satisfying the environmental-awareness

requirement teach students about the complexity of particular ecosystems and/or people's interactions with nature so that they will better understand the environmental issues and trade-offsthat are likely to arise in their lifetimes.

Perspectives: Human Behavior (PE-H code). Courses in human behavior help students to prepare for a world in whichmany of the most pressing challenges (such as genocide, environmental degradation, poverty) are impacted by human thoughts, decisions, or practices. As well, they provide a kind of "owner's manual" for studentsto assist them in understanding themselves, their roles (for example, parent, partner, leader), and their social groups (family, workplace, neighborhood, nation).

Perspectives: Technology and Society (PE-T code). The study of technology helps satisfy the need of society for knowledgeable people able to understand, participate, and guide the rapid technological advances that play such a vital role in our world. Technology and society courses focus on understanding technological advances, how they are developed, and their impacts on society.

Practice (one minimum 2-credit course from any of the three following categories):

Practice: Collaborative Endeavor (PR-E code). Students learn and practice strategies and techniques for working effectively in pairs or larger groups to produce a finished product. Forexample, students might learn specialized practical information such ashow to use change-management software to monitor and manage changes initiated by multiple group members. Alternatively, they might learn basic information about leadership, teamwork, and group functioning, which they can incorporate into their own group process. What is common to all courses is that some instruction regarding the process of collaboration is provided, in addition to instruction specific to the academic discipline and the products being produced.

Practice: Creative Process (PR-C code). Creative-process courses teach creative process and techniques in a context of individual or collaborative participation in the arts, including creative writing. Courses may combine theory and experiment inthe creation of a new artwork, or new interpretation(s) of an existing artwork. Creative-process courses include studies in individual or groupcreativity or improvisation, and/or ensemble rehearsal and performance.

Practice: Service Learning (PR-S code). Service-learning courses provide students with an opportunity to integrate their academic course work with community involvement. Such courses provide supervised learning experiences in which students reflect on, communicate, and integrate principles and theories from the classroom in real-world settings. Students gain valuable practical skills, while giving back to the community.

Composition (C1 and C2 codes) (Two 5-credit courses or equivalent): C1 and C2 typically are fulfilled by your college core course and Writing 2, Rhetoric and Inquiry. Students must complete the Entry Level Writing Requirement to satisfy the composition requirements.

Disciplinary Communication (DC) requirement. The goal of this requirement is to ensure that students acquire the skills in writing and other forms of communication appropriate for theirdiscipline. Students satisfy the DC requirement by completing 1 to 3 upper-division courses required for their major, totaling a minimum of 5credits. The DC requirement must be taken at UCSC and is automatically fulfilled by the completion of major requirements.

Pre 2010 General Education Requirements

Category	General Education Code	Number of Required Credits
Introductions to disciplines-humanities and arts area* (from two different disciplines)	IH	10
Introductions to disciplines-natural sciences and engineering area* (from two different disciplines)	IN	10
Introductions to disciplines-social sciences area (from two different disciplines)	IS	10
Topical courses (one course from each of the three academic areas;appropriately designated college courses	T	15

fulfill this requirement)		
Quantitative course	Q	5
Composition course	C or C1/C2	5–10
Writing-intensive course**	W	5
Arts course	A	5
U.S. Ethnic minorities/non-Western society course	E	5

*For purposes of the general education requirements, humanities and arts are combined in one academic area, as are natural sciences and engineering.

**The W requirement must be completed at UCSC—transfer courses do not apply to this requirement.

General Education Requirements for Students Entering Prior to Fall 2010

Designed to expose students to diverse subject areas, the general education requirements also stress a variety of approaches to acquiring knowledge. A description of the general education requirements and a complete list of current courses that satisfy general education requirements under the pre-2010 general education reform are included.

There are nine categories of general education requirements (see table above, Types of General Education Requirements). Each category has a general education code associated with it, and only those courses carrying that code satisfy the requirement. The codes appear in the course descriptions in this catalog and in the Schedule of Classes. A list of Courses That Fulfill General Education Requirements is included in the catalog. The list is subject to change and is updated quarterly. Students should check the Schedule of Classes each quarter for the most up-to-date listing of courses that fulfill general education requirements.

Some courses satisfy more than one general education requirement, so

the total number of required courses may be 10 to 15.

Introductions to disciplines (IH, IN, and IS codes). These courses introduce a discipline's content, scope, and methodology. Introductory courses from two different departments are required in each of three academic areas: humanities and arts (IH code), natural sciences and engineering (IN code), and social sciences (IS code). Only one language course may be used to satisfy an IH requirement, as all languages are considered to be part of the same discipline. Similarly, only one literature course may be used, and English (transfer) courses are considered to be literature. Only one of the two IH courses may be from the arts (art, film and digital media, history of art and visual culture, music, and theater arts). Transfer courses designated IN from Anatomy, Botany, Physiology, and Zoology Departments are considered to be "biology" courses for general education purposes.

Topical courses (T code). These courses expose students to introductory-level themes of broad social or intellectual relevance. Three courses are required, no more than one from each academic area. For information on which disciplines are in each area, see Arts; Engineering; Humanities; Physical and Biological Sciences; and Social Sciences. College core courses are labeled topical and carry the designation of the appropriate academic area.

Quantitative course (Q code). These courses provide methods for acquiring quantitative reasoning that involve use of advanced algebra, statistics, or calculus. One course is required.

Writing courses (C1, C2, and W codes). These courses stress explicit attention to the craft of writing. Having satisfied the Entry Level Writing Requirement by the end of your first year of enrollment at UCSC, you must complete two to three courses in writing. One of these must be a writing-intensive course (W code) that provides instruction and extensive practice in writing applied to a particular subject. For some courses, only certain sections are writing intensive (look for the "W" in the Schedule of Classes when enrolling). You must take this course at UCSC.

Students satisfy the other part of the writing requirement by passing two composition courses (C1 and C2 codes). You must fulfill the composition requirement prior to the seventh quarter of enrollment and before you can enroll in a writing-intensive course.

Arts course (A code). These courses provide the exposure to creative or

artistic expression necessary for a liberal arts education. One designated arts course is required; most are offered through art, film and digital media, history of art and visual culture, music, and theater arts.

Ethnic minorities/non-Western society course (E code). These courses are intended to increase knowledge of ethnic minorities in the United States and non-Western cultures, improve cross-cultural awareness, and explore relationships between ethnicity and other aspects of a liberal arts curriculum. One course is required.

Courses of fewer than 5 credits. Students usually meet the general education requirements with 5-credit courses. Several related arts courses of fewer than 5 credits with the same code may be used to satisfy the arts (A) general education requirement if they total at least 5 credits.

Advanced Placement and International Baccalaureate Examinations

Advanced Placement Exams (AP) and International Baccalaureate Higher Level Exams (IBH) Table

The university grants credit for College Board Advanced Placement (AP) Examinations on which a student scores 3, 4, or 5 and for International Baccalaureate Higher Level (IBH) Examinations on which a student scores 5, 6, or 7. The university does not grant credit for IB standard or subsidiary level exams. Students completing the International Baccalaureate Diploma with a score of 30 or higher receive 30 quarter credits. The credit is applied toward the total credits required for graduation and toward the UCSC campuswide general education requirements, as indicated in the table on pages 29–30, Advanced Placement (AP)/International Baccalaureate Higher Level (IBH) Examinations. Students should be aware that AP, IB, and college-level courses will not be granted duplicate credit. In these cases, the university will award credit for only one.

AP and IBH Examination Credit Toward Degree Requirements

Certain departments also allow prospective majors to obtain waivers for prerequisite courses. In all cases, a student should contact the particular department to discuss his or her plans with an adviser. Please note that approval is not automatic; a petition must be filed with most departments.

Credit for Transfer Students

General Education Requirements

Transfer students may apply courses taken at other institutions toward the lower-division general education requirements. The disciplinary communication course(s) (DC code) must be taken at UCSC.

If you are currently attending one of the California community colleges, see the ASSIST web site at www.assist.org, or consult with the UCSC Office of Admissions or your current counselor to determine which college courses satisfy UCSC general education requirements.

Transfer students who have satisfied the general education or breadth requirements of another UC campus prior to transfer will be considered to have completed the UCSC general education requirements, with the exception of the DC requirement. Completion of the Intersegmental General Education Transfer Curriculum (IGETC) prior to enrollment at UCSC will also be accepted in lieu of the campus general education requirements, with the exception of the DC requirement.

Intersegmental General Education Transfer Curriculum (IGETC)

The Intersegmental General Education Transfer Curriculum (IGETC) is a series of courses that prospective California community college transfer students may complete to satisfy the lower-division breadth/general education requirements at any University of California or California State University (CSU) campus (see the IGETC table below). This curriculum is the result of an agreement by the University of California, the California State University, and the California community colleges, aimed at simplifying the transfer process for community college students. The IGETC is intended exclusively for California community college transfers and is not an option for continuing UCSC students or for students transferring from four-year colleges or universities.

Students who complete the IGETC prior to transfer are not required to satisfy the UCSC lower-division general education requirements. For students who are partially certified, please consult the Office of Admissions. Courses used to satisfy IGETC must be completed with a grade of C (2.0) or better. A grade of Credit or Pass may be used if the community college's policy states that it is equivalent to a grade of C (2.0) or better.

IGETC is not recommended for majors that require extensive course

preparation, such as any major in the Jack Baskin School of Engineering or the Division of Physical and Biological Sciences.

IGETC Subject and Unit/Credit Requirements

Subject Area	Courses Required	Units/Credits Required
1. English Communication One course in English composition and one course in critical thinking/English composition. (Students transferring to CSU must take an additional course in oral communication.)	2 courses	6 semester units or 8-10 quarter credits
2. **Mathematical Concepts and Quantitative Reasoning**	1 course	3 semester units or 4-5 quarter credits
3. Arts and Humanities Three courses with at least one	3 courses	9 semester units or 12-15 quarter

from the arts and one from the humanities.		credits
4. Social and Behavioral Sciences Three courses from at least two disciplines or an interdisciplinary sequence.	3 courses	9 semester units or 12-15 quarter credits
5. Physical and Biological Sciences One physical science course and one biological science course, at least one of which includes a laboratory.	2 courses	7-9 semester units or 9-12 quarter credits
6. Language Other Than English Proficiency equivalent to two years of high school in the	Proficiency	Proficiency

same language. (Not required of students transferring to CSU.)		
Total	11 courses	34 semester units or 45-57 quarter credits

Major Requirements and Course Prerequisites

Students who believe they have taken courses at other institutions that satisfy major requirements or UCSC course prerequisites should contact their major adviser for review.

College Requirements

You must fulfill the requirements of your college in addition to those of your major and of the university. Each college has established a core course, which all first-year students are required to complete. Students admitted as transfer students are exempt from the core course requirement but may take the course at their option on a space-available basis. College requirements are outlined below. The core courses are described more fully in the individual college descriptions.

College Eight

- College Eight 80A, Introduction to University Discourse: Environment and Society, fall quarter, or College Eight 80B, Rhetoric and Inquiry: Environment and Society, fall quarter or College Eight 80C and 80D, Introduction to University Discourse: Writing for Environment and Society, fall and winter quarters; and College Eight 81A, The Environment and Us, fall quarter.

- College Eight 81A, The Environment and Us, fall quarter.
- College Eight 81B, Fundamentals of Environmental Science, winter quarter.
- College Eight 81C, Designing a Sustainable Future, spring quarter

Note: College Eight 81A, and 80A, or 80B, or 80C and 80D are mandatory for all incoming freshmen. College Eight 81B and 81C also satisfy many of UCSC's general education requirements.

College Nine

- College Nine 80A, Introduction to University Discourse: International and Global Issues, fall quarter, or College Nine 80B, Rhetoric and Inquiry: International and Global Issues, fall quarter; or College Nine 80C and 80D, Introduction to University Discourse: International and Global Issues Writing Intensive, fall and winter quarters

College Ten

- College Ten 80A, Introduction to University Discourse: Social Justice and Community, fall quarter, or College Ten 80B, Rhetoric and Inquiry: Social Justice and Community, fall quarter, or College Ten 80C and 80D, Introduction to University Discourse: Social Justice and Community, Writing Intensive

Cowell

- Cowell 80A, Introduction to University Discourse: Imagining Justice Past and Present, fall quarter, or Cowell 80B, Rhetoric and Inquiry: Imagining Justice Past and Present, fall quarter

Crown

- Crown 79, Introduction to Ethical Foundations
- Crown 80A, Introduction to University Discourse: Ethical Issues in Emerging Technologies, or Crown 80B, Rhetoric and Inquiry: Ethical Issues in Emerging Technologies

Kresge

- Kresge 80A, Introduction to University Discourse: Power and Representation, fall quarter, or Kresge 80B, Rhetoric and Inquiry: Power and Representation, fall quarter, or Kresge 80C and 80D, Introduction to University Discourse: Power and Representation

Writing Intensive, fall and winter quarters

Merrill

- Merrill 80A, Introduction to University Discourse: Cultural Identities and Global Consciousness, fall quarter, or Merrill 80B, Rhetoric and Inquiry: Cultural Identities and Global Consciousness, fall quarter

Oakes

- Oakes 80A, Introduction to University Discourse: Communicating Diversity for a Just Society, fall quarter, or Oakes 80B, Communicating Diversity for a Just Society,fall quarter, or Oakes 80C and 80D, Introduction to University Discourse: Commmunicating Diversity for a Just Society Writing Intensive, fall and winter quarters

Porter

- Porter 80A, Introduction to University Discourse: Writing Across the Arts, fall quarter, or Porter 80B, Rhetoric and Inquiry: Writing Across the Arts, fall quarter

Stevenson

- Stevenson 80A, Introduction to University Discourse: Self and Society, fall quarter, or Stevenson 80B, Rhetoric and Inquiry: Self and Society, fall quarter
- Stevenson 81A, Self and Society 2, winter quarter, or Stevenson 81B, Rhetoric and Inquiry: Self and Society 2, winter quarter

Major and Minor Requirements

To qualify for a bachelor's degree at UCSC, you must complete the minimum requirements for a major program, as well as satisfy university, campus, and college requirements.

At UCSC, you have the option of pursuing a single major, a double major, or a combined major. The minimum requirements for an established major program are set by the sponsoring department. (If you are a transfer student, the department will determine which of your transferable courses may be used to satisfy major requirements.) The major involves substantial work in the discipline and requires no fewer than 40 upper-division or graduate credits. Only courses in which you earn a grade of Pass, C, or better satisfy major or minor requirements.

Declaring a Major

The field of interest you indicate on your application to UCSC does not automatically place you in a major. You are advised to declare your major as soon as possible. You are required to declare a major before enrolling in the equivalent of your third year.* You will not be allowed to enroll in classes for the equivalent of your third year until you have declared a major. Certain majors have a limit on the number of students they can serve. Be sure you are aware of all the necessary criteria for qualifying for the major. It is wise to apply for major status as soon as you feel sure of the field you wish to enter and have met qualification requirements (if any) for the major you wish to pursue. Junior transfer students must declare a major during their second quarter at UCSC by the deadline printed in the Academic and Administrative Calendar in the Schedule of Classes.

You should determine the requirements for possible major choices as soon as possible because certain majors require substantial preparation, with many interlocking course sequences and qualifying GPAs in certain major foundation courses. If you intend to pursue such a major, you should start work toward it early in your undergraduate career, and review your progress toward qualification regularly. (Review majors that interest you in the Programs and Courses section.) Academic advisers can offer assistance in selecting courses appropriate to your individual needs.

***Note:** This is the year you would become a junior given normal progress to degree. For example, if you transfer to UCSC as a beginning sophomore, it is your second year here.

Comprehensive Requirement

Every major at UCSC includes a senior exit requirement designed to integrate the knowledge and skills learned throughout the curriculum. This capstone requirement may be a senior thesis, senior seminar, comprehensive examination, or some other integrative experience designed for the major. Choices for satisfying this requirement are specified with the requirements for each major.

Minor Programs

See Fields of Study for undergraduate minors currently offered at UC Santa Cruz. Completion of a minor is optional. If you wish, you may complete more than one minor.

The sponsoring department establishes the course requirements for a

minor. The minor involves substantial work in the discipline and requires no fewer than 25 upper-division or graduate credits. The minor appears on your official transcript but not on your diploma.

Additional Majors or Minors

To complete multiple majors and minors, you must fulfill all of the requirements for all majors and minors declared, including the comprehensive requirement for each major. In general, a single thesis may not be used for more than one major. You may count courses for more than one major or minor, as long as each major includes 40 upper-division credits not used to satisfy the minimum upper-division credits of any other major or minor, and each minor includes at least 25 upper-division credits not used to satisfy the minimum upper-division credits of any other major or minor.

The diploma of a student who has completed a double major in history and music, for example, would read “Bachelor of Arts with Majors in History and Music.”

Combined Major

A combined major allows you to complete a course of study involving two disciplines offered as regular programs at UC Santa Cruz.

Examples of combined majors include environmental studies/economics and Latin American and Latino studies/politics. A combined major is designed by faculty representatives from both disciplines. In general, fewer courses are required than for a double major, and students complete the comprehensive requirements as specified for each combined major. Combined majors currently available are listed in the footnotes in the Fields of Study.

The diploma of a student who has completed a combined major in environmental studies and economics, for example, would read “Bachelor of Arts with a Major in Environmental Studies/Economics.”

Individual Major

Students may also work with three faculty members to define an individual major specific to his or her academic goals. Proposals for individual majors require considerable effort to develop, and students are advised to consider double major, combined major, and major/minor alternatives. College advising offices can provide information on the individual major proposal and approval process.

Catalog Rights

Effective for all undergraduates who entered in fall quarter 1993 or after, students may follow the degree requirements from either the UCSC General Catalog published at the time of entering UCSC or subsequent catalog(s). Students need not follow a catalog in its entirety but may elect to follow different catalog years for their college requirements, university and general education requirements, requirements of their major(s), and requirements of any minor(s).

Catalog year will initially be set for the first year of enrollment at UCSC. Students may elect to follow requirements from other catalog year(s) when filing the Petition for Major/Minor Declaration. All requirements for graduation outlined in the catalog(s) selected must be met before graduation. Changing catalog year(s) for majors/minors is done by contacting your major adviser (for major requirements) or your college adviser (for college, university, and general education requirements).

Students transferring from other collegiate institutions may elect to meet as graduation requirements one of the following:

- those in effect at the time of transfer to UCSC;
- those subsequently established; or
- those in effect when the student entered a previous collegiate institution, provided that entry was not more than three years prior to the time of transfer to UCSC.

Students who seek readmission to UCSC after a break in attendance greater than two years (six regular quarters) must adhere to the graduation requirements in effect at the time of readmission or those subsequently established.

Students who entered prior to 1993 should see an adviser. Their catalog year(s) for graduation, whether the year they entered UCSC or subsequent year(s), will be decided at the discretion of their major department and/or their college.

Institutional Responsibility

Undergraduate students who have made significant progress toward a degree in a specific major can assume that a degree will be granted if they meet all catalog degree requirements and maintain continuous enrollment and progress.

Should UCSC find it necessary to discontinue a specific major, every effort will be made to allow currently enrolled majors to complete their degrees within a reasonable period of time. This may include (1) movement to a similar or related degree track; (2) substitution of requirements; (3) development of an individual major proposal; or (4) completion of courses at another University of California campus through the Intercampus Visitor Program. Students with questions concerning this policy should contact their major and college advising offices.

In all cases, any financial obligations are the responsibility of the individual student involved.

Evaluating Academic Performance

UC Santa Cruz has one of the more comprehensive systems for evaluating students' academic performance of any research university in the United States. The evaluation system consists of two major components: the assignment of a final grade in the course and an accompanying evaluation of your performance.

Evaluations

Beginning fall 2010, undergraduate evaluations are at the option of the faculty. In each course for which you receive a grade of D or better (or P) an evaluation of your academic performance may be submitted. An evaluation may:

- Describe the strengths and weaknesses of your performance in the various areas of class activity (discussion, laboratory work, term papers, examinations)
- Assess your general understanding of the course content
- Recognize additional or particularly outstanding work

Evaluations are used at UCSC in academic advising, reviewing scholarship applications, and awarding College Honors and Honors in the major. Evaluations are a permanent part of your academic record. All students may request transcripts either with or without evaluations.

Grades

At the end of each course, you will receive one of the following grade notations:

A excellent

B good

C fair

D poor

F fail

P passing

NP not passing

I incomplete

IP in progress

W withdrawal

The grades of A and B may be modified by a plus (+) or a minus (-). The grade of C may be modified by a plus only. You will not receive credit for graduation in any course in which you receive a final grade of F or NP. The grades I and IP are temporary grades used in special circumstances. The final notation W indicates that you officially withdrew from the course before completing it.

Grade Points

Grade points are assigned to a letter grade as follows:

4.0 = A+

4.0 = A

3.7 = A-

3.3 = B+

3.0 = B

2.7 = B-

2.3 = C+

2.0 = C

1.0 = D

0.0 = F

The grades P and NP are not included in calculating your GPA and so are not assigned grade points. Courses in which the interim grades I and IP are assigned earn no grade points or credit until the interim grade is replaced by a final letter grade.

Grade-Point Average (GPA)

Undergraduates entering UCSC in fall 2001 and thereafter have a UCSC cumulative grade-point average calculated from UCSC courses, courses taken through the Education Abroad Program, and courses taken at another UC campus as part of the Intercampus Visitor Program.

A grade-point average is determined by dividing the number of grade points earned by the number of units attempted for a letter grade. In calculating your UCSC GPA, the interim grades IP and I are not included in the computation because you do not earn those credits until they are replaced with a final grade. (However, when checking for whether you have satisfied the 2.0 UC GPA requirement for graduation, these interim grades are included and counted as courses with grade F [or NP]).

If you repeat a course in which you have received a D or F, only the last grade recorded shall be computed in your GPA for the first 15 credits of repeated work. After the 15 credit maximum is reached, the GPA will be based on all grades assigned and total credits attempted.

Undergraduates who entered UCSC for the first time in or after fall 1997 and before fall 2001 have a UCSC cumulative grade-point average only if they have elected letter grades in at least two-thirds of the cumulative credits attempted. Undergraduates who entered UCSC prior to fall 1997 cannot have an official UCSC grade-point average calculated.

Pass/No Pass Option

Students in good academic standing may request to take specific courses on a Pass/No Pass basis. Students receive a P (Pass) for work that is performed at C level or better. Work performed at below a C level receives a notation of NP on the student's transcript, and no academic credit is awarded for the course. Requests for Pass/No Pass grading must be submitted and confirmed by the Grade Option deadline printed in the Academic and Administrative Calendar. If you request P/NP grading in a course and you are later placed on academic probation, your P/NP grading request will be canceled.

No more than 25 percent of the UCSC credits applied toward graduation may be graded on a Pass/No Pass basis. This includes any credits completed in the Education Abroad Program or on another UC campus in an intercampus exchange program. Students must be careful about the use of the Pass/No Pass option. Some courses may only be taken Pass/No Pass, and therefore count against the 25 percent Pass/No Pass limit. Several majors require all or most major requirements to be taken for a letter grade; read the major requirements section carefully before using the Pass/No Pass option for any course in a major you are considering.

Incomplete

The notation I may be assigned when your work for a course is of passing quality but for which some specific required work has not been completed. You must make arrangements with the instructor before the end of the course in order to receive an Incomplete. To remove the Incomplete, you must submit the remaining course work and file a petition by the deadline printed in the Academic and Administrative Calendar (generally the end of the following quarter). If you do not meet the deadline, the Incomplete lapses to a No Pass or an F, depending on the grading option selected at the beginning of the quarter.

The notation IP (In Progress) is reserved for a single course extending over two or three terms of an academic year. The grade for such a course may be awarded at the end of the course and shall then be recorded as applying to each of the terms of the course. A student satisfactorily completing only one or two terms of a course extending over two or three terms of an academic year will be given grades for those terms. The grade option selected in the first quarter of the multiple-term sequence applies to all quarters of the sequence.

Grade changes (except for I and IP, as above) are allowed only to correct clerical or calculation errors by the instructor and must be submitted to the Office of the Registrar by the instructor in charge of the course within one year of the close of the quarter for which the original grade was submitted.

Student Responsibility

Students are responsible for using the Academic Information Systems (AIS) to set and confirm choices for grading options and for ensuring timely completion of all requirements. Students view their schedule at MyUCSC.

Course Loads

The usual course load for UCSC undergraduates is 15 to 19 credits, most often as three 5-credit courses and associated laboratories and sections. After instruction begins, students with a UCSC GPA of 3.0 may enroll in up to 22 credits without special approval and may seek approval for higher loads from their college advising office. Students in their first quarter or with a lower GPA must seek approval from their college advising office for enrollment in more than 19 credits.

College approval is required to carry fewer than 15 credits.

Academic Progress

Academic progress is a measure of the completion of courses with a D or better, or Pass. Colleges monitor academic progress to ensure you are progressing toward your degree, which must be earned within five years.

Minimum progress is based on length of time at UCSC. The minimum acceptable progress is completion of 36 credits for each academic year, 12 credits for each additional full-time term, and four-fifths of credits attempted for each part-time term. Progress is measured cumulatively, not term by term. For example, a full-time student must complete 48 credits by the end of the first quarter of the second year.

If you do not maintain minimum progress, your college may require you to take higher course loads, complete Summer Session courses, or make other adjustments to your study plan.

A separate financial aid satisfactory academic progress policy (FASAP) defines the GPA and progress requirements for remaining eligible to receive financial aid. Information can be found here.

Academic Standing

Academic standing is a measure of performance in completed courses. You must maintain a 2.0 UCSC GPA in order to remain in good academic standing.

If your UCSC term or cumulative GPA falls below 2.0 at the end of any term, you will be placed on academic probation for the next term. You will need to work with your college and major advisers to determine the best way to return to good academic standing. Be sure to take full advantage of the many learning support services available at UCSC.

If your UCSC GPA for any term falls below 1.5, or if you are on academic probation and your cumulative GPA at the end of a term is below 2.0, you are also subject to disqualification. This means that your enrollment at UCSC may be barred for a specific period of time, or you may be disqualified indefinitely from attending the University of California. In many cases, a specific study plan can be developed with your college that will enable you to remain enrolled at UCSC.

For students who entered UCSC prior to fall 2001, academic standing and progress are calculated differently. Contact your college office or see The Navigator for more information.

A separate financial aid satisfactory academic progress policy (FASAP) defines the GPA and progress requirements for remaining eligible to receive financial aid. Information can be found here.

Maximum Credits and Years

Students are expected to complete their degree objective(s) within four years, with maximum enrollment limits of at most 225 credits and five academic years (Advanced Placement and International Baccalaureate units are not counted). Upper-division transfer students are expected to complete their degree objective(s) within at most 135 UCSC credits and three academic years.

Colleges may make exceptions to the credit maximum for students in certain cases. Such exceptions are conditional on maintaining academic standing, minimal progress, and progress toward the degree objective(s).

Students in danger of exceeding the credit limit or the five-year or three-year limit may be required to modify their degree objective, such as by completing a major without a minor or double major, or completing a related major with fewer course requirements.

Repeating Courses

Undergraduates may repeat courses in which they earn a D, F, No Pass, or W. For an undergraduate to repeat a course more than once requires approval of the student's college. A grade of W counts as an attempt. Courses in which a D or F is earned may not be repeated on a Pass/No Pass basis. Courses in which a grade of No Pass is earned may be repeated on the same basis or for a letter grade. For the first 15 credits of repeated courses, the original grade is excluded from the GPA, and only

the grade from the repetition is used. After the 15-credit maximum is reached, all grades are included in the GPA. However, credit is not awarded more than once for the same course. The grade assigned each time the course is taken will be permanently recorded on the official transcript.

Academic Integrity

The university is dedicated to the unhindered pursuit of knowledge and its free expression. It is essential that faculty and students pursue their academic work with the utmost integrity. This means that all academic work produced by an individual is the result of the sole effort of that individual and acknowledges the contributions of others explicitly. It is the responsibility of students and faculty to be absolutely clear about what constitutes plagiarism, cheating, or other violations of academic integrity. Violations of academic integrity by students result in both academic sanctions (e.g., failing the course) and disciplinary sanctions (e.g., suspension or dismissal). Consult Appendix G of the campus's Student Policies and Regulations Handbook for more discussion and information.

Undergraduate Honors Program

UC Santa Cruz awards several honors for outstanding academic achievement.

Dean's List Honors

Students will be eligible for quarterly Dean's Honors if they have earned a minimum of 15 units that quarter, of which at least 10 are graded, with a term grade point average (GPA) equal or higher than that required for University Honors at graduation in their group* for the current academic year. The notation "Dean's Honors" will appear on the transcript.

***Note:** GPA thresholds for Baskin School of Engineering majors are calculated separately from those of majors in all other divisions.

Honors at Graduation

Honors at graduation are awarded by the university and by the separate majors and colleges based on a review of their graduates' academic records. In general, honors are limited to 15 percent of the graduating class. University Honors are based solely on the cumulative UC GPA. Faculty review for major and college honors may involve additional criteria.

University Honors

To be considered for University Honors at graduation, students must have completed 70 or more units at the University of California and have attained in their group* a UC GPA that places them in the rankings as follows: Summa Cum Laude, top 2 percent; Magna Cum Laude, next 3 percent; Cum Laude, next 10 percent. Each year and for each group, the registrar will calculate the GPA thresholds required for these levels of University Honors, based on the GPAs of recent graduates. The notation "University Honors" will appear on the diploma and transcript.

*** Note:** GPA thresholds for Baskin School of Engineering majors are calculated separately from those of majors in all other divisions.

Honors in the Major

At graduation, the department sponsoring a student's major program may confer Honors or Highest Honors in the major. This notation appears on the transcript as well as on the diploma. In general, no more than 15 percent of the graduation class in a major will be awarded Honors at graduation.

College Honors

Some colleges review their graduating students for academic achievement and according to criteria set by the college faculty reviewers. In general, no more than 15 percent of the graduating class of a college will be awarded Honors at graduation.

Deadlines

To be considered for honors in the major or college honors, students must apply to graduate by the Registrar's deadline.

Any student who has a reportable disciplinary sanction for a violation of academic integrity policies may be ineligible for any honors designation, at the discretion of the agency that awards the designation.

Undergraduate Honors Opportunities

First-Year Honors Program

The UCSC First-Year Honors Program offers a congenial and challenging academic home for a select group of well-prepared students at UC Santa

Cruz. This enriched program of study includes special courses, seminars, colloquia, and other events during each quarter of the academic year. Qualified UCSC applicants who are offered admission to the university will be invited to apply to participate in the program.

Honor Societies

Many UC Santa Cruz students are members of departmental, professional, local, and national honor societies whose goals are to recognize and improve scholastic standing in an area of interest. Among these are Phi Beta Kappa, the oldest national society that advances scholarship and recognizes excellence in the liberal arts and sciences; Tau Beta Pi, the engineering honor society that recognizes students of distinguished scholarship, exemplary character, and dedication to service; the Golden Key International Honour Society, which provides recognition and leadership opportunities to top-performing students; and Psi Chi, which encourages, stimulates, and maintains excellence in scholarship, and advances the science of psychology.

Awards and Scholarships

UC Santa Cruz has a variety of scholarship and award opportunities that are designed to reward, encourage, and assist students in pursuing academic excellence and leadership roles. Students can find such opportunities through their colleges, departments, divisions, and various external agencies.

The Office of Undergraduate Education provides administrative support to a variety of prestigious scholarships and awards such as the Karl S. Pister Leadership Opportunity Award, Deans' and Chancellor's Awards, Steck Foundation Award, Boren Scholarship, Donald A. Strauss Scholarship, Fulbright U.S. Student Program, Scholarship, Marshall Scholarship, and Rhodes Scholarship.

Transcripts

Academic records are maintained by the Office of the Registrar, which will issue an official transcript only on your authorized request.

For information on ordering transcripts, please refer to the following URL: registrar.ucsc.edu/records/transcripts/index.html.

If you have outstanding financial obligations to the university, a hold may be placed on your transcript. Students may access their unofficial

transcript on MyUCSC.

Transcripts for UCSC Extension courses should be requested from UCSC Extension Records, 2505 Augustine Drive, Suite 100, Santa Clara, CA 95054-3003, (408) 861-3700.

Privacy of Records

UCSC students are informed annually of the federal Family Educational Rights and Privacy Act (FERPA) and its provisions. This act, which the institution follows, was designed to protect the privacy of education records and to provide guidelines for the correction of inaccurate or misleading data through informal and formal hearings. Students also have the right to file complaints with the Family Educational Rights and Privacy Act Office concerning alleged failures by the institution to comply with the act.

UCSC policy explains in detail the procedures to be used by the institution for compliance with the provisions of the act. FERPA guidelines are available in The Navigator, the student handbook. The full text of the University of California policies applying to the Disclosure of Information from Student Records is online: registrar.ucsc.edu/records/disclosure/index.html.

Questions concerning the Family Educational Rights and Privacy Act may be referred to the Office of the Registrar, 190 Hahn Student Services Building.

Advising: From Course Selection to Careers

Academic Advising

Academic advising at UC Santa Cruz aims to assist students in clarifying their educational goals and in developing academic plans to achieve them. The core of UCSC's advising system is housed in the colleges and academic programs and is supplemented by advising and support services throughout the campus.

College academic advisers (some of whom are called "academic preceptors") are generalist advisers who focus on orientation to the university, pre-major advising, academic success, and campuswide requirements such as general education and university requirements. Each college has an advising team that can provide you with individual

and group advising and can refer you to resources and educational opportunities. You remain affiliated with your college advisers throughout your undergraduate career.

Staff advisers in UCSC's academic programs (sometimes called "major advisers") focus on areas related to a student's major or minor. Major advisers can help you understand declaration and major requirements, and can assist you in planning a program of study. They can help you identify enrichment opportunities within the major and refer you to appropriate faculty advisers. Faculty advisers may serve as mentors in your field, recommending courses and helping you refine your educational goals. For transfer students and for students in many majors (such as those in the physical and biological sciences, engineering, and the arts), it is important to review information provided by major advisers prior to your first quarter on campus.

For help in assessing career interests and exploring and choosing career options, contact the Career Center. The staff also can assist you with choosing a major, résumé preparation, interviewing skills, applying for an internship, and job-search strategies.

If you plan to go on to graduate school, consult with faculty in your major. Faculty advisers are the best people to ask about the quality of graduate programs in your field of interest. In addition, the Career Center offers advising and workshops on applying to graduate school.

If you intend to pursue graduate study in a field not offered as a major at UCSC, you can often prepare for your intended program through one of the campus's regular majors. You must plan your studies carefully, however, and advising will be especially important. The Career Center has information that will help prepare you for graduate and professional programs. The following are some fields in which UCSC alumni have pursued graduate study and successful careers:

- Business
- Conservation
- Film
- Finance
- Guidance and counseling
- Health fields

- High-tech industry
- Human resources
- Industrial and labor relations
- International relations
- Law
- Marketing
- Museum administration
- Public administration
- Urban planning

The Career Center includes advisers with specialized expertise in preparing for careers in medicine or another health-related field (including dentistry, nursing, nutrition, occupational therapy, optometry, osteopathic medicine, pharmacology, physical therapy, public health, and veterinary medicine), and in preparing for careers in law.

A number of programs provide additional academic and comprehensive support services to students with specific needs. Educational Opportunity Programs (EOP), Services for Transfer and Re-Entry Students (STARS), and the Disability Resource Center are described below. Counseling on personal and family issues is available through Counseling and Psychological Services. If you need assistance that is not listed in this section, consult The Navigator or check with your college advisers.

Your first step in accessing advising at UCSC is to attend Orientation.

Orientation

Orientation is an indispensable resource for all students. Students who attend Orientation feel better prepared, encounter fewer problems, and receive priority registration. Attending Orientation is one of the most important steps a new student takes in preparing for the transition to university life, providing the academic advising needed to make informed decisions about classes and majors, and the opportunity to get questions answered, and learn more about the university.

Orientation begins the process of academic advising and provides a comprehensive introduction to all aspects of UCSC. While at Orientation, students enroll in classes, learn to access campus resources, meet with

college and department advisers, meet new and continuing students, learn about the many student organizations on campus, attend a resource fair, take pictures for their student ID card, attend breakout sessions, and gain valuable student life information. We urge students to attend Orientation to help facilitate their academic and personal success at the university.

Summer Orientation is held several times over the course of the summer and includes separate programs for first-year and transfer students, as well as a concurrent program for family members.

Fall Welcome Week, scheduled approximately five days prior to the beginning of fall quarter, is the next step in the orientation and advising process for new students entering fall quarter. It provides students with an opportunity to settle into life at UCSC, take advantage of important services, and continue their academic advising.

Students make their reservations for Summer Orientation online through the UC Santa Cruz portal at MyUCSC.

Questions can be directed to the Office of Campus Orientation Programs at (831) 459-5468, or via e-mail to orientation@ucsc.edu. Web: orientation.ucsc.edu.

Career Center

UC Santa Cruz graduates find success in many different career fields, and their superior education is the foundation for this success. The staff at the Career Center will help you link your educational experience to the world of work. The center provides a variety of employment and career-development services to helps students obtain rewarding and successful careers.

Students are encouraged to visit the Career Center early during their first year on campus. The first step is to meet with a career adviser to begin developing a focused career plan. Simply sign up online for an advising appointment. Your career adviser will show you how to research and discover the many opportunities that are available to UC Santa Cruz students and graduates. Workshops offered by the Career Center include: Finding and Applying to Internships; Résumé and Cover Letter Writing; Applying to Graduate and Professional School; and special workshops on specific majors or career fields.

Your college experience is likely to include a part-time job or internship in

your area of interest. The Career Center has hundreds of opportunities available. Off-campus and on-campus employment opportunities (both work-study and non-work-study) are posted on the Career Center's web site. For your convenience, you may apply for on-campus jobs online.

An internship is one of the best ways to gain practical work experience in your area of interest. The Career Center has a database with hundreds of opportunities in a wide variety of career fields. While visiting the center, be sure to check out the **Chancellor's Undergraduate Internship Program (CUIP)**. This unique internship program is designed to give participants a professionally enriching work experience on campus in one of the university's colleges, administrative units, or academic departments.

Another interesting and challenging position is the UC Student Regent, with an annual recruitment process. For information, e-mail larojas@ucsc.edu.

The Career Center's resource library contains a wealth of material on career exploration, graduate and professional schools, job search, career fields, internships, and employer information. However, the most exciting online resource is the Career Advice Network (CAN). Consisting of UCSC alumni and other professionals from various fields, the members of the network help UCSC students and alumni by sharing career insights and information.

UCSC students and alumni looking for full-time career opportunities need look no further than SlugQuest—an online site that lists job openings targeted to UCSC graduates. You may connect to SlugQuest on the Career Center web site. Another way to obtain a career position is to participate in the On-Campus Interview Program. Corporate recruiters visit campus every fall, winter, and spring to interview and hire students. The Career Center web site has a list of participating companies.

The Career Center sponsors several major events every academic year. The Graduate and Professional School Fair brings representatives from the nation's top universities to campus to share information about their advanced-degree programs. Job fairs, which bring hiring companies to campus, take place several times a year. Students looking for a job or internship will want to come prepared with a great résumé. Other events include the Multicultural Career Conference, which brings students and alumni together to develop mentor relationships and explore careers.

The Career Center—located at the Bay Tree Building, Room 305, in Quarry

Plaza—can be reached at (831) 459-4420. Office hours are 8 a.m. to 5 p.m. Web: careers.ucsc.edu

Educational Opportunity Programs (EOP)

The Educational Opportunity Programs (EOP) provide a variety of academic and personal support programs designed to improve the retention and academic success of first-generation college students from low-income and educationally disadvantaged backgrounds. EOP helps to ensure these students successfully complete their undergraduate education and acquire the skills to prepare for graduate and professional school, as well as for future leadership roles. Below are the programs and services offered through EOP.

Advising Programs and Services

EOP Advising programs and services are designed to facilitate personal growth and development for the purpose of achieving academic and social integration, academic achievement, and exposure to opportunities beyond the baccalaureate degree. These programs and services include:

- Academic advising and personal counseling
- Time-management and study-skills development
- Referrals to resources, programs, and opportunities
- Peer advising
- Community events

Bridge Program

The main goal of the Bridge program is to deepen and personalize the UCSC experience. The program offers a select group of EOP students special academic and personal support to facilitate a smooth transition from high school to the university. This support fosters academic achievement and social integration into campus life, helping to ensure a successful first-year experience.

Support Services for AB540 Students

AB540 Student Services provides a broad range of support services designed to address the needs of AB540 students. These services are designed to address the gaps that AB540 students face within the university and enhance student achievement. Services provided to

students include mentoring, community-building events and programs, personal advising, and student-based support.

Textbook Lending Program

This program is designed to assist students in obtaining required textbooks that they would not be able to purchase on their own due to cost. To receive textbook assistance, students must demonstrate financial hardship and must have exhausted all other forms of financial aid available to them. This includes all forms of loans (subsidized and unsubsidized).

Pre-Graduate Programs

EOP also sponsors two pre-graduate programs designed to increase the placement of EOP students in professional and doctoral programs and to encourage the pursuit of academic careers.

The Graduate Information Program (GIP) supports students seeking to pursue graduate and professional school education. Services include:

- Graduate and professional school advising
- Graduate school application and internship-related workshops
- Graduate school resource library and web site
- Trips to conferences and forums

The Faculty Mentor Program (FMP) is a two-quarter undergraduate research program designed to encourage and prepare students for future graduate study within the arts, humanities, and social sciences. FMP includes:

- Hands-on research apprenticeship with UCSC faculty
- Participation in a two-quarter undergraduate research seminar
- Library research skills development
- Graduate school application workshops and support

For information about any of these programs, please call the EOP office at (831) 459-2296 or visit eop.ucsc.edu.

MARC and IMSD Programs

The Division of Physical and Biological Sciences sponsors two National Institutes of Health grant programs: the Minority Access to Research

Careers (MARC) Program and the Initiative for Maximizing Student Diversity (IMSD) Program. Though separately funded, the projects share a similar mandate: to increase the number of well-prepared ethnic-minority students who are admitted to graduate or professional schools in biomedical sciences. The program seeks students from groups that have traditionally been denied equal access to educational opportunities in the science professions.

Continuing students who have successfully completed specific introductory courses in biology, chemistry, and mathematics are invited to apply for the MARC and IMSD programs, which begin in the summer and introduce students to program faculty, their research, and research techniques. After students successfully complete the summer program, they have the opportunity to work in a faculty lab for the following academic year. Financial compensation is available for laboratory research and participation in the summer program.

MARC and IMSD are run in conjunction with UC LEADS and CAMP, and we also work with other offices to help make the most of campus resources and provide practical assistance with the graduate school admission process. In addition, the staff maintains an information file on summer enrichment programs (which can provide you with vital research experience), conferences, professional development workshops, journal clubs, and seminar courses.

The program's well-equipped student office provides additional academic support and a convenient place for students to meet. The staff encourages students to make use of this study space and assists them in learning to use the office's personal computers.

For further information, contact the MARC, IMSD, CAMP and UC LEADS Office, 369–381 Thimann Laboratories, (831) 459-4770, or e-mail malika@ucsc.edu. Web: stemdiv.ucsc.edu.

Academic Excellence Program (ACE)

ACE is a nationally recognized academic support program that is designed to increase the diversity of students who earn bachelor's degrees in science, technology, engineering, and mathematics (STEM). ACE offers active-learning discussion sections for selected mathematics and science courses.

The sections provide a structured setting where students teach and learn

from each other. An ACE instructor, who has an academic background in the subject, facilitates the discussion sections. Undergraduate co-leaders/peer mentors assist the instructor, bringing the student-to-teacher ratio to approximately 12:1. In addition to attending their ACE discussion section, students meet weekly with their peer mentor, who shares study strategies as well as opportunities for undergraduate teaching and research internships. Ace instructors offer weekly office hours, as well as examination review sessions and academic and career planning. ACE students join a community of STEM scholars who are dedicated to academic excellence and success.

Applications are accepted quarterly for the upcoming term.Enrollment in ACE is limited and priority is given to students who are studying STEM disciplines and who are first-generation college students. For more information, visit the web site: ace.ucsc.edu.

Multicultural Engineering Program (MEP)

Also known as the MESA Engineering Program, MEP is the university-level component of Mathematics, Engineering, Science Achievement (MESA), a statewide program of the University of California Office of the President. At UC Santa Cruz, MEP is supported by the Baskin School of Engineering. Its goal is to promote the retention and graduation of a diverse population of students, especially those from groups that remain the most underrepresented in engineering studies.

MEP provides academic and personal support for engineering students who are first-generation college students, are the first in the family to pursue engineering or computer science studies, or are from a low-income (limited financial resources) or educationally disadvantaged background. MEP's academic learning community supplements students' undergraduate experience and encourages them to continue their education into graduate school. MEP has a strong support system and engages students' full participation in a variety of services and activities. These include academic advising, personal counseling, tutorial services, drop-in assistance, individual and small-group study, study-skills workshops, peer-support networks, community-building activities, scholarships, and an engineering Summer Bridge program for a select group of entering first-year students.

MEP's well-equipped study center and computer lab provides 24-hour access to computer workstations and printer, textbooks, individual

lockers, and a place for students to gather and study. Students who have participated in pre-university service programs (e.g., Early Academic Outreach, Upward Bound, MESA, Talent Search, Puente, DEEP, Smith Scholastic Society) are encouraged to apply to MEP.

For further information, call (831) 459-2868, visit the web site mep.soe.ucsc.edu, or drop by the School of Engineering Undergraduate Affairs Office, 231 Baskin Engineering Building.

Services for Transfer and Re-entry Students (STARS)

Services for Transfer and Re-entry Students (STARS) offers a broad range of personal and academic support services for all transfer and re-entry students (undergraduates 25 years and older, graduate students 29 years and older), students who are parents regardless of age, and military veterans. These services include admissions information; orientations for new students; academic seminar courses; study skills workshops; tutorial services; informal academic advising; drop-in assistance; social, recreational, and cultural programs; scholarships; newsletters; and study centers with computer workstations. STARS also acts as a clearinghouse for information about campus and community resources for UCSC's large transfer and re-entry student populations.

STARS is located at Kresge College, on the floor above the College Office. All current and prospective transfer and re-entry students are invited to visit. Hours are 9:00 a.m.-7:00 p.m., Monday through Thursday, and to 5:00 p.m. on Friday.

Veterans Education Team Support (VETS) is a STARS program for veterans returning to school. In this peer mentor program, veterans meet each other and receive assistance as they navigate admission and transition into university life. Ongoing personal and academic support and outreach to prospective students are also offered.

The Smith Renaissance Scholars Program, which helps foster and former foster youths pursue their educational goals, is affiliated with STARS.

The Osher Lifelong Learning Institute at UCSC, a UC/community organization dedicated to continuing education, is also under the STARS umbrella. The organization hosts monthly meetings with university faculty, offers courses taught primarily by emeriti faculty, and coordinates a wide variety of peer-led interest groups.

For further information regarding all the STARS programs, call (831) 459-2552. For current programs and activities, visit the STARS web site.

Disability Resource Center (DRC)

The campus accommodates students with disabilities and welcomes their attendance at UCSC. The Disability Resource Center (DRC) provides services such as disability-related advising, authorization for testing accommodations, conversion of print materials into alternative formats (audio, electronic, Braille), adaptive equipment loans, notetakers, sign language interpreters, real-time captioning services and referrals to appropriate campus or community resources.

The Disability Resource Center is located at 146 Hahn Student Services Building and can be reached by phone at (831) 459-2089, or via e-mail at drc@ucsc.edu. Web: drc.ucsc.edu/

Campus access for people with mobility impairments. Visit the campus Americans with Disabilities Act web site for more information about accessibility maps, vehicles equipped with wheelchair lifts that can transport students throughout campus, and permits for accessible or medical parking spaces that are adjacent to all campus buildings. Most buildings on campus have wheelchair-accessible ramps, modified rest rooms, and other facilities. If necessary, classes are rescheduled to meet accessibility needs.

Questions and concerns can be directed as follows:

- Education/program accessibility should be addressed to the director of the Disability Resource Center, at (831) 459-2089 (voice).
- Facility or transportation access should be directed to Facilities Access Coordinator (831) 459-3759 (voice).
- Computing access to the campus should be directed to IT Accessibility Coordinator (831) 459-2410.
- Accommodating job applicants or current employees with disabilities should be directed to (Disability Management Coordinator, Benefits Office (831) 459-4602 or Assistant Director for EEO, Office for Diversity, Equity, and Inclusion (831) 459-3676.

ROTC and Military Affairs

UC Santa Cruz Air Force ROTC

Students interested in participating in Air Force Reserve Officer Training Corps (AFROTC) have the option of attending AFROTC classes at San José State University while taking other academic classes at UC Santa Cruz.

San José State University supports a wing of AFROTC with cadets from San José State University, Santa Clara University, Stanford University, UC Santa Cruz, and many local community colleges. The Air Force ROTC program is designed to provide instruction in leadership, management, and national security studies along with military education and training. This prepares the cadet for assignment to positions of responsibility and importance in the modern Air Force. Instruction is conducted on and off campus. This program offers all eligible students the opportunity to obtain an officer's commission in the United States Air Force while earning their college degrees.

Program Overview

Our faculty brings a wealth of experience and diversity to the program. Instructors are Active Duty Air Force officers from various career areas and provide students with a first-rate academic education and military training experience. Each faculty member also acts as a student advisor to guide students through the program and help them reach the goal of an officer’s commission in the United States Air Force.

College students wishing to commission as an Air Force officer through ROTC may enroll in a three-, three-and-a-half-, or four-year program. Students attend Air Force ROTC classes along with other college courses and receive elective academic credit. AFROTC courses are sequenced by subject area for specific and logical reasons. Please see www.sjsu.edu/depts/AFROTC/homepage.html for course information. After successfully completing all requirements, the cadets are commissioned as Air Force officers with a four-year active duty service commitment.

For information on the Air Force ROTC program, contact the Department of Aerospace Studies, AFROTC Det 045, One Washington Square, Industrial Studies Building, Room 214, San José State University, San José, CA, 95192-0051. Phone: (408) 924-2960. E-mail Det045@maxwell.af.mil or visit the web site: www.sjsu.edu/depts/AFROTC/homepage.html. Students may call or inquire about program prerequisites, scholarship availability, and class

schedules at the Department of Aerospace Studies.

(**Editor's note:** The following section on the UC Santa Cruz Army ROTC program was added to the catalog post-publication on March 10, 2015.)

UC Santa Cruz Army ROTC

The Army ROTC (Reserve Officers' Training Corps) is one of the best leadership courses in the country and can be part of your college curriculum. UC Santa Cruz students have the opportunity to take ROTC courses with cadets from other local campuses including Santa Clara University, Stanford, and San Jose State University. Cadets from UC Santa Cruz have flexible options to meet ROTC class requirements such as local classes on campus, shuttles to Santa Clara University, or by virtual attendance of classes at Santa Clara University through the Army's online meeting application. During classes, leadership labs, physical training, and field training exercises, Army ROTC students will learn firsthand what it takes to lead others, motivate groups and conduct missions as an officer in the Army. Upon graduation from Army ROTC, students will earn the bar of a second lieutenant and be commissioned into the Active Army, Army Reserve or Army National Guard.

Army ROTC at Santa Clara University is a program that fosters the development of cadets' academic, athletic, professional, and mental strengths. Students attend class and physical training for three hours each week, along with a Wednesday lab session that features hands-on instruction regarding Army operations and leadership situations. This program is ideally designed as a four-year process. Cadets spend their first two years familiarizing themselves with the Army, and in their third year be expected to perform and improve as leaders in preparation for a summer leadership development camp at Ft. Knox, Kentucky. The fourth and final year of Army ROTC introduces cadets to the responsibilities of military staff, teaching them to plan, train, lead, and develop their junior cadets in preparation for their commission. A typical four-year education with Santa Clara University ROTC comes with a service obligation of four years in the Army.

Army ROTC also gives cadets the opportunity to gain further Army experience by earning appointments to Army training schools where they will parachute from airplanes or rappel from helicopters. In addition, cadets are allowed a single quarter of study abroad, as well as the opportunity to participate in Army-funded immersion trips to dozens of countries across the globe in the summer months.

ROTC offers the opportunity to compete for scholarships that can pay for your education. These scholarships consist of tuition, money for books, and a monthly stipend. Cadets who graduate from the program will compete for active duty and reserve positions across the Army. Active officers have a full-time position and serve for a minimum of four years. Reserve officers serve for eight years part-time in either the National Guard or Army Reserve.

For more information about ROTC opportunities and scholarships contact Mario Morales by e-mail at mcmorales@scu.edu or by phone at 408-554-6840, or visit the Army ROTC web site at http://www.scu.edu/rotc/.

For more information regarding Army ROTC please visit the Army ROTC web site at http://www.goarmy.com/rotc.html.

Undergraduate Research

At the best research universities, professors bring knowledge and creativity from their cutting-edge research into the classroom, integrating the canon of the discipline with its future directions. UC Santa Cruz takes this further with a special tradition of undergraduate research outside the classroom. UC Santa Cruz, its departments, and faculty offer undergraduates many ways to get involved in research and creative activities. These opportunities develop advanced skills and insights and an early introduction to the nature of graduate studies. Research projects can help students launch careers, secure admissions to top graduate schools, and truly impact society.

Many majors incorporate research in their senior comprehensive requirement, with options or requirements of a senior thesis, capstone project, or other creative endeavor based on students' individual research. Other opportunities for undergraduates exist through structured internships or research programs, by joining ongoing faculty research or creative projects, or by developing their own projects under faculty supervision. The next sections discuss a sampling of UCSC's international education, field-study, and exchange programs, which enable students to deeply enrich their undergraduate experience and education as they learn by doing. For additional information, see Undergraduate Research Opportunities.

UC LEADS

After being selected as UC LEADS scholars, students begin a two-year program of scientific research and graduate school preparation guided by individual faculty mentors and program staff. Scholars are provided with an excellent opportunity to explore their discipline, experience a research environment, and improve their opportunities for future study in their chosen field. Each scholar is mentored by a member of the UC faculty who assists the student in designing a plan of research and enrichment activities tailored to his or her individual interests and academic goals. Scholars attend the annual statewide symposium and receive funding to participate in another STEM conference of their choice each year.

The UC LEADS program is headquartered in the STEM Diversity office, along with MARC, IMSD and CAMP. To learn more about eligibility requirements and the UC LEADS program, visit the STEM Diversity Programs web site or e-mail STEM Diversity Director Malika Bell at malika@ucsc.edu.

California Alliance for Minority Participation (CAMP)

CAMP is a statewide initiative that aims to support and retain underrepresented undergraduates to achieve their degrees in the biological sciences, physical sciences, mathematics, and engineering.

By integrating research and undergraduate education, CAMP creates a cohesive set of experiences that fully prepares undergraduates for graduate education and influences career choices. CAMP programs motivate participants through cooperative learning, internships, faculty mentored research, and travel to professional conferences.

The CAMP program is headquartered in the STEM Diversity office along with MARC, IMSD and UC LEADS. To learn more about eligibility requirements and the CAMP program, visit graddiv.ucsc.edu/prospective/ugradopps.php or email STEM Diversity Director, Malika Bell: malika@ucsc.edu.

National Science Foundation Research Experience

The National Science Foundation (NSF) funds a large number of summer research opportunities through the Research Experience for Undergraduates (REU) Site Program. Each site, typically at a university, has a group of six to 10 undergraduates who work on specific research projects under the mentorship of faculty and other researchers. Students are granted stipends and, in many cases, assistance with housing and

travel. Additional activities, including professional development workshops, tours, and social activities, provide students with opportunities to network and to learn about the culture of science. An REU Site may be at either a U.S. or foreign location.

UCSC hosts the following three REU programs:

- Undergraduate Research in the Biological Effects of Climate Change (Ecology and Evolution)
- Summer Undergraduate Research Fellowship in Information Technology (SURF-IT) (Engineering)
- Lamat Summer Research Program (Computational Astrophysics)

UCSC students are notgiven preference forthese programs, so there is no disadvantage to applying to an REU site at another location. For more information, see UCSC's REU web site.

International Education

The International Education Office (IEO) actively supports UCSC's teaching research, and service missions. IEO encompasses two functional UCSC Programs Abroad and International Scholar and Student Services (ISSS).

For further information, contact the International Education Office, 101 Classroom Unit Building, (831) 459-2858, e-mail: oie@ucsc.edu, Web: oie.ucsc.edu.

Programs Abroad

UCSC Programs Abroad offers undergraduate and graduate students the opportunity to study through the University of California, Education Abroad Program (UCEAP) at 115 host universities and colleges in 34 countries as part of their regular UCSC academic program. The program serves students at all UC campuses and is administered by the University Office of the Education Abroad Program in Santa Barbara: eap.ucop.edu.

Additionally, UCSC Programs Abroad assists students participating in study-abroad opportunities through UCSC directly, through other UC campuses, and through privately sponsored organizations. UCSC Programs Abroad seeks to bring these programs within reach of all students.

International Scholars and Students

The International Scholar and Student Services (ISSS) office provides immigration advising and advocacy as well as cultural and academic programming for UCSC's growing global community. ISSS assists students, scholars, researchers, and faculty members in maintaining their legal status while in the United States, serving as UCSC's official liaison to U.S. government agencies related to immigration matters. ISSS serves more than 1,000 international clients and their accompanying family members who come to the campus each year.

Fulbright Grants for Graduate Study and Research Abroad

The Division of Undergraduate Education facilitates the Fulbright annual awards competition for the Graduate Study and Research Abroad Program for currently enrolled UCSC students. Web: http://honors.ucsc.edu.

Field and Exchange Programs

UCDC Program at the UC Washington Center

The UCDC Program at the UC Washington Center in Washington, D.C., supervises and supports students who pursue internships and academic study in the nation's capital. The program is open through a competitive application process to students in all majors who will have upper-division status by the quarter in which they participate. (Physical and biological sciences and engineering majors are eligible to participate in their sophomore year with department approval.) Students enroll for fall, winter, or spring quarter, earn 12 to 17 course credits, and continue to be registered as full-time students. (In addition, see Residency.) Applicant selection is based on academic record, a written statement, letters of recommendation, and in some cases a personal interview. Financial-aid eligibility is maintained.

Students live in the UC Washington Center with students from all the participating UC campuses. This provides a social and intellectual community throughout the quarter.

Interested students with strong academic records are encouraged to apply. For further information, visit the program's web site or e-mail the UCDC Coordinator at ucdc@ucsc.edu.

Intercampus Visitor Program

UCSC students may take advantage of educational opportunities at other campuses of the University of California through the Intercampus Visitor Program. This program enables you to take courses not available at Santa Cruz, to participate in special programs, or to study with distinguished faculty at other campuses.

To qualify for participation in this program, you must be in good standing after completing at least three quarters in residence at Santa Cruz. Each host campus establishes its own criteria for accepting students from other campuses as visitors. You must also have the approval of your college. Consult with your department about how courses taken at the host campus may apply to your major requirements.

Applications are available online here. Additional information is available from the special programs coordinator in the Office of the Registrar, (831) 459-4412. The application form contains a great deal of useful information about the program and how and when to file; please read it carefully. A nonrefundable application fee of $70 is due when the application is filed.

Cross-Campus or Simultaneous Enrollment with Other University of California Campuses

Undergraduate students enrolled at UCSC may enroll, without formal admission and without payment of additional university fees, in courses at another UC campus on a space-available basis at the discretion of the appropriate campus authorities on both campuses. Simultaneous enrollment refers to UC courses not offered through UC Online. Additional information about online UC courses is available through UC Online.

Currently registered students must meet all of the following requirements to be eligible to enroll in one class through the Cross-Campus and Simultaneous Enrollment Programs: completion of a minimum of 12 credits at UCSC as a matriculated student, be in good academic standing, and demonstrate appropriate academic preparation as determined by the host campus. Full-time students must be enrolled in at least ten credits at UCSC. University Part-Time students must be enrolled in at least five credits at UCSC and may enroll in up to ten credits total.

Information about Cross-Campus Enrollment is available through UC Online. Applications for Simultaneous Enrollment are available at the

Office of the Registrar, 190 Hahn Student Services Building or online. For more information, call (831) 459-4412 or e-mail registrar@ucsc.edu, or visit the Web at Simultaneous Enrollment.

Part-Time Program

If you are unable to attend the university full-time because of family obligations, employment responsibilities, or a medical condition, or you are in your final quarter before graduation, you may qualify for the Part-Time Program. This program enables students to pursue a bachelor's degree part-time in any major offered at UC Santa Cruz. To participate, undergraduate students must file a Part-Time Program application by the appropriate deadline. Full-time students normally take three 5-credit courses per quarter; part-time students may enroll in a maximum of 10 credits.

Students approved for enrollment on a part-time basis pay the same fee as full-time students but pay only one-half of the tuition. Part-time nonresidents pay one-half of nonresident tuition. Financial aid awards may be affected by enrolling part-time. Students who use the part-time fee reduction may not also use the UC employee reduction. Applications for undergraduates are available from the Office of the Registrar, 190 Hahn Student Services Building. For more information, call (831) 459-4412, or e-mail registrar@ucsc.edu. More information is available on the Web: registrar.ucsc.edu/enrollment/part-time-program/index.html.

Domestic Exchange Programs

UCSC has exchange programs with the University of New Hampshire (UNH) and the University of New Mexico (UNM). UNH is located near the New Hampshire seacoast in the picturesque colonial town of Durham, a little more than an hour from Boston, Massachusetts. UNM is located in Albuquerque, a city of approximately half a million population, situated on the banks of the Rio Grande. Both schools give students the opportunity for an educational experience in an entirely different environment.

While enrolled in the exchange program, students maintain their status at UCSC, and they are expected to return to complete their studies following enrollment at UNH or UNM. Both universities are on the semester system and students may participate in one semester or the entire academic year.

Participants are selected from among students who are in good academic

standing. Selection for 2015–16 will take place during winter quarter 2015. Each department of study determines the applicability of UNH and UNM courses toward requirements for the major. Letter grades earned while at UNH and UNM will not be calculated into the UCSC GPA or the UC GPA. Further information is available from the exchange program coordinator in the Office of the Registrar, by phone at (831) 459-4412, and on the Web.

Intersegmental Cross-Enrollment

This program permits a student who is currently enrolled in a California community college or a California State University campus and who meets certain eligibility criteria to enroll in one undergraduate course at UCSC each term, on a space-available basis. A student is qualified to participate in this program if he or she meets the following requirements:

- has completed at least one term at the home campus as a matriculated student and is enrolled in at least 6 credits at the home campus during the term in which he or she seeks to cross-enroll;
- has a grade-point average of 2.0 for work completed;
- has paid tuition or fees required by the home campus for the academic term in which he or she seeks to cross-enroll;
- has appropriate academic preparation as determined by the host campus, consistent with the standard applied to currently enrolled students;
- is a California resident for tuition purposes at the home campus; and
- has not previously been admitted to and registered at UCSC.

Applications are available online at registrar.ucsc.edu/forms/students/crossenrollment.pdf. The application form contains a great deal of useful information about the program and how and when to file. Please read it carefully.

Field Programs

Many UCSC students complement their major programs with field experience or off-campus internships, which also provide opportunities for students to become involved in public service activities in the local community and throughout the world. Most of the field programs described below are open to students in a range of majors, although some are restricted to students pursuing a designated area of study.

Students in all majors may apply for internships sponsored by the Career Center.

In addition to the off-campus placements provided by the programs described below, independent field study opportunities are available through some UCSC colleges and departments.

Community Studies Field-Study Program

Community Studies is the oldest interdisciplinary undergraduate program at UCSC. Its hallmarks are a focus on social justice and a distinctive pedagogy that integrates classroom learning with an extended six-month field study. Not only is the full-time field study a requirement of the major, it is the centerpiece of a core curriculum through which students prepare for, then immerse themselves in a setting where they participate in and analyze the social justice work of an organization. Upon return from field study, students integrate topical and experiential learning in a capstone project (usually a senior essay) that uses their field notes as a key source for analysis.

With the guidance of faculty and program staff advisers, Community Studies students choose field placements related to the program's areas of focus in economic justice and health justice. Most placements are in California, although students have completed field studies throughout the U.S. and around the world. Field placements have included community health clinics, women's and feminist organizations, immigrant-rights centers, media and policy advocacy organizations, homeless resource and support groups, sustainable development projects, queer and transgender organizations, neighborhood or workers' collectives, civil rights groups, community food security programs, legal clinics, community-based cultural organizations, programs for seniors, tenant or labor unions, HIV/AIDS advocacy groups, harm reduction programs, government agencies and the offices of elected officials, and still other organizations with a social justice mission. As political, economic, cultural and technological landscapes shift, so do the needs and venues for social justice organizing. Throughout its history Community Studies has been noteworthy for being attuned and responsive to the dynamics of social justice work and related innovations in field-study opportunities.

The practical experience gained from the six-month field study, combined with their topical learning, provides graduates with many choices. About half go on to graduate or professional study in education, urban studies, public health, public administration, social work, planning, law, policy studies, medicine, nursing, or academic disciplines like sociology,

anthropology, and politics. Others enter the work world directly, in many cases continuing with non-profit agencies like those in which they did their field study. Community Studies graduates are social entrepreneurs, community organizers, program directors, public officials, teachers, therapists, librarians, social workers, news directors, union officials, labor organizers, forest management consultants, reporters, youth workers, and artists. According to a recent alumni survey, almost 100 alumni have founded nonprofit social justice organizations, and many more have served on nonprofit boards and/or in executive director positions.

The field study program is open to Community Studies majors only. The entire major usually takes two years to complete. More information about Community Studies can be found at communitystudies.ucsc.edu.

Economics Field-Study Program

The Economics Department offers its majors the opportunity to integrate their academic knowledge with career-related work. The field-study program places students in internships under the supervision of a faculty sponsor and a professional in the workplace. Students can select from a wide variety of field placements such as accounting firms, community nonprofits, government agencies, brokerage firms, marketing agencies, banks, and businesses in Santa Cruz and beyond. Students apply and prepare for field study a quarter in advance. Acceptance into the field-study program is determined by academic standing, class level, and successful completion of Economics 100A, 100B, and 113 (see Economics courses). Students may earn a maximum of 10 credits and complete up to two quarters in a field placement.

Along with the training and supervision by a professional in the workplace, students receive guidance from a faculty sponsor who directs their academic project. Completion of this project and the job supervisor's evaluation of performance earn the student credit. Economics Field Study (Economics 193 or 198, see Economics courses) does not satisfy an upper-division requirement for the major and is available on a passing/not passing (P/NP) basis only.

Interested students should make an appointment or stop by the Economics Field-Study Office: 401 Engineering 2 Bldg.; call (831) 459-5028; or e-mail econintern@ucsc.edu. Web: economics.ucsc.edu

Environmental Studies Field and Internship Program

Open to all UCSC students, the Environmental Studies Field and

Internship Program is an integral academic component of the environmental studies major, and it augments the research and professional development of undergraduate students (see Environmental Studies). Interns are placed, individually and in groups, in both on-campus and off-campus agencies, where their work often results in publications and resource documents, and in many cases serves as the primary basis for policy formation within a particular agency or organization. Placements have included research for small businesses; learning all aspects of running an organic farm; writing policy documents for state agencies, nongovernmental organizations, and planning departments; assignments as natural history interpretive guides for state and national parks; and apprentice positions with consultants, architects, solar-energy designers, agroecologists, and teachers. Student intern placements are also obtainable working with coffee growers, teachers, and agricultural specialists in Costa Rica, Nicaragua, El Salvador, and Mexico.

Part- and full-time placements are available, and students may receive two to 15 course credits for their work. Each student's placement is supervised by a team of supporters: a faculty adviser, field sponsor, and the internship coordinator. Students spend 12 to 15 hours each week on their assignments for every 5 credits they receive.

Internships and fieldwork are designed to complement a student's course work and are available for both lower- and upper-division credit. Often, the internship leads to a summer job or employment after graduation. Qualified environmental studies majors may undertake a senior internship to fulfill the department's comprehensive requirement. In addition, internships provide a fieldwork component for some environmental studies courses. Undergraduates are also afforded ample opportunities to intern on faculty and graduate-student research projects.

Further information is available from the Environmental Studies Field and Internship Program Office, 491 Interdisciplinary Sciences Building, (831) 459-2104, e-mail: ckrohn@ucsc.edu. Web: envs.ucsc.edu/internships

The Everett Internship Program (formerly the Global Information Internship Program)

The Everett Program is a highly innovative, student-managed program that deploys the tools of information-communication technology (ICT) and social entrepreneurship to advance social justice, sustainable practices, and progressive institutional change at the global and local levels. Everett is sponsored by the Center for Global, International, and Regional Studies

(CGIRS) and the Division of Social Sciences. Since 1998, the Everett Fellows have mentored and funded hundreds of info-savvy social entrepreneurs from UC Santa Cruz to design, implement, and manage collaborative projects with civil society, community, and non-profit groups. The Everett Program empowers students to focus their passion for social change by teaching them how to research, plan, design, fund, and implement ICT-driven projects in partnership with excluded communities. Everett-sponsored students have worked with Muslim feminists in Malaysia, coffee farmer co-ops in Central America, democracy-advocating NGOs in Ghana, and aspiring high school students in Watsonville. Everett Fellows teach sections and mentor students enrolled in the intensive major and minor in Global Information and Social Enterprise Studies (GISES), which is sponsored by the Department of Sociology. For more information on the GISES major and minor, please consult the Sociology page.

For more information, visit: sociology.ucsc.edu/undergraduate/programs-internships/ or call (831) 459-1572.

Health Sciences Internship Program

A requirement of the Human Biology major, the Health Sciences Internship Program offers students a unique opportunity for personal growth and professional development. Paired with a professional mentor, students spend one quarter interning in a health-related setting. Placement opportunities cover a broad range, from individual physicians to community clinics and hospitals, hospices, non-profits, and public health agencies. The Health Sciences Internship Coordinator works with students to prepare them for their internship and maintains a list of appropriate placements. Junior and senior Human Biology majors only are eligible to apply. Applications are due two quarters in advance. For further information, contact the Health Sciences Internship Coordinator, Caroline Berger, at (831) 459-5647 or cmberger@ucsc.edu.

Latin American and Latino Studies Field-Study and Internship Opportunities

All Latin American and Latino Studies majors are strongly encouraged to undertake either (1) a field study in Latin America, the Caribbean, or a Latino/a community in the U.S.; or (2) formal academic study abroad through the Education Abroad Program (EAP). These paths are the best ways to improve language skills, explore the nature and direction of specific academic and career interests in relation to Latin American and

Latino studies, and deepen cross-cultural understanding and relationships based on personal experience.

Field studies comprise independent, community-based study projects for academic credit, done under faculty sponsorship and arranged on an individual basis. Students can do full-time field study for one quarter for full academic credit, part-time field study scheduled in conjunction with formal course work at UCSC, or field study as an extension of the Education Abroad Program (EAP). Projects vary widely, but students who want to develop a field-study proposal are expected to prepare for it by acquiring fluency in the appropriate language, prior cross-cultural experience, and upper-division course work on the region and/or topic that is to be the focus of the study.

Students who wish to pursue a full-time field study are advised to speak with their faculty advisor to assess their eligibility and preparation, as well as to receive needed guidance, ideally a quarter or two in advance.

Many of the students who have done full-time field study have developed a senior thesis based on that work. Students who pursue a part-time field study are highly encouraged to discuss their plan with their faculty advisor as well.

Local opportunities for internships and field study in Latino/a communities on California's Central Coast are numerous. Credit for up to three upper-division courses may be applied toward the major from field study; however, course credit from field study and study abroad combined may not exceed three upper-division courses. Students should check the Latin American and Latino Studies Department web site for further information regarding the field-study process and course credit. A listing of local field-study programs and petition forms are available at the LALS Department office, 32 Merrill Academic Building.

For more information, contact the LALS office at (831) 459-2119 (aalvares@ucsc.edu). Web: lals.ucsc.edu.

Psychology Field-Study Program

The Psychology Field-Study Program provides qualified students an opportunity to integrate what they have learned in the classroom with direct service to a community agency. Each year, more than 200 students develop new skills and clarify personal and professional goals by working as interns in schools, criminal justice programs, and mental health and other social service agencies, where they are supervised by a

professional within that organization. Psychology faculty members sponsor field-study students, helping them to synthesize their intern experience with psychology course work and guiding them through an academic project.

Junior and senior psychology majors in good academic standing are eligible to apply for this competitive program. **There is a minimum commitment of two quarters. Information can be viewed on the web at** psychology.ucsc.edu/undergraduate/field-study/index.html. Interested students should attend an information meeting, held every quarter, for a general overview and application. The schedule for each quarter is posted at the start of instruction. For more information, visit the Psychology Field Study Program.

Education Field Programs

The M.A. in Education/California SB 2042 Preliminary Teacher Credential program provides students with necessary credential preparation for K–12 teaching in the California public schools. Preparation is offered for the Multiple Subject Preliminary credential (grades K–6), and the Single Subject Preliminary credential (grades 7–12), in the following subject areas: English, math, social science, and science. Students may also pursue a Bilingual Authorization in Spanish.

Students pursuing the Education M.A./California Preliminary Credential must complete an extensive student teaching course sequence. Student teaching placements are restricted to enrolled students.

The student-teaching sequence consists of five courses: Education 200, 201, 201A (single subject only), 202A, B, and C. The first and second quarters of the sequence involve part-time placements in public schools in Santa Cruz County, as well as a few schools in North Monterey County. The third quarter of student teaching is a full-time experience in which students gradually take over full responsibility for the daily instructional program of the classroom in which they are placed. Substantial fieldwork is also incorporated in other courses required for the teaching credential.

The minor in education is an undergraduate program in which students explore the history of educational thought and philosophy, the politics and economics of education, learning theory and pedagogy, and issues of cultural and linguistic diversity. As a part of the six-course minor sequence, students engage in field study in schools through Education 180, Introduction to Teaching.

For more information, see Education, or contact the Education Department, 2140B McHenry Library Building, (831) 459-3249. E-mail address: education@ucsc.edu; Web: education.ucsc.edu.

Summer Session Courses and Programs

UCSC Summer Session offers UCSC students an opportunity to accelerate progress on their degrees and welcomes visitors from other colleges and universities as well as members of the community (including high school juniors and seniors). A broadly ranging 250 courses are taught by UCSC faculty, lecturers, and graduate students. Often smaller in size than during the academic year, summer session classes include major requirements and qualifying courses, lower- and upper-division courses, general education courses, and online courses. Most courses are five weeks long and offered over two sessions. Students may enroll in multiple classes in either or both sessions, with a maximum of 15 credits per session.

Tutoring and other academic support is available for summer session courses, as are on-campus housing and dining, OPERS fitness center and outdoor recreation, campus employment, and more. Special summer-only programs include Summer Start for International Freshmen, Shakespeare this Summer, and the one-week Dickens Universe. Please visit summer.ucsc.edu for courses and details or e-mail summers@ucsc.edu with any questions.

UCSC Silicon Valley Extension

Undergraduates and graduate students can find credit fulfillment options and career-oriented courses at UCSC Silicon Valley Extension, the continuing education arm of the university.

UCSC Extension is located in Santa Clara at UCSC Silicon Valley Extension, a facility that is also home to UC Scout and programs of UCSC's Baskin School of Engineering. Classroom courses are held at the Santa Clara location, and UCSC Extension serves adults who live and work in the South Bay, Peninsula, and East Bay communities, as well as on the Central Coast. A large number of popular courses are also available online.

Programs are open enrollment and courses range in length from a single day to multiple weeks. Most class meetings are scheduled on weekday evenings and weekends. Certificate programs focus on advanced

professional education and are oriented toward immediate application in the workplace. While most certificates can be completed within one year, coursework is graded and substantial, typically involving lectures, readings, presentations, and final projects or examinations. The key program areas at UCSC Extension are:

- Business and Management
- Engineering and Technology
- Applied and Natural Sciences
- Education

Extension programs are open to any adult but cater to those who hold undergraduate or graduate degrees and who would benefit from university-level professional study. The instructors are degreed working professionals with practical expertise in the subject areas they teach. In some cases, they are faculty from UC and other educational institutions.

Regularly enrolled UCSC students may obtain degree credit for Extension courses numbered 1–199. Upon submission of the Extension transcript to the Office of Admissions, the course credit may be applied toward a bachelor's degree at UCSC. Extension courses numbered other than 1–199 are not applicable to a UCSC degree. However, many Extension courses are recognized for graduate degree credit by other universities. Check the Extension catalog for details.

UCSC Extension also provides professional education on a contract basis to local corporations and agencies through its academic departments. Upon request, the departments offer management, engineering, bioscience, and education courses and certificates on site at the companies' locations.

Comprehensive program descriptions and course offerings are available online at at ucsc-extension.edu. To be placed on the mailing list for a print catalog, call (408) 861-3700. The mailing address for UCSC Silicon Valley Extension is 2505 Augustine Drive, Santa Clara, California 95054-3303.

Open Campus/Concurrent Enrollment

Concurrent Enrollment through Extension is a cooperative arrangement between UC Santa Cruz and UCSC Extension Silicon Valley that enables members of the public to enroll in one or two regular UCSC undergraduate or graduate courses per quarter for credit. The program is

administered by UCSC Extension Silicon Valley, and course credit granted appears on a UCSC Extension Silicon Valley transcript. Participants must meet certain criteria outlined in the Concurrent Enrollment application. An application fee is charged for each quarter of enrollment in addition to course fees. A first-time application filed at least one week prior to the first day of instruction for the quarter has a $65 fee; subsequent applications filed at least one week prior to the first day of instruction for the quarter have a $20 fee. Applications filed later than one week prior to the first day of instruction for the quarter have a $110 fee.

Concurrent Enrollment through Extension may be used as a path toward a part-time or full-time degree program or as a way of studying subjects of personal or occupational interest. Credit earned through this program may be used toward degree requirements, when applicable, if participants subsequently seek admission to the university and are accepted.

Financial aid is not available to participants in the Concurrent Enrollment program.

For further information and to obtain the application packet, contact UCSC Extension Silicon Valley, 2505 Augustine Drive, Suite 100, Santa Clara, CA 95054-3003, (831) 861-3700. Web: www.ucsc-extension.edu.

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General Education Requirements

Fall 2014 Quarter

General Education Requirements

Courses that Fulfill General Education Requirements for Students Entering Fall 2010

Cross-Cultural Analysis (CC code)—One course required (5 credits)

One five-credit course or equivalent is required that emphasizes understanding of one or more cultures and societies outside the United States.

Anthropology 2, 110G, 110H, 110K, 110O, 110P, 130A, 130B, 130C, 130E, 130F, 130H, 130I, 130J, 130L, 130M, 130T
Applied Linguistics 113
Chinese 6
Cowell College 84
Education 170, 171
Environmental Studies 154
Feminist Studies 1, 10, 40, 80S, 120, 175
Film and Digital Media 80I, 132A, 132B, 132C, 165E, 168
French 4, 5, 6
German 4, 5, 6, 119
History 2A, 2B, 5A, 5B, 11A, 11B, 20, 30, 40A, 40B, 41, 43, 45, 50, 62A, 62B, 63, 65A, 70A, 70B, 80H, 80N, 80Y, 101A, 101B, 101C, 102A, 102C, 103, 105, 106A, 107, 134B, 137A, 137B, 137C, 140B, 140C, 140D, 140E, 147A, 147B, 150A, 150C, 152, 155, 156, 157, 159A, 159B, 160A, 160C, 163B, 166, 173A, 173B, 173C, 174, 176, 178C, 181
History of Art and Visual Culture 10, 20, 22, 24, 58, 70, 80, 110, 111, 122A, 122B, 123B, 124A, 124B, 124C, 124D, 127A, 127B, 143C, 160A, 162A, 162B, 172, 179, 180A, 191O
English-Language Literature 160F
Italian 4, 5, 6, 106
Japanese 6
Jewish Studies 101
Languages 80D
Latin American and Latino Studies 30, 50, 80D, 80H, 80I, 80Q, 80S, 80X, 121, 140, 145, 152, 165, 169, 170, 194G, 194I, 194M, 194Q
Linguistcs 80C
Italian Literature 150D
Modern Literary Studies 125D, 144E
Pre- and Early Modern Literature 102, 107A, 107B, 150D
Spanish/Latin American/Latino Literature 102A, 102B, 130E, 131H, 153
World Literature 124, 132
Music 11D, 80A, 80I, 80P, 80Q, 80S, 80T, 80X, 150I, 180D
Philosophy 22
Politics 60, 65, 166
Portuguese 65A, 65B

Russian 4, 5, 6
Sociology 15, 162, 188A
Spanish 4, 5, 5M, 6, 156A, 156M
Spanish for Heritage Speakers 4, 5, 6
Theater Arts 22, 80Z, 122, 151I, 161D

Ethnicity and Race (ER code)—One course required (5 credits)

One five-credit course or equivalent is required that focuses on issues of ethnicity and/or race.

Anthropology 110T, 130N, 159, 176D
Art 80F
Critical Race and Ethnic Studies 10, 100
Education 128, 140, 177, 181
Environmental Studies 147
Feminist Studies 20, 115, 139, 145, 150
Film and Digital Media 165B, 165D
History 9, 10A, 10B, 12, 14, 74, 75, 80X, 104D, 106B, 109A, 110A, 110H, 111, 115A, 115B, 116, 121A, 121B, 123, 125, 126, 127, 128, 134A, 178E, 185A, 185B, 185E, 185F
History of Art and Visual Culture 46, 60, 140B, 140C, 140D, 163, 170, 190J, 190X, 191C
Latin American and Latino Studies 1, 20, 40, 45, 80F, 80J, 100, 112, 132, 143, 150, 161P, 166, 175, 178, 194C
Literature 61J, 61R, 80L, 80N
English-Language Literatures 150A, 150C, 150F, 180D
Modern Literary Studies 144A, 144D, 144H
Spanish Literature 105
World Literature and Cultural Studies 127, 129
Music 80E
Sociology 156
Spanish 105, 156G
Theater Arts 80A, 80M, 151A, 161P, 166

Interpreting Arts and Media (IM code)—One course required (5 credits)

One five-credit course or equivalent is required that focuses on the practice, analysis, interpretation, and/or history of one or more artistic or mass media (media in which non-textual materials play primary roles).

Anthropology 110A, 110B, 110R, 120, 132
Art 10D, 10E, 10F, 80D
Computer Science 80K
Crown College 60
Education 102, 120
Feminist Studies 14, 21, 126
Film and Digital Media 80A, 80M, 80S, 80X, 130, 134A, 134B, 136A, 136B, 136D, 162, 165C
French 108
History 104C, 122A, 122B
History of Art and Visual Culture 27, 30, 31, 40, 41, 43, 45, 50, 51, 117, 122D, 127C, 127E, 133A, 135B, 135D, 135E, 135H, 135P, 137B, 137C, 137D, 137E, 140A, 140P, 141A, 141B, 141C, 141E, 141F, 141H, 141I, 141J, 141K, 143A, 143B, 143D, 151, 154, 155, 160B, 190C, 191P
Latin American and Latino Studies 70, 124, 128, 129, 176
Literature 61H
German Literature 161
Modern Literary Studies 125J, 125N
Pre- and Early Modern Literature 137
Spanish/Latin American Literature 135F
Music 11A, 80G, 80M, 80N, 80O, 80V, 80Y, 150C, 150P, 150X
Oakes College 128
Theater Arts 10, 20, 31P, 40, 80D, 80L, 80N, 80P, 80Q, 113, 116A, 117, 130, 131P, 165

Mathematical and Formal Reasoning (MF code)—One course required (5 credits)

One five-credit course or equivalent is required that emphasizes university-level mathematics, computer programming, formal logic, or other material that stresses formal reasoning, formal model building, or application of formal systems.

Applied Mathematics and Statistics 3, 6, 10, 11A, 11B, 15A, 15B, 20, 114, 147
Astronomy and Astrophysics 2, 3, 4, 5, 12, 13, 15, 16
Biology: Molecular, Cell, and Developmental 180
Biomolecular Engineering 160
College Eight 81B
Computer Engineering 8, 16
Computer Science 5C, 5J, 5P, 10, 11, 12B
Earth and Planetary Sciences 11, 81B
Economics 11A, 11B
Mathematics 3, 11A, 11B, 19A, 19B, 20A, 20B, 21, 22, 23A, 23B, 100
Music 80L, 130
Philosophy 9
Physics 5A, 6A

Scientific Inquiry (SI code)—One course required (5 credits)

One five-credit course or equivalent is required that focuses on the essential roles of observation, hypothesis, experimentation and measurement in the sciences.

Anthropology 1, 3
Astronomy and Astrophysics 1, 6
Biology: Molecular, Cell, and Developmental 80A, 80E, 80J
Chemistry and Biochemistry 1A
College Eight 81C
Crown College 84H
Earth and Planetary Sciences 2, 3, 5, 7, 8, 10, 20, 65
Electrical Engineering 80T, 81C
Environmental Studies 24
History 101D
Linguistics 50
Microbiology and Environmental Toxicology 80E
Ocean Sciences 1, 80A
Physics 1, 5B, 5C, 6B, 6C
Psychology 150

Statistical Reasoning (SR code)—One course required (5 credits)

One five-credit course or equivalent is required that focuses on developing skills in approaching quantitative data and statistical reasoning.

Applied Mathematics and Statistics 5, 7, 80A, 80B, 118, 131, 132
Biology: Evolutionary and Ecology 80S
Computer Engineering 7, 107
Computer Science 17, 80L
Earth Sciences 12, 125
Economics 113
Electrical Engineering 80S
Linguistics 147, 157
Mathematics 4
Ocean Sciences 90
Philosophy 8
Physics 133
Psychology 2
Sociology 103A

Textual Analysis and Interpretation (TA code)—One course required (5 credits)

One five-credit course or equivalent is required that has as its primary methodology the interpretation or analysis of texts.

Biology: Molecular, Cell, and Developmental 114, 126, 127

Chinese 103, 104, 105, 107, 108
College Eight 80A, 80B, 80C
Crown College 80F
History 1, 13, 100
History of Consciousness 12, 112, 115, 185A
Japanese 105
Kresge College 16
Latin American and Latino Studies 131, 144, 180
Linguistics 108
Literature 1, 61F, 61K, 61M, 61P, 80E, 80Z, 102
English-Language Literatures 102A, 103E, 110A, 110F, 120A, 120B, 120H, 120L, 170A, 170C, 170F, 180B, 180H, 180K, 180M, 180V
Latin Literature 100
Modern Literary Studies 145A, 145B, 167K
Pre- and Early Modern Literature 134, 144B
Spanish/Latin American/Latino Literature 60
World Literature and Cultural Studies 109, 115A
Mathematics 181
Philosophy 11
Politics 4, 10, 20
Sociology 164
Spanish 156F
Stevenson College 23, 81A, 81B
Theater Arts 61A, 61B, 61C, 80K, 80X, 163H, 163K

Perspectives (5 credits)

Choose one five-credit course or equivalent from any of the three following categories: PE-E, PE-H, PE-T.

Environmental Awareness (PE-E code)

Courses focus on humankind's interactions with nature.

Anthropology 146
Art 80B
Biology: Evolutionary and Ecology 85
College Ten 105
Community Studies 149
Crown College 80L
Earth and Planetary Sciences 1, 9, 110A
Electrical Engineering 80J, 180J
Environmental Studies 25, 65, 80A, 80B, 125, 146
History 177
History of Art and Visual Culture 116
Latin American and Latino Studies 80P, 164
Ocean Sciences 80B
Philosophy 28
Physics 2
Sociology 125, 173

Human Behavior (PE-H code)

Courses focus on aspects of individual human behavior or the operation of human groups.

Anthropology 110L, 110V
Art 80I
Community Studies 156
Cowell College 138A
Digital Arts and New Media 80I
Economics 1, 2
Latin American and Latino Studies 149, 159, 174, 194F
Philosophy 24
Politics 1, 70
Psychology 1, 134
Sociology 136, 137, 159, 172

Technology and Information Management 115
Theater Arts 80C

Technology and Society (PE-T code)

Courses emphasize issues raised by the prevalence of technology in society.

Art 80H
Biomolecular Engineering 5, 80G, 80H
Computer Engineering 80A, 80E, 80N
Computer Science 2, 80J, 80S, 119
Crown College 80J
Environmental Studies 176
Feminist Studies 30, 124, 133
Film 80T, 80V, 136C
World Literature 105
Music 80C
Philosophy 80G
Sociology 115
Stevenson College 90
Theater Arts 80T

Practice (minimum 2 credits)

Choose one minimum two-credit course from any of the three following categories: PR-E, PR-C, PR-S

Collaborative Endeavor (PR-E code)

Courses provide significant experience with collaboration on a project.

Biology: Molecular, Cell, and Developmental 140
Biomolecular Engineering 88A, 123A, 123T
College Nine 120
College Ten 120
Computer Engineering 123A, 129B
Computer Science 20, 116, 183
Earth and Planetary Sciences 109L, 110L, 188A
Electrical Engineering 123A, 129B
Environmental Studies 100L
Film and Digital Media 151, 185X
Kresge College 72, 172
Mathematics 101
Music 1C, 2
Physics 180
Porter College 22A
Psychology 182
Technology and Information Management 20
Theater Arts 139

Creative Process (PR-C code)

Courses teach creative process and techniques in the arts (including creative writing), at an individual or a collaborative level.

Anthropology 81A, 81B, 81C, 154
Art 20G, 20H, 20I, 20J, 121
Computer Science 25, 26, 80V, 178, 179
Digital Arts and New Media 179
Film and Digital Media 20P, 150, 170A, 170B, 171C
Latin American and Latino Studies 81A, 81B, 81C
Creative Writing 10, 52, 53, 170, 180
Music 9, 10, 80Z, 127, 163, 166
Porter College 20E, 20F, 21C, 23B, 34B, 39, 80I
Theater Arts 14, 15, 17, 19, 30, 36, 37, 114, 115A, 115B, 119, 128, 136

Service Learning (PR-S code)

Courses provide the opportunity for supervised campus or community service that contributes to a student's overall education.

Biology: Ecology and Evolutionary 95
Biology: Molecular, Cell, and Developmental 191
Chemistry and Biochemistry 182
College Eight 55, 155, 162
College Ten 98, 110, 110B
Community Studies 191, 198
Cowell College 168, 184A, 184B, 184C
Crown College 70
Education 50A, 50B, 50C, 180
Environmental Studies 83, 184
History 129
Kresge College 12A, 12B, 12C
Literature 191
Mathematics 188, 189
Merrill College 85B, 85C, 90, 90F
Oakes College 73B, 151B
Porter College 13C, 83
Psychology 155, 193, 193A, 193B, 193C, 193D
Writing 169

Composition (C1 and C2 code) (10 credits) Two five-credit courses.

C1

College Eight 80A, 80D
College Nine 80A, 80D
College Ten 80A, 80D
Cowell College 80A
Crown College 80A
Kresge College 80A, 80D
Merrill College 80A
Oakes College 80A, 80D
Porter College 80A
Stevenson College 80A

C2

College Eight 80B
College Nine 80B
College Ten 80B
Cowell College 80B
Crown College 80B
Kresge College 80B
Merrill College 80B
Oakes College 80B
Porter College 80B
Stevenson College 80B, 81B
Writing 2

Disciplinary Communication (DC code)

Students satisfy the DC Requirement by completing 1-3 upper-division courses required for their major totaling a minimum of five credits.

Courses that Fulfill General Education Requirements for Students Entering Prior to Fall 2010

Refer to the course listings in the Class Search in MyUCSC to identify general education courses offered.

Introductions to Disciplines, Humanities, and Arts (IH code)—Two courses from different departments required (10 credits)

Only one IH requirement may be satisfied with a course (equivalent to 5 credits) from the Arts Division (art, film and digital media, history of art and visual culture, music, theater arts); only one language course may be used to satisfy an IH requirement; and only one literature course may be used to satisfy an IH requirement. Note: Transfer courses designated IH from English departments are considered to be literature courses for general education purposes.

Chinese 4, 5, 6, 107, 108
Cowell 118B
Crown 60
Feminist Studies 1
French 4, 5, 6
German 4, 5, 6
Hebrew 4, 5
History 1, 2A, 2B, 5A, 5B, 10A, 10B, 11A, 11B, 13, 14, 30, 40A, 40B, 41, 43, 62A, 62B, 65A, 70A, 70B
History of Art and Visual Culture 20, 24, 30, 31, 43, 80
History of Consciousness 12
Italian 4, 5, 6
Japanese 4, 5, 6
Linguistics 50, 53, 111, 112
Literature 1, 61F, 61H, 61J, 61M, 61P, 61R, 61W
Greek Literature 100
Latin Literature 100
Spanish Literature 60
Music 11A, 11B, 11C, 11D
Philosophy 9, 11, 22, 24, 26, 28
Portuguese 60B, 65A, 65B
Russian 4, 5, 6
Spanish 4, 5, 5M, 6
Spanish for Heritage Speakers 4, 5, 6
Theater Arts 10, 19, 20, 30, 33C, 36, 40, 61A, 61B, 61C, 122

Introductions to Disciplines, Natural Sciences and engineering (IN code)—Two courses from different departments required (10 credits)

Transfer courses designated IN from anatomy, botany, physiology, and zoology departments are considered to be biology courses.

Anthropology 1
Applied Mathematics and Statistics 5, 7, 11A, 11B, 15A, 15B
Astronomy and Astrophysics 1, 2, 3, 4, 5, 12, 13, 15, 16, 18, 119
Biology: MCD 20A
Biomolecular Engineering 5
Chemistry and Biochemistry 1A, 1B, 1C
College Eight 81B
Computer Engineering 3, 8, 12
Computer Science 2, 5C, 5J, 5P, 10, 12A, 12B, 13H, 20
Earth Sciences 1, 3, 5, 7, 10, 20, 65, 81B, 119
Economics 11A, 11B
Environmental Studies 23, 24
Mathematics 11A, 11B, 19A, 19B, 20A, 20B
Ocean Sciences 1
Physics 1, 5A, 5B, 5C, 6A, 6B, 6C

Introduction to Disciplines, Social Sciences (IS code)—Two courses from different departments required (10 credits)

Anthropology 2, 3
Community Studies 10
Economics 1, 2
Education 60
Environmental Studies 25
Latin American and Latino Studies 1
Legal Studies 10

Politics 1, 3, 4, 17, 20, 60, 70
Psychology 1, 65
Sociology 1, 10, 15

Topical Courses (T code)—Three courses required (15 credits)

Students entering UCSC with fewer than 45 transferable credits must take three topical courses in residence at UCSC. UCSC Summer Session courses can be used to satisfy topical requirements.

Choose one course from each academic area: natural sciences (2), social sciences (3), and humanities and arts (4). Courses labeled 5, 6, and 7 satisfy topical requirements in two different academic areas; students can apply this kind of topical course to either academic area indicated. The three topical course requirements must be satisfied with three different courses. In the Schedule of Classes, courses that carry a T general education code are listed as follows:

2–Natural Sciences Area
3–Social Sciences Area
4–Humanities and Arts Area
5–Humanities and Arts or Social Sciences Area
6–Natural Sciences or Humanities and Arts Area
7–Natural Sciences or Social Sciences Area

T2–Natural Sciences

Astronomy and Astrophysics 6
Biology: Molecular, Cell and Developmental 80A, 80E, 80J,
Biomolecular Engineering 80H
Chemistry and Biochemistry 80A
College Eight 81C
Computer Engineering 80H, 80N, 80U
Computer Science 80B, 80G, 80K, 80V
Crown 80S
Earth and Planetary Sciences 2, 8, 9, 11, 12
Electrical Engineering 80J, 81C
Microbiology and Environmental Toxicology 80E
Ocean Sciences 80A, 80B

T3–Social Sciences

College Eight 80A, 80B
College Nine 80A, 80B
College Ten 80A, 80B
Economics 80A, 80G, 80H
History 80X
Latin American and Latino Studies 30, 40, 45, 80D, 80F, 80H, 80I, 80J, 80P, 80Q, 80R, 80S
Merrill College 80A, 80B
Psychology 80A

T4–Humanities and Arts

Art 80D
Cowell College 80A, 80B
Feminist Studies 80S
Hebrew 80
History 80H, 80N, 80Y
History of Consciousness 80U
Languages 80D
Latin American and Latino Studies 80E
Linguistics 80V
Literature 80I, 80L, 80N, 80V, 80Z
Music 80A, 80F, 80G, 80H, 80I, 80J, 80M, 80N, 80O, 80P, 80Q, 80S, 80T, 80V, 80W, 80X
Oakes College 80H
Philosophy 80E
Porter College 80A, 80B, 80E, 80I, 80W

Stevenson College 80H
Theater Arts 80A, 80B, 80D, 80H, 80K, 80L, 80M, 80N, 80P, 80Q, 80S, 80V, 80X, 80Y, 80Z

T5–Humanities and Arts or Social Sciences

Crown College 80J
Feminist Studies 10, 20, 30, 40
Film and Digital Media 80S, 80T, 80X
Kresge College 80A, 80B, 80H, 80T
Latin American and Latino Studies 80X
Linguistics 80C, 80D
Merrill College 80C
Oakes College 80A, 80B
Philosophy 80M
Porter College 80L
Stevenson College 80A, 80B, 80T

T6–Natural Sciences or Humanities and Arts

Art 80F
Biomolecular Engineering 80G
Computer Engineering 80E
Crown College 80A, 80B
Music 80C, 80L, 80R
Philosophy 80G, 80S
Porter College 80K

T7–Natural Sciences or Social Sciences

Applied Mathematics and Statistics 80A
Computer Engineering 80A
Computer Science 80J, 80S
Crown College 80F, 80L
Electrical Engineering 80S, 80T
Environmental Studies 80A, 80B
Technology and Information Management 80C

Composition Courses (C1 and C2 code)—One course each required for students entering fall 2005 (5 credits)

C1

College Eight 80A, 80D
College Nine 80A, 80D
College Ten 80A, 80D
Cowell College 80A
Crown College 80A
Kresge College 80A, 80D
Merrill College 80A
Oakes College 80A, 80D
Porter College 80A
Stevenson College 80A

C2

College Eight 80B
College Nine 80B
College Ten 80B
Cowell College 80B
Crown College 80B
Kresge College 80B
Merrill College 80B
Oakes College 80B
Porter College 80B
Stevenson College 80B, 81B
Writing 2

Writing-Intensive Courses (W code)—One course required (5 credits)

Anthropology 150, 152, 170, 172, 194A, 194B, 194C, 194D, 194E, 194F, 194G, 194H, 194I, 194K, 194L, 194M, 194N,194O, 194P, 194Q, 194R 194S, 194T, 194U, 194V, 194W, 194X, 194Y, 194Z, 196C, 196D, 196E, 196F, 196G, 196H, 196I
Applied Mathematics and Statistics 156
Art 149A, 149B, 150C, 190A
Biochemistry 110L
Biology: Ecology and Evolutionary 141L, 145L, 150L, 151B, 158L, 159A, 161L, 188
Biology: Molecular, Cell, and Developmental 100L, 105L, 105M, 109L, 110L, 115L, 186L
Chemistry and Biochemistry 122
Community Studies 194
Computer Engineering 185
Computer Science 166B
Earth Sciences 195
Economics 128, 142, 165, 166B, 183, 184, 188, 195
Environmental Studies 104A, 109B, 156, 157, 172
Feminist Studies 194I, 194N, 195
Film and Digital Media 120, 150, 196B
History 190A, 190B, 190C, 190E, 190F, 190G, 190H, 190I, 190K, 190L, 190M, 190N, 190O, 190P, 190Q, 190R, 190S, 190T, 190U, 190W, 190X, 190Y, 190Z, 194A, 194B, 194D, 194E, 194G, 194H, 194M, 194N, 194Q, 194R, 194S, 194U, 194X, 194Y, 195B, 196B, 196C, 196D, 196E, 196F, 196G, 196H, 196I, 196J, 196K, 196M, 196N, 196O, 196P, 196Q, 196R, 196S, 196U, 196V, 196W, 196Y, 196Z
History of Art and Visual Culture 100A
Kresge College 80T
Latin American and Latino Studies 194H
Legal Studies 128, 183, 196
Linguistics 101, 113, 114A
Literature 1, 61W, 101
Microbiology and Environmental Toxicology 119L, 151
Philosophy 127
Physics 182
Porter College 80W
Psychology 110, 119A, 119H, 119M
Science Communication 160
Sociology 103B, 134, 195C
Stevenson College 80T
Technology and Information Management 158
Theater Arts 157, 159
Writing 64, 101, 102, 103, 104, 110A, 161, 163, 165, 166A, 166B, 166D, 167

Quantitative Courses (Q code)—One course required (5 credits)

Applied Mathematics and Statistics 3, 5, 6, 7, 10, 11A, 11B, 15A, 15B, 80A, 131
Astronomy and Astrophysics 2, 3, 4, 5, 12, 13, 15, 16, 18
Chemistry and Biochemistry 1A, 1B, 1C
College Eight 81B
Computer Engineering 8, 12, 16
Computer Science 80B
Earth and Planetary Sciences 11, 12, 81B, 111
Economics 11A, 11B, 113
Electrical Engineering 80T
Mathematics 3, 4, 11A, 11B, 19A, 19B, 20A, 20B, 21, 110
Ocean Sciences 1
Philosophy 8, 9
Physics 1, 5A, 6A
Psychology 2, 181
Sociology 103A, 103B

Arts Courses (A code)—One course or equivalent required (5 credits)

Courses carrying fewer than five credits may be combined for credit toward satisfaction of the A requirement if they total at least five credits. Some two-credit music courses must be

taken in sequence to fulfill the A requirement.

Anthropology 81A, 81B, 81C
Art 80D, 80F, 121, 194
Cowell College 70A, 70B, 70C
Feminist Studies 80S, 123
Film and Digital Media 80S, 80T, 80X, 132A, 132B, 136A, 136B, 151, 160, 165A, 170A, 170B, 176, 185D
History of Art and Visual Culture 20, 22, 24, 27, 30, 31, 40, 41, 43, 50, 51, 58, 60, 70, 80, 100A, 110, 111, 115, 117, 118, 122A, 122B, 122C, 122D, 123A, 123B, 124C, 127A, 127B, 127C, 127D, 133A, 135B, 135D, 135E, 135F, 137A, 137B, 137C, 137D, 137E, 140A, 140B, 140C, 140D, 141A, 141B, 141E, 141F, 141H, 141I, 141K, 143A, 143C, 143F, 151, 154, 160A, 160B, 162A, 170, 172, 190A, 190B, 190C, 190D, 190E, 190F, 190G, 190J, 190M, 190O, 190P, 190Q, 190U, 190V, 190W, 190X, 191A, 191B, 191C, 191D, 191E, 191F
Kresge College 80H
Latin American and Latino Studies 81A, 81B, 81C, 161P, 171
Literature/Creative Writing 10, 52, 53, 170, 180, 183
Music 1A, 5A, 5B, 5C, 6, 10, 11A, 11B, 11C, 11D, 51, 54, 75, 80A, 80C, 80F, 80G, 80H, 80I, 80J, 80L, 80M, 80N, 80O, 80P, 80Q, 80R, 80S, 80V, 80W, 80X, 102, 103, 159A, 160, 180A, 180B
Music Sequence Courses: 1C–1C–1C, 2–2–2, 3–3–3, 4A–4A–4A, 4B–4B–4B, 4A–4A–4B, 4A–4B–4B, 8–8–8, 9–9–9, 166–166–166
Philosophy 152
Porter College 14, 20A, 20C, 20D, 21A, 21C, 22, 22A, 22F, 22G, 23A, 23B, 23C, 28, 32A, 33, 33A, 34B, 35, 38B, 39, 80E, 80G, 80I, 80L, 83, 120, 121, 121C
Theater Arts 10, 12, 14, 15, 17, 18, 18C, 19, 20, 21A, 21B, 22, 23, 30, 31P, 33C, 36, 37, 40, 52, 61A, 61B, 61C, 80A, 80B, 80D, 80H, 80K, 80L, 80M, 80N, 80P, 80Q, 80S, 80V, 80X, 80Y, 80Z, 100A, 100B, 100C, 100W, 104, 106, 113, 114, 115A, 115B, 116A, 117, 117A, 118, 119, 121, 122, 126, 128, 130, 131, 131C, 131P, 135, 136, 137, 139, 142, 151, 152, 155, 157, 159, 160, 161A, 161C, 161D, 161M, 161P, 161Q, 161R, 161S, 161T, 161U, 161Y, 163A, 163E, 163G, 164, 165, 166, 193, 193F

U.S. Ethnic Minorities/Non-Western Society Courses (E code)—One course required (5 credits)

Anthropology 110G, 110O, 110P, 130A, 130B, 130C, 130E, 130F, 130G, 130H, 130I, 130L, 130M, 130N, 130T
Community Studies 141, 151
Computer Science 80S
Economics 120, 128
Education 60, 128, 140, 141, 164, 181
Environmental Studies 154
Feminist Studies 10, 102, 115, 120, 123, 124, 132, 139, 145, 150, 175, 194F
Film and Digital Media 132C, 165B, 165D, 165E
History 5A, 11A, 11B, 14, 30, 40A, 40B, 41, 43, 45, 75, 80H, 80X, 80Y, 101A, 101B, 104C, 104D, 106A, 106B, 109A, 111, 121A, 121B, 126, 127, 128, 130, 132, 133, 134A, 134B, 137A, 137B, 137C, 140C, 140D, 141A, 141B, 145, 147A, 147B, 148, 150C, 154A, 155, 185A, 185B, 185D, 185E, 185F, 190A, 190B, 190E, 190L, 190N, 190O, 190R, 194G, 194H, 194N, 194U, 194Y, 196N
History of Art and Visual Culture 22, 24, 27, 58, 60, 70, 80, 110, 111, 115, 117, 122B, 123A, 123B, 127C, 127D, 135E, 140C, 140D, 141K, 143C, 170, 172, 190A, 190B, 190J, 190M, 190W, 190X, 191A, 191B, 191C
History of Consciousness 118
Latin American and Latino Studies 1, 30, 40, 45, 80D, 80E, 80F, 80H, 80I, 80J, 80P, 80Q, 80R, 80S, 80X, 100, 100A, 100B, 101, 111, 122, 128, 129, 140, 143, 144, 145, 152, 159, 161P, 164, 166, 168, 169, 170, 175, 176, 178, 180, 194F, 194G, 194H, 194M, 194R
Legal Studies 121, 128, 135, 136
Literature 61J, 61R, 80L, 80N
English-Language Literatures 150A, 150C, 150E, 150F
Modern Literary Studies 125D, 144A, 144D, 144G, 146, 180A
Spanish Literature 60, 102B, 130A, 130D, 130E, 131H, 134B, 134L, 134M, 134N, 135C
World Literature and Cultural Studies 109, 123, 124, 127, 135, 136, 140, 190A, 190B
Merrill College 80A, 80B

Music 11B, 11D, 80A, 80F, 80I, 80P, 80Q, 80X, 180A, 180B
Oakes College 80A, 80B, 80H, 128
Philosophy 80E
Politics 121, 140C, 140D, 141, 146
Psychology 110, 142, 143
Sociology 15, 133, 156, 159, 169, 170, 174
Spanish 156A
Stevenson College 80H, 80T, 81A, 81B
Theater Arts 22, 80A, 80M, 100A, 100B, 100W, 161D, 161P, 161R

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UC SANTA CRUZ, 1156 HIGH STREET, SANTA CRUZ, CA 95064
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CONTACT

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Advanced Placement Exams (AP) and International Baccalaureate Higher Level Exams (IBH) 2013-2014
(General Education Requirements Pre-Fall 2010 and Beginning Fall 2010)

AP Exams Subject	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**UCSC Course Equivalency**	**Notes:**
AP **Art History**	3,4,5	8	A IH	IM		One course waived for the Art major but may not be used in lieu of lower-division courses for the History of Art and Visual Culture major.
AP **Art, Studio** 2-D Design _____ 3-D Design _____ Drawing ---------- Drawing	 3,4,5 _____ 3,4,5 _____ 3,4,5 -------- 4,5	 8 ____ 8 ____ 8	 A _____ A _____ A	 PR-C _____ PR-C _____ PR-C	 ---------- Art 20A	Maximum of 8 units granted for all Studio Art exams.
AP **Biology**	3,4,5 -------- 5	8	IN	SI	 ---------- BIOL 20A BIOE 20B	
AP **Chemistry**	3,4,5 ------- 5	8	IN	SI	 ---------- Chemistry 1A	
AP **Computer Science A**	3,4,5 -------- 3 -------- 4,5	2			 ---------- Computer Science 5J ---------- Computer Science 12A, 12L	---------- Contact the School of Engineering.
AP **Computer Science AB**	3,4,5 -------- 4,5	4	IN	MF	 ---------- Computer Science 12A, 12L Computer Science 12B, 12M	Last given in May 2009.
AP **Economics** Macroeconomics _____ Microeconomics	3,4,5 -------- 4,5 _____ 3,4,5 ------- 4,5	4 ____ 4	IS _____ IS	PE-H _____ PE-H	 ---------- Economics 2 _____ ---------- Economics 1	Both Economics exams may be taken for credit but satisfies one IS.

AP Exams Subject	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**UCSC Course Equivalency**	**Notes:**
AP **English** Language and Composition _____ Literature and Composition	3,4,5 -------- 4,5 _____ 3,4,5 -------- 4,5	8 _____ 8	IH ------- C1 IH _____ IH ------- C1 IH	---------- C1 _____ ---------- C1		Satisfies Entry Level Writing Requirement (ELWR). Maximum of 8 units granted for both Language and Composition and Literature and Composition exams
AP **Environmental Science**	3,4,5	4		PE-E		
AP **Government and Politics** Comparative _____ United States	3,4,5 _____ 3,4,5	4 _____ 4	IS _____ IS	CC _____		Both Government and Politics exams may be taken for credit but satisfies one IS.
AP **Human Geography**	3,4,5	4				
AP **History** European _____ United States _____ World	3,4,5 _____ 3,4,5 _____ 3,4,5	8 _____ 8 _____ 8	IH _____ IH _____ IH	CC _____ _____ CC		All History exams may be taken for credit but satisfies one IH.
AP **Language and Culture** Chinese _____ Japanese _____ Italian	3,4,5 _____ 3,4,5 _____ 3,4,5	8 _____ 8 _____ 8				Each Language and Culture exam may be taken for credit.

AP Exams Subject	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**UCSC Course Equivalency**	**Notes:**
AP **Language** French German Spanish	3,4,5 3,4,5 3,4,5	8 8 8				Each Language exam may be taken for credit.
AP **Latin** Literature	3,4,5 3,4,5	4 4		TA TA		AP Latin Literature last given in May 2009.
AP **Literature** French Spanish	3,4,5 3,4,5	8 8		TA TA		Each Literature exam may be taken for credit. AP French Literature last given in May 2009.
AP **Mathematics** Calculus AB	3,4,5 --- 4,5	4	IN, Q	MF	Applied Mathematics and Statistics 3 Mathematics 3 --- Applied Mathematics and Statistics 3 Mathematics 3 Mathematics 11A Mathematics 19A	Allows enrollment in Math 11A or 19A. --- Allows enrollment in Math 11B, 19B or 20A. Enrollment in first quarter calculus is recommended for proposed majors in mathematics or the physical and biological sciences. Maximum of 8 units granted for both Calculus AB and Calculus BC exams
AP **Mathematics** Calculus BC	3,4,5 --- 4,5	8	IN, Q	MF	Applied Mathematics and Statistics 3 Mathematics 3 Mathematics 11A Mathematics 19A --- Applied Mathematics and Statistics 3 Mathematics 3 Mathematics 11A, 11B Mathematics 19A, 19B	Allows enrollment in Math 11B, 19B or 20A. Enrollment in first quarter calculus is recommended for proposed majors in mathematics, physical and biological sciences, and the School of Engineering. --- Allows enrollment in Math 20A, 22 or 23A. Enrollment in Mathematics 23A is recommended for proposed majors in the School of Engineering. Maximum of 8 units granted for both Calculus AB and Calculus BC exams
AP **Music Theory**	3,4,5	8	A			

AP Exams Subject	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**UCSC Course Equivalency**	**Notes:**
AP **Physics**: Physics B _____ C Mechanics _____ C Electr &Mag	 3,4,5 _____ 3,4,5 _____ 3,4,5	 8 _____ 4 _____ 4	 IN _____ IN _____ IN	 SI _____ SI _____ SI		Maximum of 8 units granted for all Physics exams.
AP **Psychology**	3,4,5 -------- 4,5	4	IS	PE-H	---------- Psychology 1	
AP **Statistics**	3,4,5 -------- 4,5	4	IN, Q	SR	---------- Applied Mathematics and Statistics 5 Psychology 2	---------- Waives AMS 7/L for Environmental Studies majors

NOTE: A maximum of one "IH" will be granted from the arts (art history, film and theater arts).
A maximum of one "IN" will be granted from mathematics and statistics.
If AP and IBH exams and/or college courses are taken in the same subject area, credit may be limited.
No credit is granted for lower division language and literature other than English if it is the student's native language and at least nine years of education have been completed in that language.

IBH Exams Subjects	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**Course Equivalency or Waiver**	**Notes:**
IBH **Biology**	5,6,7	8	IN	SI		
IBH **Chemistry**	5,6,7	8	IN	SI		
IBH **Classical Languages** Latin _____ Greek	 5,6,7 _____ 5,6,7	 8 _____ 8				Each Language exam may be taken for credit.
IBH **Computer Science**	5,6,7 -------- 5 -------- 6,7	8	IN	MF	---------- Computer Science 12A, 12L ---------- Computer Science 12A, 12L Computer Science 12B, 12M	---------- Contact the School of Engineering.
IBH **Economics**	5,6,7	8	IS	PE-H		
IBH **English Language A1**	5,6,7	8	C1 IH	C1		Satisfies Entry Level Writing Requirement (ELWR).
IBH **Film**	5,6,7	8	A IH	IM		
IBH **Geography**	5,6,7	8		PE-E		
IBH **History** Africa _____ Americas _____ East, S.E. Asia, Oceania _____ Europe _____ South Asia, Middle East	 5,6,7 _____ 5,6,7 _____ 5,6,7 _____ 5,6,7 _____ 5,6,7	 8 _____ 8 _____ 8 _____ 8 _____ 8	IH _____ IH _____ IH _____ IH _____ IH	CC _____ _____ CC _____ CC _____ CC		

IBH Exams Subjects	**Score**	**Qtr Units**	**Gen Ed** Pre-Fall 2010	**Gen Ed** Beginning Fall 2010	**Course Equivalency or Waiver**	**Notes:**
IBH **Language**: A1, A2, B (second language)	5,6,7	8				
IBH **Mathematics**	5,6,7	8	IN, Q	MF		
IBH **Music**	5,6,7	8	A	PR-C		
IBH **Philosophy**	5,6,7	8	IH			
IBH **Physics**	5,6,7	8	IN	SI		
IBH **Psychology**	5,6,7	8	IS	PE-H		
IBH **Social/Cult Anthropology**	5,6,7	8	IS	PE-H		
IBH **Theatre Arts**	5,6,7	8	A IH	PR-C		
IBH **Visual Arts**	5,6,7	8	A	PR-C		

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Graduate Studies

2014-15 General Catalog

UC Santa Cruz offers graduate study in more than 30 academic fields. About 1,500 graduate students are enrolled at the certificate, master's, and doctoral levels. The small size of the UCSC graduate programs encourages close working relations between students and faculty in an informal atmosphere conducive to rapid learning and professional growth. Many graduate programs have interdisciplinary components, and students are encouraged to explore the conceptual connections between related fields as they acquire mastery in their areas of specialization.

Research facilities at UCSC are excellent, and there are extensive opportunities for graduate students to engage in significant independent study and research (see Resources for Learning and Research). Graduate students are also encouraged to obtain teaching experience, primarily as supervised teaching assistants. They are highly valued members of the UCSC community, contributing substantially to the research and teaching conducted on the campus.

Degrees and Programs

The University of California, Santa Cruz, offers graduate programs leading to advanced degrees or certificates in the following areas:

Department	Degree or Certificate
Anthropology	Ph.D.
Applied Economics and Finance	M.S.
Astronomy and Astrophysics	Ph.D.
Biomolecular Engineering and Bioinformatics	M.S./Ph.D.
Chemistry and Biochemistry	M.S./Ph.D.
Computer Engineering	M.S./Ph.D.
Computer Science	M.S./Ph.D.
Digital Arts and New Media	M.F.A.
Earth Sciences	M.S./Ph.D.
Ecology and Evolutionary Biology	M.A./Ph.D.
Economics	Ph.D.
Education	Ph.D.

Education: Teaching (credential program)	M.A.
Electrical Engineering	M.S./Ph.D.
Environmental Studies	Ph.D.
Feminist Studies	Ph.D.
Film and Digital Media	Ph.D.
Games and Playable Media	M.S.
History	M.A./Ph.D.
History of Consciousness	Ph.D.
Latin American and Latino Studies	Ph.D.
Linguistics	M.A./Ph.D.
Literature	M.A./Ph.D.
Mathematics	Ph.D.
Microbiology and Environmental Toxicology	M.S./Ph.D.
Molecular, Cell, and Developmental Biology	M.A.
Music	M.A./D.M.A./Ph.D.
Ocean Sciences	M.S./Ph.D.
Philosophy	M.A./Ph.D.
Physics	M.S./Ph.D.
Politics	Ph.D.
Program in Biomedical Sciences and Engineering	Ph.D.
*Bioinformatics and Computational Biology	
*Mechanistic, Structural, and Chemical Biology	
*Molecular, Cell, and Developmental Biology	
*Microbial Biology and Pathogenesis	
Psychology (social, developmental, or cognitive)	Ph.D.
Science Communication: Science Writing	Certificate
Social Documentation	M.A.
Sociology	Ph.D.
Statistics and Applied Mathematics	M.S./Ph.D.
Technology and Information Management	M.S./Ph.D.
Theater Arts	M.A.
Visual Studies	Ph.D.

Program Descriptions

Descriptions of individual programs appear under the specific disciplines in the Programs and Courses section. Application materials for all programs are available online at graddiv.ucsc.edu.

All of our graduate programs have information on the web at www.ucsc.edu/academics. Inquiries about part-time study should be directed to the individual departments. If there are any problems with the online application process, please e-mail gradadm@ucsc.edu.

Administration

At UCSC, the individual graduate programs are directed by departments. Overall policy is determined by the Graduate Council, and coordination and record keeping for matters common to all graduate students—such as admission applications, fellowships, and advancement to candidacy—are the responsibility of the Division of Graduate Studies. The dean of graduate studies is the chief administrative officer. Graduate policies and other information can be found online in the Graduate Student Handbook.

Catalog Rights

Students matriculating in a given graduate program will select the *UCSC General Catalog* they will follow to meet their requirements. This can be either the one published the year they enter the program, or any subsequent catalog published prior to the year they are awarded the degree sought. Students who seek readmission after a break in attendance of more than two years (six regular quarters) must adhere to the graduation requirements in effect at the time of readmission or to those subsequently established for all portions of the degree requirements not already fulfilled. The readmitting program will determine which degree requirements remain to be fulfilled, and will communicate this information in the letter offering readmission. This determination constitutes a formal requirement for readmission to the program, and the student's acceptance of readmission implies acceptance of the program's written stipulation of remaining degree requirements. Should any student choose to follow catalog requirements for a year in which the catalog is not printed in hard copy, the requirements will include any online catalog update for that year. A student must follow the chosen catalog in its entirety, including both the individual degree program and general university requirements. General university requirements may be found in the Graduate Student Handbook.

Evaluation of Performance

Graduate students are graded Satisfactory/Unsatisfactory (S/U) or, at student option, A, B, C, D, F. The grade A, B, or S is awarded for satisfactory work. A graduate student receiving a grade of C, D, or U will not be able to use the credit for that course to satisfy any course requirement for a graduate degree. Courses in which a graduate student receives a grade of C, D, F, or U may be repeated. Credits will be counted once, and the most recently earned grade will determine whether a degree requirement has been met. Repeating a course more than once requires the prior written approval of the dean of graduate studies.

Graduate student performance in all courses taken for credit at UC Santa Cruz may also be evaluated according to the Narrative Evaluation System. A narrative evaluation typically describes the nature and requirements of the course, the student's strengths and weaknesses in the various aspects of the course (e.g., discussion, laboratory work, term papers, and examinations), and the student's general understanding of the course content. Evaluations may be used by academic advisers and become part of the student's official academic record.

Please also refer to the statement on Academic Integrity; Appendix F, Graduate Student-Faculty Adviser Relationship Guidelines; and Appendix O, Official University Policy on Academic Integrity for Graduate Students, published in the Student Policies and Regulations Handbook.

Diversity-Enhancement Programs

The Eugene Cota-Robles Fellowship and the Dissertation-Year Fellowship are part of the University of California's Academic Career Development Program.

The Eugene Cota-Robles Fellowship is a merit-based diversity-enhancement program that

provides financial support for students from diverse backgrounds to pursue and successfully complete a graduate degree. This fellowship is awarded to entering doctoral students who have overcome significant obstacles to achieve a baccalaureate-level degree, and whose economic, educational, or social background contributes to intellectual diversity of the graduate student population. Departments identify applicants from among their pool of admissions applications. Applicants should refer to the information under Financial Support in the application to gain a better understanding of this fellowship. Fellowship recipients must be U.S. citizens or permanent residents.

The Dissertation-Year Fellowship is available to continuing students who are advanced to candidacy. Enrolled students are assisted through formal and informal group orientations, individual advice about academic matters, financial aid, postdoctoral opportunities, and the provision of information about career planning, health care, and housing.

Departments nominate applicants for this fellowship from among their qualified students. If you have questions, call the Division of Graduate Studies, (831) 459-5905.

Intercampus Exchange Program

A graduate student in good standing at UC Santa Cruz who wishes to take advantage of educational opportunities available only at another campus of the University of California may become an intercampus exchange graduate student for a quarter or more. This program also permits students to take courses at more than one UC campus during the same quarter.

To participate in the program, a student must have the approval of his or her faculty adviser, the dean of the Division of Graduate Studies at UC Santa Cruz, and the graduate dean on the campus to be visited. Application forms may be obtained from the Division of Graduate Studies and should be submitted three weeks before the quarter in which the exchange begins.

Student Life

The campus offers a variety of programs to enhance the quality of student life, all of which are available to graduate students. These include childcare, sports and recreation, health services, cultural events, transportation services, and the UCSC Women's Center. See Campus Life for information on these services and a description of the local community. See Disability Resource Center for services available to students with disabilities.

College Affiliation

Graduate students at Santa Cruz have the opportunity to affiliate with one of the 10 colleges on campus (college descriptions). Participation in the activities of a college may include taking an occasional meal there, living at the college, or participating in the college's educational and preceptorial programs or in its extracurricular activities.

Graduate Student Association

The Graduate Student Association (GSA) is an organization of all graduate students at UCSC. It seeks to advance the general welfare of the graduate student body and is responsible for promoting extracurricular activities on campus.

Graduate students elect a GSA steering committee, which coordinates activities and their funding. In past years, the steering committee has sponsored student social gatherings, musical events, poetry readings, lectures by visiting scholars, and other activities of special interest to graduate students. A portion of the college student government fee, paid by all students, is available to the association for this purpose. The steering committee also recommends graduate students for appointment to university committees.

Graduate Student Commons (Grad Commons)

Located right above Joe's Pizza and Subs in the Quarry Plaza, the Graduate Student Commons (Grad Commons) exists solely to serve the needs and interests of graduate students at UCSC. The Grad Commons is the only building on campus that is owned and operated entirely by graduate students. It provides a comfortable and welcoming space, fostering graduate student interaction and a sense of community. The Grad Commons is open 24 hours a day for all graduate students and graduate student groups to use the

various study and meeting rooms. In addition, the Grad Commons holds numerous events each quarter to enrich graduate student life and cultivate professional development.

Social events such as monthly 1st Friday Socials, quarterly parties, and art shows are sponsored by the Grad Commons to promote a sense of community and cohesion among graduate students across the various departments. Health and wellness activities are available to help graduate students relax from the stresses of TAing and research. The Grad Commons also offers a wide range of professional development workshops each quarter to support graduate student success in academia and beyond. Past professional development workshop topics include: grant writing, conflict management, résumé and CV writing, website design, time management, teaching and diversity statements, communication skills, preparing for your Qualifying Exam, and more. Visit our Graduate Student Commons web site to learn about upcoming programming and ways to get involved with the Grad Commons.

Housing

As at all UC campuses, finding housing may be a challenge. Students who wish to reside on campus should submit their application as soon as possible. Likewise, students who wish to live off campus will want to start looking at available rentals and costs as soon as possible.

On-campus Graduate Student Housing for 82 individual students is located adjacent to "Science Hill," home to many of UCSC's academic facilities. Four students share a furnished apartment with four single bedrooms, living room, kitchen, dining room, and bathroom. Visit the Grad Housing web site , or email gradhsg@ucsc.edu.

Students with families may apply to live in Family Student Housing, a complex of two-bedroom unfurnished apartments. Located on the west side of campus, the 22-acre site is adjacent to a nature reserve and overlooks the Monterey Bay. Refer to the Family Student Housing web site, or email fsh@ucsc.edu.

To assist students in locating living accommodations in the surrounding communities, the Community Rentals Office maintains a list of available rentals.

Application and Admission

Application Deadlines

Students may apply for only one UCSC graduate program at a time. A list on the Graduate Studies web site shows the date set by each program as the final deadline for submission of all documents. Please visit the Graduate Studies web site for the most current information on applying to UCSC graduate programs. Application deadlines may be updated on or before applications open. The dates listed are the official deadlines, but students are strongly advised to submit applications well in advance of the deadline. If an application deadline falls on a weekend or holiday, there will not be staff available for assistance.

To be considered for fellowship support for fall quarter, the application for admission and all supporting materials must arrive at the Division of Graduate Studies by the program's deadline or by Feb. 1, 2015, whichever is earlier.

Admission Requirements

To be admitted with graduate status at UCSC, a student must have completed a bachelor's degree or its equivalent from an accredited undergraduate institution of acceptable standing and demonstrate ability to pursue a program of study leading toward an advanced degree. Preparation must provide an adequate foundation for advanced study, as determined by the department for the program in which the student intends to enroll. If the bachelor's degree is not in the same discipline as the graduate program, the student must have sufficient preparation in the intended area of study to undertake graduate-level work.

To apply for admission, application materials (including test scores, written materials, and any required supplemental materials) must be submitted before the deadline date to the Division of Graduate Studies. UC Santa Cruz requires that applicants complete an online application to be considered for admission to a graduate program. The application and the accompanying materials should be complete and accurate.

Admission application. Applications for all programs are available online at the Graduate

Studies web site. The completed application is paid for online with either a credit card or e-check. This application fee is not refundable. Application fee waivers are available for cases of hardship. International applicants are not eligible for fee waivers.

Graduate Record Examination (GRE) scores. If the applicant is applying for admission to a program that requires the GRE, the scores must be received by UC Santa Cruz Graduate Application Processing before the application deadline. It is strongly recommended that all applicants complete testing by November, since December test scores will not reach the division prior to most application deadlines.

The Educational Testing Service should be asked to forward the test scores directly to the division. UC Santa Cruz's school code is 4860. Test results are electronically submitted to UC Santa Cruz Division of Graduate Studies four to six weeks after the exam has been taken. Please consult the Graduate Studies web site to see what exams are required for each program.

Supplemental material. Many of the graduate programs have special application requirements, such as writing samples, portfolios, auditions, or personal interviews. The Graduate Studies or program web site to which the student is applying should be consulted and all of the requirements specified should be fulfilled.

Duplication of Higher Degrees

It is the policy of the Santa Cruz campus to prohibit the pursuit of duplicate advanced degrees. However, applicants may petition the graduate dean for an exception to this policy if the degree sought is in a field of study distinctly different from the field in which the original advanced degree was attained.

In order for a student who already holds the doctorate to be admitted or readmitted to work toward a second Ph.D.—or toward an academic master's degree—all of the following conditions must be met:

- The applicant must petition the graduate dean in writing prior to the application deadline for the program in question.
- The department sponsoring the program to which admission is sought must support the applicant's petition.
- The department must present the graduate dean with a clear and complete outline of the program required for the degree sought, and must explain the intellectual separateness of the proposed program from that completed by the applicant in attaining the earlier degree.
- The graduate dean will review all materials submitted and decide whether or not to admit the applicant, consulting with the Graduate Council when appropriate.

Admission to a professional master's program after a Ph.D.—or to an academic master's program after a professional doctorate—is not subject to these restrictions.

Transfer of Credit

UC Santa Cruz does not automatically grant credit for graduate-level work undertaken at other universities. Each department determines credit transferability on an individual basis.

International Applicants

Applicants from other countries must meet standard admission requirements and, upon admission, provide satisfactory evidence of financial support before they may obtain the necessary visa documents. Because it normally takes much longer to process international applications, such students are urged to apply as early as possible. Once the student has been formally admitted, a Certificate of Eligibility (I-20) will only be issued by the UC Santa Cruz Office of International Education when all requirements are satisfied. Please note that international students are eligible for neither need-based financial aid nor application fee waivers.

For those choosing to take the TOEFL, a minimum score on the paper-based TOEFL of 550, or 220 on the computer-based test, or 83 on the Internet-based test is required for admission. Chemistry and Biochemistry, Computer Engineering, Computer Science, and Electrical Engineering require 570 on the paper-based test, 230 on the computer-based test, and 89 on the Internet-based test. Any international students who wish to be

considered for Teaching Assistant opportunities must score a 26 or higher on the Spoken Word portion of the Internet-based test.

For those choosing to take the IELTS, our institution requires an overall band score of 7 or higher on the IELTS. An overall score of 8 from the IELTS test is required for all new international students who may serve as a Teaching Assistant at any time during their graduate career. UC Santa Cruz only accepts scores submitted electronically by the IELTS test center. No paper Test Report Forms will be accepted. An institutional code is NOT required. Please contact the test center where you took the test directly and request that your test scores be sent electronically using the IELTS system. All IELTS test centers worldwide are able to send scores electronically to our institution. For inquiries on test dates, fees, and preparation, please contact your nearest test center (see the IELTS web site).

All official academic records must be issued in the original language and accompanied by English translations prepared by the issuing institution. If translations are not available from the institution itself, translations may be prepared by government or official translators. In order for translations to be acceptable, they must bear the stamp or seal of the issuing institution or government agency and the original signature of the translator. They must be complete and exact word-for-word translations of the original documents, not interpretations. Grades must not be converted to the American scale. Specially prepared English versions are not acceptable in place of documents issued in the original language. Once submitted, documents may not be borrowed, returned to you or sent elsewhere.

International applicants are not required to submit evidence of financial support until they have received formal admission to a graduate program. A Certificate of Eligibility (I-20) will not be issued by the UC Santa Cruz International Programs office until all standard admissions requirements have been met and the UCSC Financial Certificate and supporting financial documents have been received and approved.

Application Processing

The Division of Graduate Studies receives most application materials and creates a file for each applicant. Once the application is submitted online, it will be available to the appropriate department for review and recommendation. Applicants are admitted by the graduate dean following recommendations by the departments. Applicants will be notified by e-mail whether or not they have been admitted for graduate study at UCSC after all reviews are complete. Under no circumstances will UCSC give out this information over the phone, in person, or by proxy. E-mail notifications are sent throughout the month of March. By a general agreement to which UC Santa Cruz and most graduate schools in the U.S. are signatories, applicants admitted to graduate schools have until April 15 to reply with their acceptance of fellowship offers. Any information about the completeness of the file can be found on the MyUCSC student portal once an application has been submitted. Specific questions about the evaluation of the application should be directed to the department.

NOTE: Expense figures below to be verified in July

Fees and Expenses

Fees and expenses for graduate students are shown below. Tuition, fees, and other charges are subject to change without notice by the Regents of the University of California. For current fee information, check registration fees.

Graduate Student Fees, 2014-15

	One Quarter	F-W-S Quarters
Student Services Fee (formerly University Registration Fee)	$324.00	$972.00
Tuition (formerly Educational Fee)	$3,740.00	$11,220.00
Campus-Based Fees	$355.86	$1,067.58

GSHIP Health Insurance (waivable)	$1,233.00	$3,699.00
Total for California Residents	$5,652.86	$16,958.58
Nonresident Tuition (a)	$5,034.00	$15,102.00
Total for Nonresidents of California	10,686.86	32,060.58

(a) A limited number of Nonresident Tuition Fellowships are available. Please refer to the Financial Support section.

For information on fee refunds, see Finances.

Minimum annual expenses, including registration fees, for a single graduate student living on campus are estimated to be $38,672.58 per academic year. Students should not plan to undertake graduate study without assured funding, since outside employment in the Santa Cruz community can be difficult to obtain. An estimated sample student budget for the 2014-15 academic year is provided below. Non-California residents should add $15,102 in nonresident tuition and fees to the total.

Graduate Student Budget, 2014-15

Fees	$16,958.58
Books and supplies	$1,515.00
Room and board (on or off campus) (a)	$16,530.00
Transportation (b)	$1,653.00
Personal	$2,847.00
Total	$39,503.58

a) Estimated room and board for graduate students living with family is $4,491.

b) Expenses of owning a car and parking on campus are not included here. For parking fees, see Transportation and Parking Services.

Required Fees

Required fees are due and payable before the start of each quarter. These typically include tuition and fees, on-campus housing and meals if applicable, and campus health insurance if you do not secure a waiver. You will need sufficient funds to cover required fees and other personal expenses at the start of each term. For many financial aid recipients who are enrolled at least half time, tuition and fees on the student account are paid automatically with approved student aid funds. Financial aid recipients should note that fellowship, grant, and loan checks or bank deposits in excess of university charges are refunded to students via direct deposit or check, but are not available to you until the first week of instruction each quarter.

The Student Services Fee supports student services that provide a supportive and enriching learning environment and that are complementary to, but not part of, the instructional program. Programs include, but are not limited to, services related to the physical and psychological health and well-being of students, social and cultural activities and programs, services related to campus life, and educational and career support.

Tuition helps support student financial aid and related programs; administration; libraries; operation and maintenance of plant; the university's operating budget; and all costs related to instruction, including faculty salaries.

Campus-Based Fees help support a wide range of student services, including

extracurricular programs, campus childcare, community and public service projects, and free-fare use of the local transit systems.

In addition, all students are assessed a mandatory Health Insurance Premium. The Cowell Student Health Center provides primary care services for the plan, while a contracted insurance company provides major medical and hospitalization insurance. Dependent coverage is also available. Detailed information is on the UCSC Student Health Insurance web site, or contact (831) 459-2389.

Waivers from the mandatory insurance fee are available for students who can show that their outside plan provides coverage equal to or better than the student health insurance plan. Deadlines for applying for a waiver are listed in the Schedule of Classes and the Graduate Student Handbook.

Nonresident Tuition

A resident of a state other than California or of another country must also pay nonresident tuition. General criteria for residency are in Appendix A.

Non-U.S. citizens note: Regardless of how long you live in California, only U.S. citizens and holders of immigrant visas may become qualified for resident classification.

Late Fees

Late fees may be assessed if a student fails to make university payments or enroll by the specified deadlines. Late fees are assessed on a graduated basis for each month there is an unpaid balance on your university account. Late fee amounts of $50 for each late registration payment and/or late enrollment and $25 for a late housing payment. Deadlines are published online in the Graduate Student Handbook and the Schedule of Classes, and they appear on the Statement of Account.

Deferred Payment Plan

See the information under undergraduate expenses.

Financial Support

The University of California, Santa Cruz, makes a strong effort to provide financial support to all graduate students who make normal progress in their program of studies. Certain kinds of support are awarded on the basis of academic merit, and others are granted on the basis of need. Students are encouraged to apply for both kinds of assistance by submitting the Free Application for Federal Student Aid (FAFSA). This form must be submitted after January 1 prior to the academic year for which you are requesting aid. The FAFSA may be filled out online and filed electronically at www.fafsa.gov. To receive need-based support for the fall quarter, the FAFSA should be submitted no later than three weeks prior to the end of spring quarter of the year you are enrolled. Applications for student loans for each academic year will be accepted until April of that academic year. More detailed information about the application process and loans can be found at financialaid.ucsc.edu. Students may also visit the Financial Aid and Scholarships Office, 205 Hahn Student Services Building, or call (831) 459-2963.

Fellowships, Assistantships, Grants

Students who received Cal Grant A or B as undergraduates within the last 15 months may request a one-year extension from the California Student Aid Commission to attend a teacher credential program. The Cal Grant A and Cal Grant B programs paid a maximum of $12,192 for 2013-14 for study at the University of California. Renewal of these awards requires the student to submit the FAFSA by March 2nd. In addition, the student must submit a Request for Teaching Program Benefits Form (Form G-44) to the California Student Aid Commission.

The federal Teacher Education Assistance for College and Higher Education (TEACH) Grant Program provides grants to students who intend to teach in a high-need field in a public/private elementary or secondary school that serves students from low-income families. The program at UCSC is for M.A. Education students. In exchange for receiving this grant, you must sign an Agreement to Serve and complete online counseling. This grant converts to a loan with retroactive interest if the Service Agreement is not fulfilled.

More information and a Fact Sheet can be found at the Federal Student Aid TEACH Grants web site.

Teaching Assistantships. For the 2012-13 academic year, half-time teaching assistantships provided a salary of $5, 885 per quarter; this is expected to be higher in 2014-15.

Graduate Student Researcher Internships. For the 2014-15 academic year, salaries for half-time researcher internships are estimated between $1,391 to $2, 526 per month or $4,175 to $7,578 per quarter (depending on your department) with state and federal taxes withheld from these amounts. A 3% raise is expected in July 2014. The division and the UCSC Career Center can provide information about external graduate fellowships and grants.

Student Loans

Graduate students can qualify for federal student loans by completing the FAFSA. Graduate students are eligible for Unsubsidized and Graduate PLUS loan programs. For additional information , see the UCSC Financial Aid and Scholarships web site.

Loan Forgiveness Programs

The federal government will forgive all or part of a student loan under certain circumstances. This can include performing volunteer work or military service, or practicing medicine in certain communities. For a summary of such exemptions, visit the Federal Student Aid web site.

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University Library

The handsome Science and Engineering and recently renovated McHenry libraries house the impressive holdings of UCSC's University Library—the largest library collection between Santa Barbara and San José. In nearly five decades, the collection has grown from a few shelves of books and a substantial dependence on the libraries of UC Berkeley to more than 2.2 million volumes, over 56,000 periodical titles (including online journals), in excess of 39,000 microforms, and more than 406,000 non-print items including films, slides, and audio and video recordings.

As part of the statewide University of California library system, the University Library also serves as a gateway to millions of other books and periodicals. The library's efficient Interlibrary Loan service is heavily used, facilitated by the online request service of the systemwide Melvyl® Catalog.

The University Library collection is divided into two parts. Resources in the humanities, arts, and social sciences are contained in McHenry Library at the heart of the campus, while the engineering, mathematics, and natural sciences collections are housed in the award-winning Science and Engineering Library, conveniently located on "Science Hill."

Collections librarians manage the growth and development of UCSC's collection and provide in-depth research assistance.

Most of the holdings of the University Library are shelved in open stacks. Students and faculty are encouraged to help themselves, using information found via the local Cruzcat online library catalog, the Melvyl Catalog, and the library web site. The library home page provides a convenient gateway to the Cruzcat and Melvyl catalogs, the California Digital Library, and a host of other electronic information resources, such as article databases and online journals. The library staff is also eager to offer its assistance at any of several service points.

At the McHenry Library reference desk as well as by e-mail and appointment, librarians and reference specialists give individual guidance: general orientation for the newcomer and specialized help for the researcher. They assist in the use of a wide range of resources—in

print and online—including more than 200 online article databases to which the library subscribes. Librarians also offer specialized group instruction, upon request, to classes in all disciplines.

The Reserve service, located at the respective circulation desks, lends copies of assigned class readings on a short-term basis and provides protection for vulnerable circulating materials and heavily used periodicals.

Special Collections at McHenry Library contains rare, valuable, and often fragile materials that do not circulate. Holdings focus on local and campus history, and 20th-century literature and book arts. Special Collections also houses the official campus archive, as well as the archives of George Barati, Gregory Bateson, Thomas Carlyle, the Grateful Dead, Lou Harrison, Robert Heinlein, Kenneth Patchen, Brett Weston, and the Shameless Hussy, Trianon, and Turtle Island presses.

Other important collections and services include:

- The Digital Collections web site, containing a growing treasury of digitized photographs, maps, artwork, oral history transcripts, and sound recordings, as well as "born digital" materials, focusing on the most rare and unique.
- Government Publications, a selective depository for documents published by U.S., California, and Santa Cruz government agencies
- The Media Center, which provides access to audio and video in all formats; CD-ROMs; support for music study, including music scores and music course reserves via iTunes; and language-related audio and video recordings
- The Map Collection, with maps and aerial photographs of Santa Cruz and adjoining counties, and topographic, nautical, and aeronautical maps from all over the world
- The Mary Lea Shane Archives of the Lick Observatory, a national resource for the history of astronomy
- The Regional History Project's documentation of Central California history

For more information, see the library's home page.

Computing Facilities and Technology Services

Information Technology Services (ITS)

Information Technology Services (ITS) at UCSC provides a broad spectrum of IT-related resources, services, and support to students, faculty, and staff in the areas of computing, network, telephones, media services, information systems security, web, e-mail, and instructional technology.

ITS operates the campus network, which interconnects computers, workstations, instructional computing labs, and computer-equipped classrooms with each other and the Internet. In addition, wireless access is available across campus.

ITS also provides the campus with technical services and computer support through the ITS Support Center.

Purchasing a Computer?

If you are planning on buying a new computer, UCSC recommends purchasing a laptop with both wired and wireless network capability. The campus supports both PC and Mac computers. An excellent source for purchasing computers and computer products is the campus Bay Tree Bookstore, (831) 459-2082. Through university-negotiated contracts, the bookstore offers a full line of Apple and Dell computers, as well as software and peripheral equipment. Pricing is almost always below outside market prices. The bookstore works closely with ITS to be certain the equipment you buy will meet campus specifications, both wired and wireless.

Computer Standards

The campus supports both PC and Mac computers. For general campus support standards, see Standard Desktop Support at ITS.

UCSC Account (CruzID) and E-mail

All students, faculty, and staff have a UCSC account called CruzID and a UCSC e-mail account, for example cruzid@ucsc.edu.

In addition to e-mail, CruzID gives individuals access to many campus systems and applications. Every UCSC student is preassigned a CruzID account upon enrollment. Students can activate and change their initial password through MyUCSC.

All official UC and UCSC communication is e-mailed to the *@ucsc.edu* address. More information is available at UCSC Email Services.

Computing Policies

Policies define how ITS will approach security, how faculty, staff, and students are to approach security, and how certain situations will be handled. Individuals using UCSC computing services must comply with the University of California state and federal policies and laws.

Security Awareness

There are many cyber security threats out there, but it is important to remember that most of them are avoidable. To help protect against common cyber security threats, information is available at the IT Security page.

Residential Network

ITS provides in-room Internet access (called ResNet) to students living on campus. Network services are available to undergraduate and graduate students living in university housing (except for the Camper Park). For assistance with network connections, contact ResNet at resnet@ucsc.edu or call (831) 459-HELP (4357).

Computing Labs for Drop-in Use and Academic Classes

ITS manages 12 computer labs throughout the campus. These labs have more than 300 computers available for students to use that include PC, Mac, and Sun workstations. Wireless access is available in all labs.

The computing labs are used like classrooms; they can be reserved by faculty or teaching assistants for instruction. When not reserved for instruction, the labs are available to students on a walk-in basis. Even if faculty are not teaching in the labs, they may request specific academic software to be installed in the labs so that students may complete homework assignments. More extensive lab information, including hardware and software specifications and hours of operation, is available at the Computer Labs page.

Equipment Checkout

With faculty authorization, students may reserve and check out media equipment for instructional purposes from the ITS checkout pool located in Kerr Hall 149. UCSC Identification with a current quarter sticker is required to check out any equipment. Reservations for equipment are strongly encouraged. All equipment is available on a first come, first served basis and can be borrowed for up to three working days. Equipment may be reserved by calling 459-2117. Detailed information can be found at the Audio-Visual Checkout page.

Academic Course Materials on the Web

eCommons is the campus online course-management system used to create sophisticated web-based course materials to supplement, but not replace, classroom instruction. eCommons uses a web browser as the interface for the course.

Faculty using eCommons can incorporate a wide variety of tools in their course site, such as a course calendar, student conferencing system, electronic mail, group projects with student-created web pages, and quizzes. Faculty can use eCommons to see what materials students have viewed before they arrive in class. When faculty administer pre-class quizzes on eCommons, they can see what concepts students understand before class and then tailor the lecture accordingly.

Outside of class time, students can use eCommons to view course materials, participate in web-based class discussions, collaborate on student group projects, and take quizzes.

Disability Accommodations for Instruction

If you have a disability and require adaptive or assistive technology to use lab computers, library facilities, or other campus services, please contact the Disability Resource Center (DRC) right away so that they can coordinate services for you.

Computing labs have common adaptive technologies—such as enlarged type for students with low vision and Dvorak keyboards for students with repetitive strain injuries. If you need accommodations, please call the DRC at (831) 459-2089 (voice), or (831) 459-4806 (TTY).

ITS Support Center for Technical and Computer Help

The ITS Support Center is open to all students, staff, and faculty and provides general computer help, assistance with CruzID accounts and e-mail, and other technical-support needs. The Support Center is located at 54 Kerr Hall and is open Monday through Friday from 8 a.m. to 5 p.m.

Get help:

- Online: http://itrequest.ucsc.edu
- Phone: 459-4357 (459-HELP)
- E-mail: help@ucsc.edu
- Walk-in: Kerr Hall, Rm. 54

Natural Reserve System (NRS)

The purpose of the NRS is to establish and maintain, for teaching and research, a system of natural areas that encompass diverse and undisturbed examples of California's terrain, both aquatic and terrestrial. The reserves are open to all qualified individuals and institutions for scholarly work concerned with the natural environment. Such work usually deals with ecological topics or experimental studies in a natural setting. At UCSC, the reserves play an important role in supporting experiential learning (course support, internships, and research support) for undergraduate students interested in ecology and environmental sciences in general.

The University of California administers 38 natural reserves throughout the state. Santa Cruz has responsibility for four—the Landels-Hill Big Creek Reserve, Fort Ord Natural Reserve, Año Nuevo Island, and Younger Lagoon Natural Reserve—in addition to the campus's own Natural Reserve. Information about the system's holdings and management is available from the director, NRS, University of California, 1111 Franklin Street, Oakland, CA 94607-5200, (510) 987-0150. You may also contact the UCSC natural reserve director, c/o Environmental Studies Department, 467 Natural Sciences 2 Building, (831) 459-4971, ghdayton@ucsc.edu.

Campus Natural Reserve

Approximately 400 acres of campus wildlands were designated by the Regents in the 1988 Long-Range Development Plan as a Campus Natural Reserve. This reserve contains redwood forest, springs, a stream, vernal pools, secondary madrone/Douglas fir forest, chaparral, and many soil types and geological formations and structures. The reserve is used for research and teaching and is overseen by the UCSC natural reserve director, c/o Environmental Studies Department, 467 Natural Sciences 2 Building, (831) 459-4971, asjones@ucsc.edu. Students interested in internships and volunteer opportunities should contact Alex Jones asjones@ucsc.edu.

Año Nuevo Island Reserve

This 25-acre island, part of the 4,000-acre Año Nuevo State Reserve 20 miles north of Santa Cruz, is a university research reserve of the NRS. Northern elephant seals, California sea lions, northern sea lions, and harbor seals breed and haul out in different seasons. The reserve's breeding colony of elephant seals has been the subject of a remarkable 40-year study by UCSC scientists. More than 300 species of land, shore, and sea birds reside in or

migrate through the area, which also has a diversity of fish and intertidal organisms. Access to the island is restricted, and UCSC's research use is managed by the UCSC Natural Reserves. An annual use agreement with California State Parks allows research and field work throughout Año Nuevo State Reserve. A small research facility is located on the island, and a day-use facility is available in the state reserve. For further information, or to use the reserve, contact Patrick Robinson,, e-mail patrick.robinson@ucsc.edu.

Fort Ord Natural Reserve

The Fort Ort Natural Reserve is a 600-acre reserve was added to the system in 1996. It contains Monterey Bay maritime chaparral, an endemic plant community, and coast live oak woodland, grassland, and coastal scrub, including nine species of plants and animals that are listed as endangered, threatened, or of special status. The reserve was part of the former Fort Ord army base and its habitats are relatively intact. The reserve specializes in studies of plant ecology and rare species conservation. It is a 45-minute drive from campus. For information, contact the UCSC natural reserve director, c/o Environmental Studies Department, 467 Natural Sciences 2 Building, (831) 459-4971, ghdayton@ucsc.edu. Students interested in internships and volunteer opportunities should contact Gage Dayton ghdayton@ucsc.edu.

Landels-Hill Big Creek Reserve

The Landels-Hill Big Creek Reserve is a 4,000-acre reserve is located in the Santa Lucia Mountains on the Big Sur coast, about two hours by car from the campus. The reserve includes the lower portions of an undisturbed and protected watershed containing numerous terrestrial and aquatic habitats and several geological formations and associated fault systems. The upper watershed is protected by the Ventana Wilderness of the Los Padres National Forest. The reserve's four miles of rocky coastline, located within the California Sea Otter Refuge area and the Monterey Bay National Marine Sanctuary, is now a California Department of Fish and Game Marine Protected Area and provides opportunities for marine research. There are campsites for researchers, a modest field-laboratory facility, a cabin for long-term researchers, and a small storage facility. The Big Creek Reserve is managed by the onsite reserve director. Access is controlled, and applications for use should be made to the resident reserve manager, Big Creek Reserve, Big Sur, CA 93920, (831) 667-2543, readdie@biology.ucsc.edu.

Younger Lagoon Reserve

The Younger Lagoon Reserve is a 26-acre coastal lagoon and beach next to UCSC's Long Marine Laboratory is part of the NRS. Its waters are a haven for many species of migratory birds, and many small mammals, birds, reptiles, and invertebrates live in its marsh and bank vegetation. A 20-year restoration effort has been initiated. The site provides opportunities for student projects and hands-on involvement in restoration and monitoring. Younger Lagoon is managed by the UCSC natural reserve director and field manager, c/o Environmental Studies Department, 467 Natural Sciences 2 Building, (831) 459-4971, eahoward@ucsc.edu. Students interested in internships and volunteer opportunities should contact Beth Howard eahoward@ucsc.edu.

Research Programs and Facilities

Research at UC Santa Cruz is thriving, facilities are excellent, and the amount of external funding received for research continues to grow. In addition to their individual research projects, faculty are involved in organized research on various scales, from small focused activities within academic divisions, to large research units, some with campuswide scope and others with wider connections to the whole 10-campus University of California system.

Research programs and facilities are described below by academic division: Arts Division; Baskin School of Engineering; Humanities Division; Physical and Biological Sciences Division; and Social Sciences Division.

Specialized research facilities in addition to those listed below are described in the Programs and Courses section.

Arts Division Research Centers and Institutes

Arts Research Institute (ARI)

The Arts Research Institute (ARI) funds and facilitates the research and creative work of individual Arts Division faculty, as well as collaborative research, symposia and other creative activities and events. Grants and awards from the ARI have helped to support performances, exhibitions, software design, manuscript preparation, digital recordings, international field research, collaborative colloquia, on-site installations, operas, and electronic productions. These and other innovative projects in arts practice and theory are among the research areas and interests supported by the institute.

Center for Documentary Arts and Research

The Center for Documentary Arts and Research (CDAR) supports interdisciplinary explorations of the documentary and nonfiction arts, broadly conceived. CDAR serves as a locus for experimentation and investigation of the social, aesthetic, historical, political, and pedagogical capacities of documentary and nonfiction film and media forms and practices. In addition to staging screenings, talks, and symposia, CDAR fosters exhibition, discussion, investigation, and collaboration in areas of documentary and nonfiction media history, theory, and practice that bridge the gap between academic settings of documentary research and the broader public sphere.

Center for Force Majeure Studies

The mission of the interdisciplinary Center for Force Majeure Studies is to generate long-term research projects that address the emerging stresses on the Earth's largest ecosystems. The center connects the processes of art-making and the sciences within the unique perspective pioneered by Helen Mayer Harrison and Newton Harrison. The center is reaching out to cultural and educational institutions to execute on-the-ground projects that engage scientists, artists, lawmakers, and the public; enrich public discourse concerning ecology; and inform policy development.

Innovation and Design Lab (IDL)

The Innovation and Design Lab (IDL) is devoted to creating and publishing new knowledge in the health and wellness industries. The IDL takes a holistic approach to innovation and design research that generates products, tools, services, and solutions to improve health outcomes. The IDL is currently focused on a large collaborative program "The Hospital of the Future: The Living Laboratory" at the Johns Hopkins Medical Institutions (JHMI) Children's Center in Baltimore, Maryland. This work is in collaboration with the Department of Pediatrics at JHMI and with corporate research and corporate sponsor partners.

OpenLab Network

The OpenLab Network is an interdisciplinary initiative that promotes collaborations among art and science researchers. The goal of the OpenLab Network is to help change the current status quo by providing shared research facilities and creating a network for discourse fueled by academic communities, arts and science communities, and industry. The OpenLab Network is pursuing the physical development of new collaborative laboratories on the UCSC campus to foster this research and is establishing an online social networking system for faculty and students to create projects.

Social Practice Arts Research Center (SPARC)

The Social Practice Arts Research Center (SPARC) fosters knowledge exchange and project building between artists, scientists, the public, and others to promote active social and environmental change. The mission of SPARC is to increase the flow of ideas and art actions in real social contexts; position art-making and the creative process as research; and foster creative exchange, critical dialog, and social consciousness in art, education, and life. Working across disciplines, SPARC aims to engender and support collaborations and projects that have a local, national, or international impact.

Arts Division Teaching, Research, and Performance Facilities

Arts Information Technology Services (ITS) Labs

ITS has two labs that primarily serve the Arts Division: the Porter Arts Mac Lab (Porter D 240) and the Music Lab (Music 249). The Porter Arts Mac Lab is equipped with arts-specific software, including high-end video-editing, graphics, web-development, and sound-

editing software. The Music Lab includes hardware and software for music editing, notation and working with MIDI. These ITS labs are open to all UCSC students. In addition, several of the departments in the Arts Division manage computer labs with specialized equipment and software for the exclusive use of students taking classes in Art, Film and Digital Media, Theater Arts, Social Documentation, Music, and Digital Arts and New Media (DANM).

Baskin Visual Arts Center

The Baskin Visual Arts Center provides excellent studio facilities for drawing, painting, installation, photography, sculptural construction, printmaking, and digital and traditional printmaking and photography. The nearby bronze foundry is the only such facility within the UC system.

Digital Arts Research Center

Opened in 2010, the 25,000-square-foot Digital Arts Research Center (DARC) houses UCSC's MFA Program in Digital Arts and New Media (DANM) and parts of the departments of Art and Music. This state-of-the-art, three-story facility includes several DANM labs for graduate student use, an outstanding undergraduate photo lab and classroom, as well as an expansive drawing studio and faculty research studios.

Music Center

UCSC's Music Center offers several performance venues as well as classrooms and teaching studios outfitted with advanced audiovisual technology and with state-of-the-art digital audio, video, and recording systems. Facilities include the 386-seat Recital Hall; studios for Indonesian gamelan, percussion, and electronic music; a 60-seat performance studio; 20 practice rooms; and a music library.

Theater Arts Center

The Theater Arts Center contains a 500-seat thrust stage, a state-of-the-art experimental theater, and a 200-seat proscenium theater. It also offers acting, directing, and dance studios; costume, scene, and properties shops; a sound recording room; and a computer lab. Elsewhere on campus are additional dance studios, the open-air Quarry Amphitheater seating 3,000, the Sinsheimer-Stanley Festival Glen, and the 150-seat Barn Theater.

Baskin School of Engineering (BSOE) Research Centers and Institutes

Center for Games and Playable Media

The Center for Games and Playable Media focuses on research in computer games, interactive fiction, and playable media, broadly construed. The center houses the school's five games-related research labs: Expressive Intelligence Studio, Computational Cinematics Studio, Natural Language and Dialog Systems, Augmented Design Laboratory, and Software Introspection Laboratory. There is a great diversity in the faculty's topics of research. Projects range from work on artificial intelligence and interactive storytelling, to natural language dialogue systems, cinematic communication, procedural content generation, human computer interaction, rehabilitation games, computational photography, and level design. Members of the group have published in some of the most respected journals in the fields of game studies, game AI, and game culture.

Center for Maximizing Abilities Through Technology, Education and Research (MATTER)

The MATTER Center (Maximizing Abilities Through Technology, Education and Research) is formed by an eclectic combination of faculty members in engineering, psychology, nursing, and rehabilitation from UC Santa Cruz, UC San Francisco, and UC Davis. The center covers a broad spectrum of research areas, under the common denominator of technologies to help persons with special needs in their activities of daily living.

Center for Research in Intelligent Storage (CRIS)

The Center for Research in Intelligent Storage (CRIS) is a partnership between universities and industry, featuring high quality, industrially relevant fundamental research, strong industrial support of collaboration in research and education, and direct transfer of university developed ideas, research results, and technology to U.S. industry to improve its

competitive posture in world markets. Through innovative education of talented graduate and undergraduate students, CRIS is providing the next generation of scientists and engineers with a broad, industrially oriented perspective on engineering research and practice. Web: http://cris.cs.umn.edu/

Center for Stock Assessment Research (CSTAR)

The Center for Stock Assessment Research (CSTAR) is a collaboration between the Fisheries Ecology Division, NOAA Fisheries (FED), Santa Cruz, and UCSC to provide training in for undergraduate and graduate students and postdoctoral colleagues in the quantitative population biology needed to improve the sustainability of fisheries. CSTAR members work closely with FED staff, and participate in stock assessments, cruises, data workshops, and other management-oriented activities. Members of CSTAR have gone on to positions at NOAA Fisheries across the country, to academia, and to other kinds of non-academic positions including the Malaria Atlas and high-tech companies. A CSTAR alumna founded FishWise, which trains point-of-sale individuals about the sustainability of fisheries and includes Safeway and Target as customers.

Center for Sustainable Energy and Power Systems (CenSEPS)

The Center for Sustainable Energy and Power Systems (CenSEPS) is poised to become a major hub for innovation in emerging clean energy technologies and for tackling the challenges of energy sustainability. The center explores the societal implications of new renewable energy technologies and prepares a new generation of 21st century engineers and scientists to address the problem of more efficient energy use with a minimal carbon footprint. We promote and integrate the use of renewable energy technology to create sustainable communities and renewable energy districts. The center partners with other energy research institutes, both within the United States and abroad, to develop an international approach to solving the critical problems that delay deployment of renewable energy resources.

Information Technologies Institute (ITI)

The Information Technologies Institute (ITI) is a focused research activity (FRA) founded in 2001 and housed at the Baskin School of Engineering. ITI's objective is to provide an environment in which its members can attract large-scale projects that bridge technology research from concept to prototype and solve problems in social and commercial sectors nationally.

In ITI, advanced Internet applications provide the impetus and focus that bring together the components of research related to the rapidly expanding world of networks, distributed computing, "smart" sensors, and Internet appliances. As electronics and packaging developments lead to powerful low-cost sensors, resulting in a broad array of instruments, these become Internet devices, bringing a significant increase in the data captured, transmitted, stored, managed, and displayed.

Through its research centers, ITI focuses on interrelated areas in computer science, computer engineering, and electrical engineering as well as physics, chemistry, and applied mathematics. Areas of emphasis include:

- Design and development of complex networked systems and software technologies
- Storage systems and databases
- Assistive technologies
- Sensors, sensor systems and Internet appliances
- Multimedia systems and applications in education and business management
- Communications
- VLSI design, packaging, and testing
- Visualization and computer graphics
- Knowledge management/data mining
- Decision support tools

Directed by Professor of Computer Engineering Patrick Mantey, ITI has faculty throughout the School of Engineering and manages the participation of other research partnerships—including the activities in the Center for Information Technology Research in the Interest of Society (CITRIS)—with UC Berkeley, UC Davis, and UC Merced. ITI also has participation from the Division of Physical and Biological Sciences, the Division of Social Sciences, and the Arts.

Institute for Scalable Scientific Data Management (ISSDM)

The Institute for Scalable Scientific Data Management (ISSDM) is a collaboration between Los Alamos National Laboratory (LANL) and UC Santa Cruz. The ISSDM promotes and sponsors LANL/UCSC research collaborations and fosters long-term relationships with collaborators at LANL and UCSC. The current focus of these collaborations is on research in storage systems, data and knowledge management, human computation, and visual exploration and analysis of cosmology.

Storage Systems Research Center (SSRC)

The Storage Systems Research Center (SSRC) is composed of faculty from the Computer Science, Computer Engineering, and Electrical Engineering departments and the Technology and Information Management Program. It is funded by the NSF, the Department of Energy, and companies such as NetApp, Symantec, HP, LSI, Data Domain, and Agami. Current research topics include long-term archival storage, scalable indexing and metadata, petabyte-scale storage systems, and file systems for next-generation storage technologies such as non-volatile memories and probe-based storage. Issues of particular concern include performance and scalability, reliability, and security. The SSRC's resources include several computing clusters, the largest with more than 80 processor-disk nodes, as well as over 10 terabytes of dedicated storage. In addition, there are several hardware-software testbeds for projects such as self-managing archival storage and large-scale distributed file systems. The SSRC also maintains a PlanetLab site at UC Santa Cruz, allowing researchers to run experiments on the PlanetLab global-scale distributed testbed.

W. M. Keck Center for Adaptive Optical Microscopy

The W. M. Keck Center for Adaptive Optical Microscopy is an interdisciplinary center's objectives are to develop enabling adaptive optical technologies and critical procedures to overcome longstanding barriers and vastly improve in vivo deep tissue biological imaging. The approach is inspired by the highly successful use of adaptive optics in the W. M. Keck Telescopes, which allows astronomers to see much more clearly and deeply into space. This center was made possible through the generous support of the W.M. Keck Foundation.

W. M. Keck Center for Nanoscale Optofluidics

The mission of the multidisciplinary W. M. Keck Center for Nanoscale Optofluidics is the development of optofluidic devices and their application to single-particle studies in molecular biology and biomedical diagnostics. Facilities include a dedicated nanofabrication facility housing a FEI Quanta 3D FEG dual beam SEM/FIB nanofabrication instrument for fabrication, imaging, and characterization of nanoscale devices.

UCSC Genome Technology Center

The UCSC Genome Technology Center features state-of-the-art equipment including the GS FLX Titanium Series sequencing platform from 454 Life Sciences and the SOLiD sequencing platform from Applied Biosystems. Applications include whole-genome and targeted sequencing; resequencing; RNA sequencing; micro-RNA and small-RNA sequencing; chromatin immunoprecipitation (ChIP) sequencing (to identify binding sites of DNA-associated proteins); and metagenomics (also called environmental genomics, involving the analysis of genetic material recovered directly from environmental samples)

Baskin School of Engineering (BSOE) Facilities

The Baskin School of Engineering (BSOE) occupies principally the Jack Baskin Engineering and Engineering 2 buildings. Some laboratories and offices are also in the new Biomedical Sciences and Engineering Building (completed in 2012), the Physical and Biological Sciences Building, and the Sinsheimer Laboratory Building. On the west side of Santa Cruz, outside the main campus, BSOE has a set of advanced material sciences laboratories at 2300 Delaware Ave. (formally a Texas Instruments semiconductor fabrication plant). Several BSOE

faculty also work closely with colleagues at the adjacent UCSC Long Marine Laboratory and Marine Sciences Campus.

"Over the hill," BSOE has created a strong presence at the UCSC Silicon Valley Campus (SVC) located at 2505 Augustine Drive in Santa Clara across the 101 Freeway from Intel, and has joint laboratory facilities at NASA Ames Research Center in Mountain View, California. Many BSOE faculty members maintain offices and teach classes at the SVC and have joint research agreements with NASA through its University Affiliated Research Center (UARC) and with a large number of companies. Many BSOE faculty are also members of the joint NASA/UCSC Advanced Studies Laboratories (ASL), which is located at NASA Ames Research Center.

BSOE is working to develop additional locations off the main campus often in interdisciplinary partnerships.

BSOE Computing Infrastructure

For the most current details regarding BSOE computing infrastructure, see the BSOE page How To Get Computer Support.

BSOE operates a computing network of several hundred Unix, Windows, and Macintosh computers and several computer laboratories. These labs support research and graduate instruction in applied mathematics and statistics, biomolecular engineering, computer engineering, computer science, electrical engineering and technology and information management. Undergraduate computing is supported by a combination of BSOE Undergraduate Laboratories (also known as the BELS Labs) and the campus's Instructional Computing Laboratories (IC Labs).

For graduate and research computing, the ITS/BSOE computing support team operates a high-speed 100/1000 megabit-per-second network with 1/10 gigabit-per-second fiber optic backbones and redundant core routers and paths. Most areas of BSOE buildings are covered by wireless networking of various types (802.11g/n). The BSOE computing network has redundant connections to the main campus network.

UCSC and BSOE have connections to the Corporation for Education Network Initiatives in California (CENIC) via CENIC-managed "dark-fiber," which provides direct connections to the CENIC High Performance Research Network, to activities at NASA Ames, and to the BSOE research labs located at 2300 Delaware Ave.

BSOE Computing also operates four separate Tier 1+ data centers, all with UPS and air-conditioning support. Two of the data centers have backup power generation and the other two use a campus cogeneration facility for backup power. In addition, BSOE uses the main UCSC data center (Tier 2) for some redundancy and for web sites and copies and/or mirrors data to distant Universities (such as the San Diego Supercomputer Center). For graduate and research computing, BSOE supports the following:

- Central fileservers for core services such as mail, name service, file sharing, and backup
- Several general-access Unix systems
- Multiple compute servers
- Research computing clusters
- Several general-use research computing clusters, in addition to the clusters used by individual research groups. These clusters are available to all faculty and graduate students for general-purpose computations:
- Several graduate student computer labs with a mix of Windows, Linux, and Apple workstations and network printers
- A variety of software purchased in cooperation with UCSC central computing, BSOE computing, and individual faculty members
- A variety of computer-aided-design software, including Altera, Agilent Advanced Design System, AutoCAD, Cadence, Maple, Matlab, Mentor Graphics, National Instruments Labview, Qualnet, Synopsys, and Xilinx.

Baskin Engineering Wireless Networking. BSOE has an installed wireless computer (Wi-Fi)

network that covers nearly all interior building spaces of the Baskin Engineering, Engineering 2, Physical Sciences Building, and Biomedical Sciences Building. The Wi-Fi network uses "eduroam," a wireless authentication system that allows members of other confederated universities to use the UCSC wireless network; BSOE personnel are also able to use Wi-Fi networks at other universities that participate in eduroam.

Undergraduate Engineering Laboratories (Baskin Engineering Lab Support-BELS). BSOE operates the following special instructional laboratories for the exclusive use of engineering students. These laboratories are typically open 24 hours a day, seven days a week, during instructional quarters. The instructional labs available in 2012 are listed below. Please check the web site for updates as new instructional laboratories are being added:

- Digital Logic Design Laboratory
- Controls, Signals, and Instrumentation Laboratory
- Analog Circuits Laboratory
- Electrical Engineering Senior Projects Laboratory
- Optics and Laser Laboratory
- Computer Engineering Projects Laboratory
- Electromagnetic and Radio Frequency Laboratory
- Physical Electronics Laboratory
- Computer Networking Laboratory
- Computer Game Design Laboratory
- Tau Beta Pi, Engineering Honor Society Hardware Laboratory
- Biomolecular Engineering Instructional Laboratory
- Fabrication Laboratory
- Flexible Instructional Laboratory

A number of additional laboratory spaces are set up for three-quarter-sequence senior projects in electrical engineering, computer engineering, and computer science. These labs are often used by project groups sponsored by various industry partners, many of which have headquarters or operations in Silicon Valley and the Monterey Bay Area.

UCSC Instructional Computing Laboratories. In addition to the facilities provided by the Jack Baskin School of Engineering, students have access to the computing facilities of the UCSC Instructional Computing (IC) Labs. These include several labs located around the campus consisting of Unix, Mac, and Windows workstations. There are two large IC Labs located in the Baskin Engineering Building. Check the UCSC Instructional Computing web site for details on these labs and hours of operation.

Research Laboratories

BSOE operates and supports the following research laboratories. Current information about BSOE research labs. see the BSOE laboratories web site.

Applied and Nano-Optics. The Applied and Nano-optics group covers a wide range of optical research with an emphasis on experimental nanoscale optics. New methods and devices are developed for optical studies of single particles such as molecules, photons, or nanomagnets. A variety of optical and nanoscale characterization techniques such as time-correlated single-photon counting, ultrafast laser spectroscopy, or scanning-probe microscopy are used and investigated. Applications include integrated biomedical sensors, high-density magnetic memory, single-photon light sources and detectors.

Biomolecular Engineering Research Facilities. BSOE supports a broad range of biomolecular-engineering (BME) research activities through the use of more than seven state-of-the-art research labs in the department. Areas of research include systems biology, comparative genomics, HIV vaccine development, stem-cell research, nano-device fabrication and DNA-

sequencing-device development. BME departmental laboratory facilities include a variety of equipment used for molecular biology, cell biology, protein chemistry, immunology, virology and computational biology. Specific equipment includes high- and low-speed centrifuges, PCR machines, CO2 incubators, bacterial shakers, microtiter plate readers, microtiter plate washers, microscopes (inverted, upright, fluorescence), spectrophotometers, protein-chromatography equipment, a variety of gel eletrophoresis equipment including power supplies, gel dryers, gel-imaging equipment, vacuum concentrators, and cryopreservation equipment. Recently acquired and planned equipment purchases to be shared with other investigators include a Fluorescence Activated Cell Sorter (FACS), and next-generation DNA sequencing devices. Shared equipment rooms contain a variety of common equipment including freezers, glass-washing equipment, autoclaves, and refrigerators. Most labs are supplied with basic utilities such as air, gas, vacuum and reverse-osmosis de-ionized (RODI) water. The BME research groups have several computer clusters, one with more than 1,000 CPUs. There is additional access to BSOE laboratories and facilities within other departments. Many of the BME research groups cooperate closely with the Electrical Engineering Department, which operates a clean room, a scanning electron microscope and semiconductor fabrication facilities. Collaborative research with faculty from the Physical and Biological Sciences Division is frequent with routine access to a wide range of biology and chemistry laboratory facilities. Web: www.soe.ucsc.edu/research/labs/

Clean Room. The Electrical Engineering Department operates a shared Class 1,000 clean room for use by researchers in Electrical Engineering. The Biomolecular Engineering Department also uses this facility.

Computer Communication Research Group (CCRG). The Computer Communication Research Group (CCRG) is dedicated to basic and applied research in computer communication. CCRG research focuses on new algorithms, protocols, and architectures for wireless networks based on packet switching (packet-radio networks), Internetworking, multipoint communication, and the control of resources by multiple administrative authorities.

Design and Verification Laboratory. The Design and Verification Laboratory facilitates research in software and system design methods, embedded software design, software and system verification, game theory, formal methods.

Geospatial Visualization Laboratory. The Geospatial Visualization Laboratory creates a consistent four-dimensional space-time visualization of geospatial data and intelligence associated with the environment. This task requires intelligent collection of data using various sensors, including a variety of cameras, LIDAR data, and multispectral imagery in all kinds of frequency bands. The spatiotemporal GIS (geographic information systems) visualization will bring together several layers of information including terrain data, street maps, buildings, environment data, aerial images, and mobile-objects data.

High-Speed Network Laboratory. Members of this lab explore and expand the field of high-speed computer networking and communication. Current areas of research include high-speed switching, traffic-scheduling algorithms for providing quality-of-service (QoS) guarantees in packet networks, ATM congestion control, and optical networks. Projects are funded by NSF, ARPA, and private industry.

Image Processing and Multimedia Laboratory (IPMML). This lab is the central venue for ongoing research into topics in image processing and multimedia. Areas of interest include wireless digital video; virtual scene and panorama generation; natural and machine-generated image compression; video capture, processing, and editing techniques; color printing technology; image libraries; and combinations of the above.

Information Retrieval and Knowledge Management Lab (IRKM). This lab conducts basic and applied research in information retrieval and data mining. Projects include developing a proactive personalized information-retrieval system (funded by NSF), adaptive information filtering (funded by AFOSR), and collaborative personalized search, recommendation and advertising (with industry funding from Yahoo, Microsoft, Google, NEC, Nokia, Bosch).

Internetworking Research Group (i-NRG). The Internetworking Research Group (i-NRG) conducts research in the design, experimental evaluation, and implementation of network protocols for both wired and wireless internetworks. Research activities include a number of areas in computer networks and distributed systems.

Materials Synthesis and Characterization Research Lab. This laboratory has recently been commissioned at our 2300 Delaware Ave. location. Formally a Texas Instruments semiconductor fabrication plant, the building has infrastructure to support very large clean rooms. At present, synthesis capability exists in metal-organic chemical vapor deposition (MOCVD) and rf-magnetron sputtering. The Materials Synthesis and Characterization Research Lab capability includes semiconductor test equipment, bulk magneto-thermal properties, and atomic force microscopy. Much of the work involves properties of materials at very low temperatures, nearly 0 degrees Kelvin. At these temperatures, materials behave very differently than at room temperature, a notable example being superconductors. Web: www.soe.ucsc.edu/research/labs

Micro-Architecture at Santa Cruz (MASC). MASC's focus is on computer-architecture research, with emphasis on energy/performance trade-offs, thread-level speculation, simulation tools, FPGAs, and design complexity. Web: masc.soe.ucsc.edu

Multidimensional Signal Processing Research Group (MDSP). This group's interests are in the area of inverse problems in imaging, statistical detection and estimation, and associated numerical methods. Current projects include image-resolution enhancement and superresolution, computationally efficient image-motion estimation, shape reconstruction from local and global geometric data, multiscale modeling and analysis of signals and images, radon transform-based algorithms for deformation analysis and dynamic imaging, image processing and inverse problems in remote sensing, and automatic target detection and recognition. The group is also associated with the Image Processing and Multimedia Lab. Web: www.users.soe.ucsc.edu/%7emilanfar/

Network Management and Operations Lab. BSOE, in partnership with Cisco Systems, has established this lab to serve as a "network-systems teaching hospital" where real-world problems and projects are addressed by students and faculty. Projects range from the routine (e.g., quality-assurance and release testing of new products) to the advanced (e.g., research into new architectures for network systems). Students employed as interns work with faculty researchers on these projects in BSOE facilities equipped for the specific needs of the projects. Web: nmo.soe.ucsc.edu

Santa Cruz Laboratory for Visualization and Graphics. Recent research at this lab includes animal modeling and animation, environmental visualization, isosurfaces, d.v.r., hierarchies, irregular grids, massively parallel volume rendering through the net, uncertainty visualization, virtual reality in scientific visualization, nomadic collaborative visualization, tensor visualization, and flow visualization. Web: http://www.soe.ucsc.edu/research

Thin Films Research Lab. This laboratory is located at our 2300 Delaware Ave. location. Formally a Texas Instruments semiconductor fabrication plant, the building has infrastructure to support very large clean rooms. The Thin Films laboratory operates several advanced metal organic chemical vapor deposition (MOCVD) systems to fabricate and study thin film semiconductors. Applications include advanced solar cells, memory systems, and biosensors. The Thin Films laboratory in April 2010 received an in-kind donation from Phillips LumiLEDS of Santa Clara of an AIXTRON Nitride MOCVD Reactor (AIX 200RF).

UCSC Broadband Communications Research Group. The members of this group investigate the fundamental limits and performance analysis of protocols in wireless ad hoc networks, space-time signal processing, and development of signal processing and coding techniques for wireless communication systems. Web: http://users.soe.ucsc.edu/~hamid/ucbc/index2.html.

UCSC Scientific Visualization Laboratory. This lab provides the means for creating visualizations from scientific data. Projects include a simulation of an "extensive air shower" striking the Milagro detector at Los Alamos National Lab, representing a subsonic flow over a delta-wing aircraft, a demonstration of direct volume rendering on a multiple-gridded space-shuttle launch vehicle, an N-body simulation of large-scale structure in the universe, and a representation of a diving whale based on location data from a Monterey Bay tagging experiment. Web: www.soe.ucsc.edu/research/labs/

UCSC Visual Computing Laboratory. This lab explores visual tracking, stereo and sparse IBR, facial modeling and analysis, and image and video processing. Web: soe.ucsc.edu/research/labs

For additional information regarding BSOE, please check the web site: www.soe.ucsc.edu.

Humanities Division Research Programs—The Institute for Humanities Research (IHR)

The Institute for Humanities Research (IHR) at UC Santa Cruz is a laboratory for theorizing and implementing new visions of the humanities via faculty research projects, graduate and undergraduate education, and public programs. Established in 1999, the IHR has grown dramatically since its inception and now serves as an umbrella for a multitude of research centers, research clusters, and multi-campus research projects.

With these and other initiatives, the IHR serves as an incubator for new ideas and provides crucial support to faculty, graduate students, and undergraduate students at every stage of the research process. One of our key functions is to identify promising students and help them become productive researchers through mentorship programs, fellowships, and internship opportunities.

As the designated humanities center of UC Santa Cruz, the IHR is part of the University of California system-wide Humanities Network and is able to leverage the human and intellectual resources of the finest public university system in the world.

In addition, the IHR administers a variety of research centers, including the Center for Cultural Studies, Center for Jewish Studies, Center for Labor Studies, Center for Mediterranean Studies, Center for the Study of Pacific War Memories, and Center for World History. It also houses new research initiatives in ancient studies, Sikh and Punjabi studies, and critical race and ethnic studies. Supported activities include research clusters, conferences, seminars, visiting scholars, publications, film series, and NEH summer seminars for university and high school teachers.

For more information, please visit us at ihr.ucsc.edu or e-mail us at ihr@ucsc.edu.

Center for Cultural Studies

The Center for Cultural Studies at UC Santa Cruz was founded in the spring of 1988 as a part of the University of California's President's Humanities Initiative. The Center encourages a broad range of research in the rapidly evolving field of cultural studies and hosts a hugely popular weekly colloquium series

The international field of cultural studies emerged from the challenges posed to traditional humanistic and social scientific agendas by new research strategies in visual studies; anthropology, ethnography and folklore; feminist studies; comparative sociology and politics; semiotics; social, cultural, literary, and political theory; science studies; colonial discourse analysis; ethnic studies; and the histories of sexualities. These challenges, and the areas of scholarly activity they stimulate, compose the heart of cultural studies at UC Santa Cruz. Thus, the Center for Cultural Studies' concern is to foster research across divisional and disciplinary boundaries.

While based in the humanities, the Center engages with the "interpretive" or "historical" social sciences, science studies, and theoretically informed work in the arts. The membership of the Center's Advisory Board and faculty/graduate student participation in its events clearly reflect this cross-divisional agenda. Visit us at culturalstudies.ucsc.edu.

Center for Jewish Studies

Jewish Studies is one of the most intellectually compelling and broadly relevant fields in the university. We design research projects and host public events that conceptually redraw the boundaries of Jewish studies, while encouraging people who may have previously been uninvolved in Jewish studies to engage with it.

Our primary constituents are the thousands of students at UC Santa Cruz, including the 1,200 who take Jewish Studies courses every year, making it one of the most popular programs in the entire university. We are also committed to creating programs that attract faculty and staff members as well as people from the broader Santa Cruz community. The content of our programming organically integrates the contemporary issues that are most important to our constituents, with a range of perspectives and methods unique to Jewish Studies. In so doing, we place Jewish Studies squarely at the center of the intellectual and

cultural life of the campus and illuminate the central role that Jewish creativity has played in helping to shape human civilization for over three thousand years. Visit us at cjs.ucsc.edu.

Center for Labor Studies

The Center for Labor Studies, founded in 2007, is dedicated to the study of working people, the labor movement, and the challenge of the broader global economy as it impacts the working people of California and beyond. Through conferences, workshops, public lectures, and a range of guest speakers, we focus, in particular, on the relationship between the labor movement (broadly defined), social movements, and democratic practices; on gender, race, and ethnic dynamics; and on labor activism in international context. We also address a wide spectrum of questions related to the nature of work, employment, and working people's lives in the U.S. and beyond. Our goal is to serve UCSC students, staff, and faculty while reaching out to the broader community of the Central Coast of California and beyond. Visit us at ihr.ucsc.edu.

Center for Mediterranean Studies

The Center for Mediterranean Studies is dedicated to the study of the nature of premodern Mediterranean societies and cultures and their role in world history and the history of "the West." Located at the intersection of three continents, the premodern Mediterranean was a shared environment characterized by tremendous ethnic and religious diversity and by the particular intensity of its cultural, economic, and political exchange. Among Africans, Asians and Europeans, Christians, Muslims, and Jews, and others, both conflict and peaceful communication encouraged acculturation and spurred innovations that transformed the societies of the Mediterranean and their continental neighbors. It is affiliated with the independent scholarly forum the Mediterranean Seminar.

Because of the dominance of modern national paradigms, the weight of teleological historical traditions, and assumptions about the rigidity of ecumenical divisions, the premodern Mediterranean is frequently regarded as an anomaly. Sponsoring a diverse range of scholarly activities, including a reading group, colloquia, seminars, and publications, the Mediterranean Seminar provides a forum for scholarly exchange and dialogue across the humanities and social sciences. Our aim is to facilitate investigation into the premodern Mediterranean and to promote the incorporation of Mediterranean studies into university curricula. Visit us at mediterraneanseminar.org.

Center for the Study of Pacific War Memories

The Center for the Study of Pacific War Memories was established in the fall of 2006 to promote transnational, collaborative teaching and research projects across the Asia-Pacific region related to memories of the Pacific theater of World War II (1937-1945). Memories of the war are articulated and sustained in a wide range of media and practices at individual and collective levels. At the same time, memory changes over time, with changing contexts and changing agents of memory. Finally, while memory is at the core of identity-formation, memory-making in the modern world always operates at a global level. Thus, memories of the past in one place do not exist in isolation within single national or ethnic boundaries, but are always in formation through engagement with other memories from other places and other groups.

The foundational project of the center is the construction of a web site for a multilingual and multinational research community built around a user-generated digital archive called Eternal Flames: Living Memories of the Asia Pacific War. The site will enable the formation of collaborative research projects among both students and researchers from countries throughout the Pacific region, particularly promoting translingual work. Other center projects include a documentary film about a former Japanese soldier now living in California, an exhibit of photographs of Okinawa taken by an American serviceman in the early 1950s, and a data-rich virtual re-creation of a massive memorial complex in Okinawa. Visit us at cspwm.ucsc.edu.

Center for World History (CWH)

As a part of a collective effort at imagining the development of world history as a research field, the CWH sponsors occasional lectures and conferences, including periodic conferences of the all-UC Multi-Campus Research Group, the World History Workshop.

CWH is also active in encouraging the development of world history as a teaching field. To this end, it develops world history teaching materials available online. The Center has hosted multiple NEH Summer Seminars for classroom teachers on the theme "Production and Consumption in World History." Visit us at cwh.ucsc.edu.

Dickens Project

Through a regular program of conferences, courses, and scholarly gatherings, the Dickens Project coordinates research and instruction in the work, times, influence, and achievement of Charles Dickens. Twice a year, faculty members and graduate students from the 10 campuses of the University of California, joined by colleagues from other universities, present their research findings to conference participants, interested undergraduate and graduate students, and members of the general public. They meet on the Santa Cruz campus each summer and at another university each winter. Each year, the conference is available as a regular Summer Session undergraduate course. The project also publishes its own newsletter and curricular materials and cosponsors international conferences. Visit us at dickens.ucsc.edu.

Linguistics Research Center (LRC)

LRC at UC Santa Cruz facilitates research and education in the areas of theoretical linguistics—syntax, phonetics, phonology, morphology, and semantics. The members of the linguistics community at UCSC (faculty, students, and visiting scholars) work together under the auspices of the LRC to conduct and disseminate the results of their research to the larger linguistics community. An increasingly important aspect of LRC's mission is to coordinate and administer the LRC Labs (SynLab, PhonLab and SemLab).

In addition, LRC serves as a liaison between researchers at other institutions and researchers at UC Santa Cruz. Among other efforts, the LRC hosts visiting scholars from other institutions interested in conducting research in the UCSC linguistics community, organizes workshops featuring participants from other U.S. and international institutions, engages in online publication of research conducted at UCSC, coordinates the logistics of externally funded research projects, and in general works to enhance the environment for linguistic research at UCSC.

A collection of books and journals in linguistics, including working papers from many other linguistics departments, is maintained in the LRC Library, which is available for use by any LRC affiliate. The LRC sponsors visiting scholars for an entire academic year (or for shorter periods) through the Research Associate Program. Visit us at lrc.ucsc.edu.

Ray Film and Study Center

The Satyajit Ray Film and Study Center (Ray FASC) is a research activity concentrating on the films and other artistic works of Satyajit Ray, one of the world's greatest filmmakers. Ray FASC maintains, in addition to 35-mm films and videocassettes of Satyajit Ray's films, a collection of the Ray papers: books, articles, letters, screenplays, sketchbooks, costume designs, music tapes/recordings, posters, stills, illustrations, and other examples of Ray's multifaceted genius. Ray FASC has received the Lethbridge Collection of some 1,500 volumes/items of works on Ray and by Ray in some 10 world languages. The gift has come from Mr. and Mrs. Cuthbert Lethbridge of Melbourne, Australia.

With major grants Ray FASC has prepared an inventory, catalog, and database of the materials in the archive. Ray FASC hosts lectures, film screenings, seminars, and exhibitions. It helped organize several Ray retrospectives nationally and internationally. Student internships and research projects in the archives are welcome. Please visit http://satyajitray.ucsc.edu.

Physical and Biological Sciences Division Research Programs and Centers

Center for Adaptive Optics (CfAO)

CfAO is a cross-disciplinary center funded by the University of California. It is headquartered at UC Santa Cruz, with members from other UC campuses and with many academic and industrial affiliates. Adaptive optics (AO) is an enabling technology that sharpens images by removing optical aberrations. This technology is transformative for

ground-based astronomical telescopes because it removes blurring due to turbulence in the Earth's atmosphere. An exciting application closer to home is the use of AO for imaging the living human retina. The mission of the CfAO is to develop, apply, and disseminate adaptive optics science and technology in service to scientific research, healthcare, industry, and education. To accomplish these goals, the CfAO connects the UC campus communities, fosters research collaborations across campuses and disciplines, and works to develop the next generation of graduate students and young leaders in this bourgeoning field. Web: cfao.ucolick.org and lao.ucolick.org

Center for Molecular Biology of RNA

The Center brings together an interdisciplinary group of researchers from the Departments of Molecular, Cell and Developmental Biology; Chemistry and Biochemistry; and Biomolecular Engineering, whose common interest is to understand the structure, function, and biological roles of DNA's more versatile cousin, RNA. The Center promotes interaction between structural biologists, molecular geneticists, biochemists, and computational biologists. Unlike DNA, RNA has the ability to fold into complex and unusual three-dimensional structures that confer its biological functions. RNA, like protein, can possess enzymatic activity to catalyze biochemical reactions. It is believed that RNA preceded both protein and DNA in the early molecular evolution of living systems. Today, its importance is underscored by the finding that, while only a small fraction of the human genome codes for protein, the majority of human DNA is transcribed into RNA. Many new classes of functional RNAs continue to be discovered, including those that regulate development of higher organisms; however, the roles of most non-coding RNAs remain to be discovered.

New insights into the fundamental properties of RNA benefit medical research in such areas as the study of RNA viruses (which include HIV, influenza, polio and the common cold) and in development of new antibiotics based on the molecular structure of the bacterial ribosome. Among the areas currently under investigation in the Center are RNA genomics, RNA splicing, protein synthesis, ribonucleoprotein assembly, RNA-protein recognition, molecular structures of RNA and RNA-protein complexes, mechanisms of action of catalytic RNAs and micro-RNAs, and in vitro evolution of novel catalytic and other functional RNAs. Researchers in the Center employ diverse experimental methods, including cryo-EM reconstruction, x-ray crystallography, DNA microarrays, high-throughput DNA and RNA sequencing, single-molecule FRET and optical tweezer techniques and state-of-the-art computational approaches. The Center provides research training for postdoctoral scientists and doctoral students in graduate programs offered by the Department of Molecular, Cell, and Developmental Biology, the Department of Chemistry and Biochemistry, and the Department of Biomolecular Engineering. Web: rna.ucsc.edu/rnacenter

Center for Origin, Dynamics, and Evolution of Planets (CODEP)

CODEP brings together faculty from the Departments of Astronomy and Astrophysics, Applied Mathematics and Statistics, Earth and Planetary Sciences, and Physics. The interests of CODEP researchers include Earth's internal dynamics, the formation of planets, how planetary systems evolve, and the discovery of new planets outside the solar system. This is a joint effort to understand as much as possible about planets in general, both in our own solar system and around other stars. The center encourages Earth scientists and astronomers to bring their different perspectives to bear on planetary issues. Web: http://codep.ucsc.edu/

Center for the Study of Imaging and Dynamics of the Earth (CSIDE)

This center coordinates research in seismology, geodynamics, geomagnetism, hydrology, geomorphology, active tectonics, and mineral physics addressing structure and dynamics of the Earth's interior. Thermal, chemical, and dynamic processes are studied in six affiliated research laboratories. CSIDE hosts a major industrial consortium focused on development of new seismic-imaging technologies. Web: http://cside.ucsc.edu/

Center for Remote Sensing (CRS)

CRS coordinates research efforts of faculty in the Departments of Earth and Planetary Sciences, Ocean Sciences, Ecology and Evolutionary Biology, Electrical Engineering, and Computer Engineering for the use of satellite and airborne remote sensing in studying processes occurring on the surfaces of Earth and other planets. Specific interests include

astrogeology; plant ecology; coral reef health; volcanic, geothermal, and earthquake processes; climate change; submarine and coastal geology; ocean surface processes and marine habitats; and engineering development. Web: http://crs.ucsc.edu/

Institute of Marine Sciences (IMS)

With the dynamic combination of university marine scientists, state-of-the art facilities and analytical equipment, collaborative research, and an overriding commitment to quality, UC Santa Cruz is at the forefront of marine sciences research, education, and outreach. Set in the biologically rich environment of Monterey Bay and the nation's largest national marine sanctuary, the campus provides students and scientists who seek to study the ocean and its life a unique opportunity to pursue their dreams.

Established in 1972, IMS is composed of 39 affiliated faculty; 175 professional researchers, project scientists, specialists, postdoctoral researchers, and research associates; and 25 support staff. Marine scientists from the departments of Ocean Sciences, Ecology and Evolutionary Biology, Earth and Planetary Sciences, Microbiology and Environmental Toxicology, Chemistry and Biochemistry, Environmental Studies, and Applied Mathematics and Statistics conduct their research within the shared focus of the institute. The institute provides facilities and administrative and technical support for faculty, researchers, visiting scientists, graduate students, and undergraduates. Faculty and researchers work independently and collaboratively within eight clusters:

- Coastal biology
- Environmental toxicology
- Fisheries and fishery management
- Marine and coastal geology
- Marine and coastal policy
- Marine vertebrate biology
- Oceanography and ocean processes
- Paleoceanography, paleoclimatology, and global change

An undergraduate major leading to a B.S. in marine biology is described here; a two-year graduate program leading to an M.S. in ocean sciences is described here. Doctoral students pursue marine research through the Ph.D. programs in the Departments of Ecology and Evolutionary Biology, Earth and Planetary Sciences, Microbiology and Environmental Toxicology, or Ocean Sciences.

Facilities. The institute's on-campus complex includes the IMS administrative office; research laboratories; offices for researchers, postdocs, and visiting scientists; state-of-the-art analytical labs for marine chemistry, biology, and geology; a computer laboratory; culture rooms for invertebrates and algae; portable seagoing analytical labs; and support facilities for cruise staging.

The Joseph M. Long Marine Laboratory is the core of UCSC's Coastal Sciences Campus, an onshore site three miles from main campus on the coastline of the nation's largest national marine sanctuary. The laboratory's running seawater capabilities increase opportunities for research and instruction. Facilities include research laboratory buildings; outdoor tanks for research involving marine mammals (dolphins, seals, sea lions, and sea otters), seabirds, and fish; and teaching laboratories. Specialized laboratories and facilities for marine physiology, ecology, and marine mammal bioacoustics studies are available. Adjacent to the lab are 55 acres of land for which plans have been developed and approved for an expanded marine lab campus with space for future research and educational facilities. The Coastal Sciences Campus also has a protected lagoon, a sandy beach, and rocky intertidal platforms for field research. Because Long Marine Lab is close to the campus, work there is easily incorporated into daily campus activities.

Each year, over 65000 people—including 10,000 schoolchildren—tour the Seymour Marine Discovery Center at Long Marine Lab. Trained volunteer docents welcome visitors, guide groups through the Center and around the site, and provide information on research in progress. The Seymour Center houses an aquarium, exhibits that interpret the research

underway within the institute, two classrooms for school groups, and an auditorium. All are open to the public—including K–12 classes—for a modest fee.

In addition, the Center for Ocean Health at Long Marine Lab houses offices and labs for marine sciences faculty and their research programs, as well as three nonprofits: the Nature Conservancy's Coastal Waters Program, Island Conservation, and the Natural Capital Project.

IMS maintains a number of small vessels equipped for nearshore coastal research, several small craft for inshore work, and a scientific diving program. In addition, IMS-associated faculty, researchers, and students work around the world aboard larger oceanographic vessels.

IMS has scientific control over use of Año Nuevo Island, the largest elephant seal rookery on the Pacific coast.

IMS maintains active cooperative research agreements with both the Biological Resources Division and the Coastal and Marine Group of the U.S. Geological Survey that have 100 agency scientists and staff now housed adjacent to the Coastal Sciences Campus.

The institute also maintains a cooperative agreement with the National Marine Fisheries Service (NMFS). In 2000, this agency completed a fisheries laboratory at Long Marine Lab, which houses 105 scientists and staff working on salmon, bottom fish, and fishery-management issues. NMFS scientists study causes of variability in abundance and health of fish populations and the economics of exploiting and protecting natural resources. The California Department of Fish and Wildlife operates a Marine Wildlife Research Center at Long Marine Lab, which provides interior lab space and outdoor pool space for research on sea otters and the effects of oil and other contaminants on marine mammals and seabirds.

Additional collaboration also takes place with scientists at the Monterey Bay Aquarium Research Institute, Moss Landing Marine Laboratories, Hopkins Marine Station, the Monterey Bay Aquarium, the Naval Postgraduate School, and the Monterey Bay National Marine Sanctuary.

IMS web sites: ims.ucsc.edu and http://www2.ucsc.edu/seymourcenter/

Microbiology and Biomedical Research. The Division of Physical and Biological Sciences supports a broad range of biomedical research in the Departments of Chemistry and Biochemistry; Microbiology and Environmental Toxicology; and Molecular, Cell, and Developmental Biology. Structural biology, the molecular biology of RNA, genetics, bioinformatics, chromatin biology, and developmental biology are areas of particular strength. Researchers work in state-of-the-art laboratories, with additional access to shared facilities, equipment, and computational tools. Collaborative research is frequent, both among investigators within the division as well as with faculty in the Baskin School of Engineering, which is internationally recognized for its expertise in computational biology. These collaborative efforts are facilitated by the university's Center for Biomolecular Science and Engineering. There are excellent training opportunities for postdoctoral fellows, and graduate and undergraduate students in areas of biomedical research and the health sciences. Web: biomedical.ucsc.edu

Institute for the Biology of Stem Cells (IBSC)

The IBSC encompasses research, training, and facilities. Stem cell research at UCSC focuses on the basic biological systems operating in the processes of self-renewal and differentiation of stem cells. The institute was made possible by the high quality of biological and engineering research on the UCSC campus and by the California Institute for Regenerative Medicine (CIRM), which in September 2005 approved funding for UCSC to establish a training program in stem cell research. The UCSC Training Program in Systems Biology of Stem Cells provides predoctoral and postdoctoral students with a solid understanding of the biology of stem cells, the skills to use stem cells in their own research, and the ability to devise and use computational approaches in their stem cell research. Funding from CIRM also made possible the UCSC Shared Stem Cell Facility and other major projects that have supported stem cell research on this campus, such as a major facility award that funded the IBSC space in the Biomedical Sciences Building. Web: stemcell.ucsc.edu

Santa Cruz Predatory Bird Research Group

The Santa Cruz Predatory Bird Research Group (SCPBRG) was formed in 1975 to restore an endangered peregrine falcon population in California. Since then, more than 1,000 peregrine falcons have been released to the wild and the Pacific Coast population has recovered and been removed from State and Federal Endangered Species Lists.

SCPBRG advises students on their senior theses, directs interns in individual studies, and teaches a College 8 class, Peregrine Falcon Recovery—A Case Study in Conservation Success. In addition, we lead a large conservation education and outreach program that includes falcon nest cameras posted on our web site, training for volunteers who monitor peregrine falcons, and conservation education lectures for schools and community. SCPBRG is located at the Long Marine Laboratory and is affiliated with the Seymour Discovery Center. Web: www.scpbrg.org.

University of California High-Performance AstroComputing Center (UC-HiPACC)

Based at UCSC, this is a consortium of nine University of California campuses and three Department of Energy laboratories (Lawrence Berkeley National Laboratory, Lawrence Livermore Laboratory, and Los Alamos National Laboratory). The mission of UC-HiPACC is to foster collaborations among astronomers, computational astrophysicists, computer scientists, computer hardware engineers, and the builders and users of UC telescopes. The center supports activities that facilitate research collaborations and working groups of scientists from multiple UC campuses and labs pursuing joint projects in computational astrophysics and sponsors workshops and conferences on topics in computational astrophysics. The center also sponsors an annual summer school open to UC graduate students and postdocs as well as participants from around the world. Web: hipacc.ucsc.edu

Physical and Biological Sciences Division Research Facilities and Laboratories

Chemical Screening Center (CSC)

UCSC's CSC offers access to high-throughput screening technologies to speed the identification of small molecules that modulate biochemical or cellular processes and have the potential to alter disease states. The CSC maintains a suite of modern robotic instrumentation that permits high-throughput biochemical and cell-based screening of up to 50,000 compounds a day. In addition to targeted and known drug libraries purchased from commercial vendors, the CSC curates a growing collection of natural products. All libraries housed at UCSC are submitted to a panel of screens in diverse organisms, paring each compound with a broad bioactivity profile. Active compounds are prioritized based on potency and phenotype, and target ID may be immediately pursued using affinity approaches. Through collaboration with UC investigators, the CSC aims to accelerate the path from new discoveries in biology to validated biological targets to provide novel small-molecule therapies for fighting diseases such as cancer, malaria, Parkinson's disease, and cholera. Web: https://cscenter.pbsci.ucsc.edu/

Climate Change and Impacts Laboratory (CCIL)

The CCIL is a computational facility sponsored by the National Science Foundation, the California Energy Commission, and UCSC. The facilities include a 32-processor (quad core) Dell PowerEdge M1000e supercomputer, numerous high-performance workstations, and multiterabyte data storage and backup facilities. The goals of CCIL are to calculate scenarios of likely future climate change and to investigate the possible impacts of climate change on the various dimensions of a given region, providing a multidisciplinary and multidimensional view of the possible effects of future climate change at regional scales. The current focus is concentrated on a region centered in California because of its complex topography, diverse microclimates and ecosystems, large and growing population, and vulnerability to water. CCIL members are scientists from the departments of Earth and Planetary Sciences, Ecology and Evolutionary Biology, Environmental Studies, Microbiology and Environmental Toxicology, and Ocean Sciences, and represent a wide range of expertise on aspects of California's human and natural systems. Web: ccil.ucsc.edu

Crustal Imaging Laboratory (CIL)

The CIL provides researchers with the sophisticated hardware and software resources necessary to perform high-resolution studies of the Earth's surface and outer layers. CIL facilities consist of a network of Linux and PC workstations, a variety of input/output and mass-storage devices, multichannel seismic interpretation packages, and remote sensing software. Research is focused on surface bathymetric and roughness mapping, 2D and 3D seismic-reflection imaging, hyperspectral and InSAR remote sensing, and quantitative geomorphology. Web: http://eps.ucsc.edu/research/facilities/geophysical.html

Earth System Modeling Laboratory

The laboratory is home to the Paleoclimate and Climate Change Research Group, which is presently focused on past and future climatic and environmental change, and hosts several national and international visitors each year. This research takes many forms and involves the use of various kinds of models and observations, as well as a wealth of paleoclimate proxy data from many marine and terrestrial locations. Computing facilities include a Dell PowerEdge M1000e Blade server with 16 PowerEdge M600 blades (2 quad core Xeon processors per blade), numerous high-performance workstations and servers, and multi-terabyte data storage and backup facilities. The computing resources are used for global and regional climate-modeling efforts and data analysis. Web: http://eps.ucsc.edu/

Electron Paramagnetic Resonance Facility

The facility is used to examine the structure and properties of metal-containing inorganic complexes, peptides, proteins, enzymes, nanoparticles, and biological membranes. The facility's Bruker ELEXSYS 580 X-band spectrometer operates in either continuous-wave or pulsed mode, with variable temperature control. A high-sensitivity Bruker EMX is especially useful for the limited sample sizes often encountered in biological studies. Web: biomedical.ucsc.edu/ESR.html

Hydrogeology Facilities

These facilities include hardware, software, and technical expertise applied to field sampling and measurements, lab analyses, and computer modeling. Hydrologic equipment and supplies include: a state-of-the-art particle size analyzer; autonomous field scale infiltration testing system; pressure and temperature data loggers; total station and other surveying equipment; dedicated hydrogeology field truck; flow meters and rain gauges, autonomous and networked conductivity, temperature, pressure, and water-content sensors; hydraulic and hand augers and other soil-sampling equipment; infiltrometers, lysimeters, piezometers, and tensiometers; and a borehole geophysical logging system. Lab space is dedicated to water and sediment analysis, including geotechnical and hydrologic testing of core samples. Outstanding analytical facilities are available throughout the Earth and Planetary Sciences and Ocean Sciences departments, and the Institute of Marine Sciences, including IC, ICP-OES, Latchet, and stable isotope mass spectrometers. These and additional capabilities at regional collaborator institutions allow for specialized analyses of water, sediment, and rock samples. A dedicated computing lab is equipped with fast workstations (Linux, PC, and Mac), portable (field) computers, printers (black and white, and color), a large-format plotter, scanners, and other devices and associated software for interfacing with field and lab instruments. Software includes public domain, commercial, and custom programs for coupled and multi-phase transport through soils and aquifers. Web: http://es.ucsc.edu/%7eafisher/

Life Sciences Microscopy Center

A core facility supported by California Institute for Regenerative Medicine (CIRM) and California Institute for Quantitative Biosciences (QB3), personalized assistance is provided on various aspects of imaging, from sample preparation to training on the shared microscopes and image analysis. The light microscopy facility is housed within the CIRM Shared Stem Cell Facility and supports the stem cell research community as well as other biomedical research. Light microscopy instrumentation includes widefield, single and multi-photon laser-scanning confocal, and spinning disk confocal microscopes as well as a live cell imaging scope. Electron microscopy instrumentation includes a Transmission Electron Microscope (TEM) which is a user-sponsored resource supervised by Professor Melissa Jurica. Web: http://stemcell.soe.ucsc.edu/facilities/microscopy

Macromolecular X-ray Crystallography Facility

The facility houses a state-of-the-art rotating-anode/imaging-plate X-ray crystallography

data collection suite, a cryosystem, and a collection of Apple, SGI and Linux computer workstations and software for crystallography data collection and computation, molecular visualization, and model building. UCSC scientists have used the facility to investigate the structure of the ribosome, catalytic RNA ("ribozymes"), the spliceosome, and protein structures relevant to cell-cycle regulation. Users of the facility also collaborate with the Lawrence Berkeley National Laboratory's Advanced Light Source synchrotron radiation facility and the Stanford Synchrotron Light Source. Web: biomedical.ucsc.edu/Xray.html

Marine Analytical Laboratories

The Marine Analytical labs are a part of the Institute of Marine Sciences at UC Santa Cruz (see above). They consist of a general access analytical facility for the support of research in the marine sciences. Scientific instruments and other equipment to aid research in marine chemistry, biology, geology, and environmental toxicology are housed in a central lab complex within the Earth and Marine Sciences Building. Analytical instrumentation; instruction in use of the equipment; consultation in experimental design, sampling, analysis, and data interpretation; and general assistance in all aspects of analytical science are available. Web: ims.ucsc.edu/mal

Mass Spectrometry Facility

Mass spectrometry is an analytical technique used to measure the mass-to-charge ratio of chemical ions. The facility currently houses two mass spectrometers: a Thermo Finnigan LC/MS/MS (LTQ) and an Ettan MALDI-TOF. This equipment is capable of determining the molecular weight of both small molecules and peptides, identifying proteins, and characterizing protein modifications. Web: http://www.chemistry.ucsc.edu/research/facilities/mass-spec.html

Microarray Facility

Used for genome-wide splicing and expression analyses of diverse organisms, from microbes to humans, the facility supports both spotted microscope slide and Affymetrix microarray research. Equipment includes an Affymetrix GeneChip system, a robotic microscope slide arrayer, an Axon slide scanner, and a 96-channel automated liquid handler. The staff offers wet-lab expertise to investigators. Web: biomedical.ucsc.edu/Microarray.html

Mineral Physics Laboratory

The properties of the materials that make up the Earth and other planets are probed in the Mineral Physics Laboratory. Specifically, we determine the phase equilibria and thermochemical and elastic properties of planetary materials at ultrahigh pressure (up to 150 GPa) and temperature (up to 6,000 K) of planetary interiors. High P-T conditions are generated using the diamond anvil cell coupled with laser heating. Presently, both Raman and infrared spectroscopic facilities are available for characterization of the structural and bonding properties of minerals and fluids in situ at pressures and temperatures characteristic of planetary interiors. In addition, we utilize state-of-the-art synchrotron x-ray sources at particle accelerators (primarily the Advanced Light Source at Lawrence Berkeley Labs) to determine the equations of state and phase equilibria of mineral assemblages relevant to the Earth's mantle and core. Our analytic and experimental capabilities are also deployed on projects that range from mineralogy and petrology to characterizations of archaeological materials. Web: http://eps.ucsc.edu/research/facilities/geophysical.html

Molecular Ecology and Evolutionary Genetics Facility

The MEEG facility provides molecular technologies for analyses of the structure and dynamics of genetic diversity found in animal, plant, and microbial populations. The facility includes all equipment necessary for PCR and preparation of samples for cloning, microsatellite analysis and Sanger sequencing; a Qubit fluorometer, electrophoresis and imaging equipment, micropipettes, PCR machines, a fume hood, water baths, stir plates, a pH meter, a shaking incubator, a biosafety cabinet, microcentrifuges, vortexes, and a refrigerated microcentrifuge. The facility also maintains data analysis resources such as several computers and software licenses. Web: http://bio.research.ucsc.edu/meeg/Welcome_to_the_MEEG_Facility/Welcome_to_the_MEEG.html

Nanosecond Time-resolved Laser Spectroscopy

The Department of Chemistry and Biochemistry maintains several laser spectroscopy systems capable of measuring time-resolved spectra from the far UV to the near IR regions. Various systems are optimized to measure nanosecond-resolution time-resolved absorption spectra, linear dichroism spectra, circular dichroism spectra, magnetic circular dichroism spectra, optical rotatory dispersion, or magnetic optical rotatory dispersion. Software is available to collect and analyze data to obtain kinetics and spectra of reaction intermediates from nanosecond to second time scales. These facilities are used in a wide variety of research, including photochemical and photobiological studies, examination of materials properties, examination of functional and folding mechanisms of peptides and proteins, and investigation of fast electron and proton transfer in proteins involved in mitochondrial and bacterial respiration. Web: biomedical.ucsc.edu/Laser.html

Nuclear Magnetic Resonance Facility

The NMR facility brings together an interdisciplinary group of researchers from the departments of Chemistry and Biochemistry, Microbiology and Environmental Toxicology, Molecular, Cell, and Developmental Biology, and Biomolecular Engineering. Ongoing research includes structural elucidation of anticancer and antiviral natural products isolated from marine organisms, organic intermediates for drug synthesis, specially designed peptide intermediates, and tumor suppress proteins. At present, the facility manages three high-resolution NMR spectrometers: two 3-channel Varian Unity+ 500s with direct and inverse detection probes and a Varian INOVA 600 system with a triple resonance cold-probe system. Initial funding came from the Lucille P. Markey Charitable Trust and the W. M. Keck Foundation, as well as individual research grants from the National Institutes of Health, the National Science Foundation, and other sources available to UCSC. Web:http://nmr.ucsc.edu

Paleomagnetism Laboratory

This lab is located in a remote building specially constructed with nonmagnetic materials and isolated from major sources of man-made magnetic noise. Inside this building, a magnetically shielded room houses a state-of-the-art superconducting magnetometer, a sensitive spinner magnetometer, thermal and alternating field demagnetizaters, and paleointensity equipment. A second lab, devoted to the study of rock and mineral magnetic properties and housed in the Earth and Marine Sciences Building, contains another spinner magnetometer, devices for measuring Curie temperatures, magnetic susceptibility and its anisotropy, hysteresis loops, and computer facilities for data analysis and graphics. Web: http://eps.ucsc.edu/research/facilities/geophysical.html

Rock Preparation Facility

The facility is fully equipped to aid researchers in petrographic section making, rock crushing, sample sieving, and mineral separation. Web: http://eps.ucsc.edu/research/facilities/geochem-rock.html#rock

Scientific Diving and Boating Safety

The university's Diving Safety Program (DSP) is housed within the Institute of Marine Sciences, with offices at Long Marine Lab. Scuba diving and small boats are tools used in science classes and by UCSC faculty, staff, and student researchers in Monterey Bay and at study sites worldwide. In order to ensure safe scuba diving and scientific boating practices, DSP provides training and oversight for all scuba diving (scientific and recreational) and scientific boating activities conducted under UCSC auspices. The diving safety officer teaches Biology 75, Scientific Diving Certification, which is a prerequisite for all UCSC courses and research using scuba diving as a tool. DSP maintains a fleet of boats and diving equipment for researchers to use. DSP assists faculty, staff, and student researchers in complying with federal OSHA standards for scientific scuba diving. Anyone who needs to use scuba diving or small boats for scientific purposes should contact the DSP Office at srclabue@ucsc.edu. Web: www2.ucsc.edu/sci-diving

Recreational diving opportunities offered by the Office of Physical Education, Recreation, and Sports (OPERS) include numerous scuba courses and the Scuba Club. Web: http://www.ucsc.edu/opers/scuba

Stable Isotope Laboratory

This lab is a state-of-the-art facility that houses five isotope ratio mass spectrometers for the isotopic analyses of carbon, nitrogen, hydrogen and oxygen species in solid and liquid samples. Samples can be analyzed from either natural abundance or, in some instances, enriched sources. Front-ends for the IRMSs include two automated carbonate devices and a full suite of continuous-flow peripheral devices. Web: http://eps.ucsc.edu/research/facilities/geochem-rock.html#stable

UCSC Greenhouses

Located on the rooftops of buildings on Science Hill, the UCSC Greenhouses provide core support for instructional and research programs in the Departments of Ecology and Evolutionary Biology, and Environmental Studies. The instructional facility, open to the campus community, houses an extensive collection of plants and has both indoor and outdoor classroom areas. Two high-quality research facilities provide equipment, space and staffing for prominent work by faculty, graduate, and undergraduate research. Web: greenhouse.ucsc.edu

W. M. Keck Isotope Laboratory

The laboratory comprises two mass spectrometers: a thermal-ionization mass spectrometer and a Thermo Finnigan Neptune multiple-collector inductively coupled plasma mass spectrometer. These and wet chemical labs are all housed in a class 1000 suite of clean labs. The thermal ionization mass spectrometer is a fully automated, nine-Faraday collector VG Sector 54 equipped with a WARP filter and an ion counting Daly. The Neptune is equipped with nine Faraday collectors and a pulse-counting ion counter located behind an RPQ filter to give high-abundance sensitivity, and can produce high-precision isotope measurements for almost all elements in the periodic table. The facilities include separate rooms for cleaning, dissolution and acid preparation, Sr-Nd-Pb-Hf separations, and U-Th-Ra-Pa separations. Single zircon and spatially resolved microanalysis may also be conducted using a Photon Machines Excimer laser system connected to the Neptune. Projects covering Earth sciences, marine sciences, environmental science, and archaeology frequently use the W. M. Keck Isotope Laboratory facilities for high-precision isotope measurements. Web: http://eps.ucsc.edu/research/facilities/keck-lab-profile.html

W. M. Keck Seismological Laboratory

Researchers at the seismological laboratory are investigating problems in earthquake physics, faulting processes, plate tectonics, global Earth structure, seismic wave propagation, and nuclear-testing treaty monitoring. This research is conducted using a state-of-the art computer system including access to a 60 node cluster and multicore workstations. Field equipment includes a portable broadband seismic network for remote deployments, a terrestrial LiDAR, gravimeter, and borehole pressure and temperature sensors. An earthquake physics laboratory also maintains a TA AR2000ex industrial rheometer for granular flow studies and a Zygo Newview white-light interferometer. Web: http://pmc.ucsc.edu/%7e7eseisweb/facilities/

Social Sciences Division Research Centers and Institutes

Center for Agroecology and Sustainable Food Systems (CASFS)

CASFS is a research, education, and public service unit of the Division of Social Sciences, dedicated to increasing ecological sustainability and social justice in the food and agriculture system. CASFS researchers investigate the ecological basis for sustainable agriculture and the cultural, political, and economic aspects of developing sustainable food and agricultural systems. The work of CASFS is multifaceted, and includes theoretical and applied research, experiential and academic education, and a wide range of public service efforts, e.g., community education programs for all ages and collaborations with local school districts to improve school food programs.

CASFS facilities and resources are available to all UC Santa Cruz undergraduate and graduate students. Students can take part in ongoing research and education efforts, or design their own projects and internships in collaboration with affiliated faculty and staff. Many undergraduate students participate in the CASFS as part of the environmental studies major (see Environmental Studies), which offers courses and internships based at the CASFS facilities and taught by environmental studies faculty and CASFS staff. The graduate

program in environmental studies includes a focus on agroecology and sustainable food systems (see Environmental Studies); graduate students have access to CASFS facilities for field-based work. Students have also pursued undergraduate and graduate studies with CASFS by working through the Departments of Biology, Education, Anthropology, and Sociology. UCSC faculty and other researchers have access to CASFS facilities for field-based research (see Research Opportunities).

In conjunction with student and faculty representatives, CASFS also coordinates activities funded by UCSC's Measure 43, the Sustainable Food, Health and Wellness Initiative. Measure 43 supports research and education grants to UCSC undergraduate students, on-campus events and speakers, and a variety of educational programming for UCSC undergraduates, such as the Food Systems Learning Journeys offered through the OPERS Recreation program. To read more about Measure 43 opportunities, please see http://casfs.ucsc.edu/farm-to-college/measure-43-initiative/index.html.

In addition, approximately 40 people complete a six-month apprenticeship organized and taught by CASFS staff each year, earning a Certificate in Ecological Horticulture through UCSC Extension. Through workshops, lectures, and hands-on instruction, apprentices master basic organic farming, gardening and direct marketing techniques, and learn about food systems issues.

CASFS gives high priority to forging links with, and serving as a resource for, researchers on and off campus, government agencies at many levels, nongovernmental organizations, producers, consumers, students, gardeners, and other individuals interested in multiple aspects of sustainable agriculture and food systems. Staff coordinate conferences, teach short courses, and make presentations at agricultural and food systems events.

CASFS manages two facilities: the 30-acre Farm on a lower meadow of campus and the three-acre Alan Chadwick Garden on the upper part of campus. As the primary on-campus research facility, the CASFS Farm includes research plots, raised-bed gardens, row crops, and orchards, as well as staff offices, a laboratory, greenhouses, and a visitor center. The Chadwick Garden showcases small-scale intensive horticulture and supports a diverse collection of ornamentals, vegetable crops, fruit trees, and native California plants.

The CASFS Farm and Alan Chadwick Garden are open to the public daily from 8 a.m. to 6 p.m. In conjunction with the Friends of the UCSC Farm and Garden, CASFS sponsors a variety of public education events for the community, including an active docent program offering tours of the facilities. For further information, contact CASFS at (831) 459-3240 or casfs@ucsc.edu; for directions to the Farm and Garden, call (831) 459-4140. Web: casfs.ucsc.edu.

Center for Educational Research in the Interest of Underserved Students (CERIUS)

CERIUS develops, conducts, and disseminates educational research to improve the teaching and learning of the nation's increasingly diverse student population and the teachers who serve them. The center is transdisciplinary, drawing on studies of education from multiple theoretical perspectives. CERIUS serves as a hub to integrate the work of scholars who are organized in research groups focusing on three research domains:

- Teachers and Teacher Development
- Literacy Education
- Science, Technology, Engineering, and Mathematics (STEM) Education

Taken together, the research conducted by faculty, graduate students, and academic researchers under the auspices of CERIUS aims to reinvent the institutional and organizational settings for education in order to meet the educational needs of students from underserved communities. CERIUS pursues extramural sources of funding to support its research and other scholarly activities. For information, e-mail rtogawa@ucsc.edu.

Center for Global, International and Regional Studies (CGIRS)

The Center for Global, International and Regional Studies (CGIRS), established in 1996 through a merger of the Global Transformations ORU and the IGCC-funded Stevenson College Program on Global Security, is the primary center for the study of international

affairs at UCSC. CGIRS is also the institutional home for the Everett Program, the administrative office for the systemwide UC Pacific Rim Research Program, and the campus affiliate for the Institute on Global Conflict and Cooperation.

CGIRS and its affiliates work to seek better understanding of the complex issues surrounding the environmental, economic, social and political structures of the 21st century, through innovative, thoughtful, and critical faculty research, undergraduate curricula, public outreach, and policy analysis and action. Its programs and activities recognize that contemporary societies are anchored in specific regions and locales even as they are also linked to other places and levels by complex political, economic, social, and cultural networks of communication and action. For further information, contact CGIRS at (831) 459-2833 or e-mail global@ucsc.edu or elnish@ucsc.edu. Web: cgirs.ucsc.edu

Center for Integrated Water Research (CIWR)

The Center for Integrated Water Research at UC Santa Cruz undertakes research on policy, economics, and communications issues related to fresh water supply. Fresh water is critical to our health and quality of life, to providing ample food supplies, to maintaining a vibrant economy, and to supporting the environmental systems we depend on and enjoy. Billions of dollars and millions of skilled workers are employed in the water sector. Policies on fresh-water management have profound impacts that can last for decades.

Water supply challenges in the early 21st century include meeting growing demand from all categories of water users, replacing and upgrading aging infrastructure, reversing declines in water quality, and adapting to climate and groundcover that affect water availability and quality.

To meet these challenges, society has developed an array of new water treatment and supply technologies, as well as new approaches to managing when and how water is gathered and used. Some water treatment technologies are so innovative they do not fit in well with our existing laws and regulations, so regulatory adaptation is necessary.

The center serves the UCSC campus by providing internship opportunities and supporting conference attendance by students. It develops and maintains relations with individuals in the business, finance, and regulatory sectors who often lecture at UCSC, thereby helping students learn about cutting-edge issues. The center also collaborates with local water agencies to provide innovative teaching and training programs, including WaterLab, the Water Teaching and Research Laboratory, a collaboration with the Watsonville Water Resources Center, which trains students to operate advanced water treatment systems. .

Further information is available on the web at http://ciwr.ucsc.edu, by e-mail at bhaddad@ucsc.edu, or by phone at (831) 459-4149.

Chicano/Latino Research Center (CLRC)

Since 1992, the Chicano Latino Research Center (CLRC) has helped make UC Santa Cruz a vibrant hub for Chicano, Latino, Latin American, and migration studies. Drawing from and bringing together the social sciences, humanities, and arts, the center's work explores the diversity of the Americas, with a focus on the mobility of people, ideas, and commodities. The CLRC addresses questions related to class, economics, education, embodiment, everyday cultures, gender, identities, indigeneity, labor, language, nation, place, politics, policy, race, representation, sexuality, social movements, the state, and statelessness.

A forum for investigation and exchange, the CLRC hosts conferences, symposia, workshops, public lectures, and film screenings by UCSC faculty and students, community members, and visitors to UC Santa Cruz. We sponsor Research Clusters on topics proposed by UCSC faculty and students, distribute Individual Faculty Research Awards and Graduate Student Mini-grants, and co-administer the Lionel Cantú Memorial Award with the Latin American and Latino Studies and Sociology departments. With the center's support, CLRC affiliates have produced numeous publications, including single-authored books, edited volumes, research reports, and working papers. In addition, the CLRC helps prepare UCSC students for an increasingly diverse, complex, and changing world by providing them with mentorship and hands-on research experience via our Undergraduate Research Apprenticeship Program.

Center for Learning Architecture-Silicon Valley

The Center for Learning Architecture–Silicon Valley (CLA–SV) was established in 2013 as a partnership between the University of California, Santa Cruz (UCSC) and the National Laboratory for Education

Transformation (NLET). CLA–SV joins cross–disciplinary teams of researchers with community agencies and industry in the region to employ information technology to transform education.

CLA–SV designs systems that foster deep, personalized learning for all students—with an emphasis on students from underserved communities—by integrating cutting–edge technologies with contemporary forms of social organization. Combined with advanced data analytics, these responsive, instructional platforms support learning activities that enhance student engagement and academic outcomes.

Multidisciplinary teams from UCSC, which involve social sciences and engineering, conduct research to:

- Understand human and social factors that influence learning;
- Advance technologies that facilitate learning; and
- Develop data–analytic techniques applicable to solving educational problems.

For information about CLA–SV, please contact its Director, Rodney Ogawa at rtogawa@ucsc.edu

Institute for Scientist and Engineer Educators (ISEE)

The Institute for Scientist and Engineer Educators (ISEE), an innovative initiative at UC Santa Cruz, will prepare science and engineering (S&E) graduate students for their educational role as future faculty members, and a wide range of other science and engineering careers requiring teaching skills.

Web: isee.ucsc.edu

Santa Cruz Institute for International Economics (SCIIE)

Home to the largest number of international economists at any American public university, the Santa Cruz Institute for International Economics (SCIIE) facilitates scholarly collaboration to further knowledge and debate on global economics and policies. An annual conference draws participation from leading academicians, researchers, and financial professionals.

Web: sciie.ucsc.edu

Social Sciences Division Research Facilities

CineMedia Project (CMP)

This is a noncirculating research archive dedicated to the study of Latin American and Latino film and video. The CMP film, video, and DVD holdings are located in Crown 206. The CMP books, journals, and files are located in Crown 123, and are available by contacting the LALS Department. Visit us at http://lals.ucsc.edu/research/research-groups.html.

Center for Integrated Spatial Research (CISR)

One of the most exciting developments in research over the past decade has been the increasing sophistication of spatial technology, along with a dramatic increase in the availability of spatially referenced data. Spatial technology is an information technology field that acquires, manages, interprets, integrates, displays, analyzes, or otherwise uses data focusing on the geographic, temporal, and spatial context. Today, spatial technology is recognized as the primary means of dealing with information referenced to a specific location and is being integrated across a broad range of disciplines.

CISR (pronounced “scissor”) is located in the Department of Environmental Studies, Division of Social Sciences, and serves as a central facility for spatially focused research and training at UCSC. CISR is focused on integrating advanced spatial technology, methods, and data (geographic information systems—GIS, global positioning systems—GPS, remote sensing, spatial modeling and statistics) with interdisciplinary research challenges in terrestrial, marine, and urban environments. The central goal of the center is to foster cross–domain

cooperation in the application of these tools and to promote a diversity of research by increasing campus and community literacy in spatial methods.

CISR manages both a research and teaching facility specializing in state-of-the-art spatial technology, software applications, and data, as well as, an expanded training program. Training options include three academic courses focused on spatial theory and methods (see Environmental Studies course listing); short courses through a professional development certificate program in GIS; and regular workshops and symposia. Access to CISR facilities is limited to current UCSC students, faculty, researchers or staff involved in spatial research and/or courses through the CISR. Web: spatial.cisr.ucsc.edu

Life Lab Science Program

Life Lab helps bring learning to life in a garden through curriculum, professional development, and innovative programs at our Garden Classroom site, located on the UCSC Farm. Web: http://www.lifelab.org

Museum of Natural History Collections (MNHC)

MNHC is dedicated to cultivating an increased understanding and appreciation of the natural world by promoting the use of its natural science collections for teaching, research, and aesthetics. The museum, part of the Environmental Studies Department, is the main repository for natural science collections at UC Santa Cruz. Collections include specimens of plants, fungi, insects, fishes, amphibians, reptiles, birds, and mammals. Web: mnhc.ucsc.edu

Physical Anthropology and Archaeology Laboratories

These laboratories are dedicated to teaching and research in both anthropological archaeology and physical (biological) anthropology. Within the labs are spaces for the study of ceramics, lithics, household archaeology, spatial archaeology (including GIS), zooarchaeology, comparative anatomy and osteology, and forensic anthropology. The laboratories maintain collections related to local Monterey Bay archaeology, as well as comparative vertebrate osteology and taphonomic specimens. Web: anthro.ucsc.edu/labs/

UCSC Farm and Alan Chadwick Garden

The Center for Agroecology and Sustainable Food Systems (CASFS) manages the 30-acre UCSC Farm and 3-acre Alan Chadwick Garden for research, education and public service activities. These unique campus and community resources use organic practices and are certified by the California Certified Organic Farmers (CCOF).

The Center's Farm and Garden facilities are available to faculty, staff, and students interested in pursuing field or laboratory research, and for use by classes. Researchers from other institutions, such as Cooperative Extension, may also collaborate on Center research projects or propose new projects. For more information, contact CASFS at 831.459-3604 or by email. Web: casfs.ucsc.edu/about/facilities

For more information on the UCSC Farm and the Alan Chadwick Garden, please see: http://casfs.ucsc.edu/about/facilities.html

UCSC Greenhouses

UCSC Greenhouses is a core support facility used primarily for instructional and research programs for the departments of Ecology and Evolutionary Biology (EEB) and Environmental Studies (ENVS). UCSC Greenhouses is comprised of three separate growing areas all located on the roofs of buildings on Science Hill in the center of the UC Santa Cruz campus. More information on UCSC Greenhouses can be found at: greenhouse.ucsc.edu.

Social Sciences Division Research Activities

Bruce Initiative on Rethinking Capitalism

The Bruce Initiative on Rethinking Capitalism aims to connect those who are technically adept at the new financial technologies with scholars of culture, institutions, ethics and theology. Original research in political economy and the social study of finance is supported. Founded in the wake of the recent economic turmoil, the goal of Rethinking Capitalism is to reconsider the liquidity crisis and imagine what comes after. What distinguishes this project is the foundational premise that exploring the full range of

"capitalist futures" requires a critical, multidisciplinary understanding of derivatives, speculation and financial markets. The Project aspires to create conceptual and empirical tools of economic practice and regulation, both locally and globally, that give capitalism a future that may diverge from its past. This triple commitment: to advance interdisciplinary research on political economy and finance; to foster a community of academics, regulators, and practitioners; and to promulgate the best ideas in this emerging field to broader audiences entails an ambitious program to disseminate intellectual content through various media. Web: rethinkingcapitalism.ucsc.edu

Center for Collaborative Research for an Equitable California (CCREC)

The Center for Collaborative Research for an Equitable California (CCREC) was established in 2009 by the UC Office of the President as part of a program designed to support multi-campus research initiatives that focus on topics critical to the state of California. CCREC brings together university researchers, community leaders, and policymakers to seek community-driven solutions to the state's interconnected crises in the economy, education, employment, health, nutrition, housing, and the environment. Based at UC Santa Cruz with affiliated research centers and faculty fellows at the other nine UC campuses, CCREC repositions the University of California to confront complex interrelated problems from an interdisciplinary perspective. CCREC provides seed and development funding for innovative projects, incubates regional-scale projects demonstrating best practices in equity-oriented, collaborative, community-based research, and supports UC graduate students and early career scholars to disseminate their work. CCREC is helping to establish national standards for the distinctive ethical quandaries of collaborative research, and it also fosters data- and research-based public deliberations on matters of significance for a democratic society. Web: ccrec.ucsc.edu/

Center for Informal Learning and Schools (CILS)

The Center for Informal Learning and Schools (CILS) is focused on the strengthening of K-12 science education through broadening the understanding of learning in both formal and informal environments. Funded by the National Science Foundation, CILS is a collaboration between the University of California Santa Cruz, the Exploratorium, and Kings College London. Web: cils.exploratorium.edu

Center for Labor Studies (CLS)

The UCSC Center for Labor Studies, founded in 2007, is dedicated to the study of working people, the labor movement, and the challenge of the broader global economy as it impacts the working people of California and beyond. Through conferences, workshops, public lectures, and a range of guest speakers, in particular, on the relationship between the labor movement, social movements, and democratic practices; on gender, race, and ethnic dynamics; and on labor activism in international context. Web: labor.ihr.ucsc.edu

Center for Statistical Analysis in Social Sciences (CSASS)

Founded in 2012, CSASS, is administered by the Division of Social Sciences. Its mission is to facilitate the use and training of statistical, psychometric, and computational methods in social science research within the context of research designs represented by the division's academic departments of Anthropology, Economics, Education, Environmental Studies, Latin America and Latino Studies, Politics, Psychology, and Sociology. CSASS provides statistical and methodological support to the research missions of all departments within the Division of Social Sciences by providing free statistical consulting and quantitative training workshops. Web: csass.ucsc.edu

Center for Tropical Research in Ecology, Agriculture, and Development (CenTREAD)

The goal of the Center for Tropical Research in Ecology, Agriculture, and Development (CenTREAD) is to foster interdisciplinary research and training to understand tropical environmental issues and develop ecologically-based, economically viable, culturally respectful, nonexploitative solutions that serve as a foundation for future generations. For more information, see: http://centread.ucsc.edu/

Learning and Experimental Economics Projects of Santa Cruz (LEEPS)

Learning and Experimental Economics Projects of Santa Cruz (LEEPS) began operation in

1986 with the Double Auction Asset Market, the world's second fully computerized market system. The lab is run by economists at UCSC and elsewhere who conduct research on individual decision-making as well as strategic interaction and market design. Funding is mainly from the National Science Foundation, with occasional support from industry and nonprofits. Web: http://leeps.ucsc.edu/home/

Science and Justice Research Center

The Science and Justice Research Center brings together faculty and graduate students from all five academic divisions on the UC Santa Cruz campus to collaboratively address common problems. As science and technology increasingly shape our lives, the Science and Justice community generates modes of inquiry and empirically rigorous research that can enable a diversity of livable techno-scientific worlds. UCSC's innovative initiative in Science and Justice is funded by the university and the U.S. National Science Foundation and is increasingly recognized nationally and internationally for its leading role in developing new forms of inquiry and action at the intersection of science and society. The initiative builds on the UCSC campus' historic commitments to social justice and strengths in science studies and interdisciplinary research. Web: http://scijust.ucsc.edu/

South Asia Studies Initiative

UC Santa Cruz is the University of California campus that meets the needs of Silicon Valley, including the vibrant South Asian diaspora that has contributed to the region's innovations and economic growth. An important aspect of the campus's educational mission is creating a major new South Asia Studies Center with global visibility, contributing to understanding not only South Asia's priceless heritage, but also its future trajectory. The center will focus particularly on India's new role as a leading participant in the world economy, including its emergence as a source of management expertise, entrepreneurship, capital, and innovation. The initiative is a campuswide collaboration that builds on existing initiatives and research from multiple disciplines and in strong partnership with the region's South Asian community. The initiative hosts an India public lecture series, featuring speakers from around the world focusing on issues of science, technology, economics, and politics in India and the region. For additional information, please contact the Assistant to the Dean of Social Sciences at (831) 459-2919. Web: http://southasia.ucsc.edu/

Sury Initiative on Global Finance and International Risk Management (SIGFIRM)

The Sury Initiative on Global Finance and International Risk Management (SIGFIRM) seeks to become a world class research center for the design, development, and dissemination of new investment and risk management strategies, techniques, and policies. Web: http://sigfirm.ucsc.edu/

Interdisciplinary and Systemwide Research Programs and Resources

Arboretum

The Arboretum at UCSC is a research and teaching facility committed to plant conservation that serves both the campus and the public. Its rich and diverse collection, containing representatives of more than 300 plant families, provides beginning students with a broad survey of the plant kingdom. Facilities for growing plants offer students and research faculty opportunities to experiment with living plants. The Arboretum maintains collections of rare and threatened plants of unusual scientific interest. Particular specialties include world conifers, primitive angiosperms, and native succulents. Large assemblages of plants from Australia, New Zealand, and South Africa, and California are displayed on the grounds. Many of the species in these collections are not otherwise available for study in American botanical gardens and arboreta.

Arboretum events educate and engage the public about plant diversity and conservation. The Arboretum's activities in importing, selecting, and breeding choice ornamental plants, especially those that are drought tolerant and pest resistant, are of service to the public and nursery industry. To date, the Arboretum has selected from the wild in California or imported more than 1,500 different selections of choice ornamentals. Many of these have been and will continue to be the plants of future California gardens. The Arboretum is open 9 a.m. to 5 p.m. daily. Admission is free to UCSC students.

Norrie's, the Arboretum's volunteer-run gift shop, supports the Arboretum and is open every day, 10 a.m. to 4 p.m.

Arboretum: (831) 427-2998; Norrie's gift shop: (831) 423-4977; e-mail: arboretum@ucsc.edu; Web: arboretum.ucsc.edu. Facebook: UC Santa Cruz Arboretum and Norrie's.

California Carlyle Edition

UCSC's Humanities Division is the focus of an exciting and innovative effort by an international group of scholars to publish an eight-volume critical edition of Thomas Carlyle's major works. Headquartered at UCSC, it is the first "scientific" edition of Carlyle, using computer technology to compare all the lifetime editions of each work in order to establish an accurate text, as well as providing explanatory notes for the modern reader.

The edition promises to set the agenda for work on Carlyle and the Victorian era for the next generation. In addition to producing a much needed critical edition of the works of Carlyle, the project is using the campus's computer facilities to develop and demonstrate many state-of-the-art applications of data-processing technology in the humanities, from optical scanning of some editions and machine-assisted collation and proofreading, to desktop typesetting and the creation of an online Carlyle textual archive. The first volume, *On Heroes, Hero Worship, and the Heroic in History*, was published in 1993 by the University of California Press. The second volume, *Sartor Resartus*, was published in 2000, followed by *Historical Essays*, in 2003, and *Past and Present*, in 2006. *The French Revolution* is forthcoming. Web: http://www3.nd.edu/~carlyle/strouse.html

California Institute for Quantitative Biosciences (QB3)

One of four California Institutes for Science and Innovation, QB3 is a multi-disciplinary research institute at the University of California created to drive the state's economy and improve the quality of life for its residents. QB3's domain is the quantitative biosciences, in which scientists take on challenges in molecular biology using the techniques of physics, chemistry, and computer sciences. The QB3 faculty members—professors at UC Berkeley, UC San Francisco, and UC Santa Cruz—publish regularly in top academic journals, patent their discoveries, and launch spinoff companies. QB3 brings scientists together across disciplines, connects industry and academia in mutually beneficial partnerships, and helps entrepreneurs start successful companies. At UC Santa Cruz, QB3 is run by the Center for Biomolecular Science and Engineering. Web: https://qb3.soe.ucsc.edu/

Center for Biomolecular Science and Engineering (CBSE)

CBSE promotes and supports genomic and stem cell research, technology innovation, and education. An umbrella organization of UCSC's Jack Baskin School of Engineering and the Division of Physical and Biological Sciences, the center supports a vast array of biological and engineering research that is fueling biomedical advances and the biotechnology explosion. CBSE started in 2000, when UCSC scientists helped the Human Genome Project reach a stunning milestone by providing the computational solution that produced the first assembly of the human genome, the map of our genetic make-up. This early accomplishment evolved the widely used UCSC Genome Browser, followed by the UCSC Cancer Genomics Browser. Much of the research combines cutting-edge computational approaches with laboratory experimentation. In addition, through collaboration with affiliates in sociology, the center supports the exploration of the ethical, legal, and social implications of genome research.

Web: http://cbse.soe.ucsc.edu/

Center for Information Technology Research in the Interest of Society (CITRIS)

CITRIS was created to "shorten the pipeline" between world-class laboratory research and the creation of start-ups, larger companies, and whole industries. CITRIS facilitates partnerships and collaborations among more than 300 faculty members and thousands of students from numerous departments at four University of California campuses (Berkeley, Davis, Merced, and Santa Cruz) with industrial researchers from over 60 corporations. Together, the groups are thinking about information technology in ways it's never been thought of before.

CITRIS works to find solutions to many of the concerns that face all of us today, from monitoring the environment and finding viable, sustainable energy alternatives, to simplifying health care delivery and developing secure systems for electronic medical records and remote diagnosis, all of which will ultimately boost economic productivity. CITRIS represents a bold and exciting vision that leverages one of the top university systems in the world with highly successful corporate partners and government resources. Web: www.citris-uc.org

Educational Partnership Center (EPC)

Established in 1999, the EPC coordinates UCSC's new and long-standing student academic preparation efforts with the goal of increasing access and opportunity to postsecondary education for students in the Monterey Bay and Silicon Valley/San Jose regions. EPC is an umbrella organization for a variety of complementary, integrated academic preparation and educational partnership programs serving students, teachers, and families from middle through high school. To build a college-going culture, EPC partners with K-12 districts in Santa Clara, Santa Cruz, and Monterey Counties to help students and families navigate the college-going pathway and achieve their higher-education goals.

EPC's mission is to equip students with the knowledge, tools, and support network to navigate the academic pipeline and advance toward higher education. EPC offers college and academic prep services and materials that motivate and empower students of diverse backgrounds to seek and achieve a college education. EPC provides an array of direct services and programs to support students on the college-going pathway through tutoring, mentoring, academic planning and counseling, leadership training, test preparation, college awareness and enrichment, family involvement initiatives, and teacher professional development.

EPC's key to success is providing an integrated services model that brings all of the student academic preparation programs together and creates synergy across programs that are each grounded in measurable goals and research-based best practices. Coordinating services across middle and high school programs has been essential to providing students and families with vital information on the various pathways to college. EPC programs include:

California Reading and Literature Project (CRLP) is one of nine California subject-matter projects. It supports professional development opportunities for teachers in pre-K-12 classrooms. Governed by the UC Office of the President, CRLP supports pre-K-12 students in the Monterey Bay region in achieving the highest standards of academic performance by developing teachers' content knowledge and expanding their teaching strategies, focusing on academic English language development to prepare all students to meet or exceed academic content standards. CRLP creates a statewide pool of expert teacher-leaders to train other teachers on sound classroom practices, and also links universities, schools, and districts together in collaborative partnerships to improve teaching and learning through teacher professional development.

California State Summer School for Mathematics and Science (COSMOS) is a four-week summer residential program at four UC campuses that provides students with an unparalleled opportunity to work side-by-side with outstanding researchers and university faculty, covering topics that extend beyond the typical high school curriculum. The academic experience includes nine clusters taught by UCSC faculty, special discovery lectures, academic field trips, and enrichment sessions. Students' residential life includes weekend events and fun-filled peer activities, and COSMOS alumni have opportunities to attend the California Nobel Laureate event, receive research awards and college scholarships, and participate in an industry internship program.

California Student Opportunity and Access Program (Cal-SOAP) is a vital component in California's effort to build an educated workforce for the 21st century by providing college, career, and financial aid assistance to traditionally non-college-going students. The program was established by the California Legislature in 1978 and is administered by the California Student Aid Commission. Statewide projects support the Commission's objective "to make education beyond high school financially accessible to all Californians." The project sustains and enhances the work of K-12, college, and university partners and increases the value and reach of other important federal and state college preparation

programs. Cal-SOAP communicates important information about financial aid, postsecondary opportunities, and career technical education. San José Cal-SOAP provides academic tutoring, peer mentoring, college and career advisement, college access and admissions counseling, SAT/ACT test preparation, college tours and financial aid workshops and grants. In addition, the San José Cal-SOAP Consortium convenes key stakeholders from higher education institutions, K-12 districts, county offices of education, the City of San Jose, and community agencies and businesses to collaboratively develop and implement academic preparation activities to maximize resources and avoid duplication of efforts.

Early Academic Outreach Program (EAOP) is the University of California's largest academic preparation program. EAOP works with students at underserved schools to prepare for postsecondary educational opportunities, complete all UC/CSU eligibility requirements, and apply for college and financial aid. EAOP partners with families, schools, and communities to make college dreams a reality and provides a variety of year-round services designed to increase the academic preparation, awareness, and motivation of high school students toward higher education and to inform parents about available education opportunities.

Gaining Early Awareness and Readiness for Undergraduate Programs (GEAR UP) is a federally funded discretionary grant program designed to increase the number of low-income students who are prepared to enter and succeed in postsecondary education. Through the collaborative efforts of school and district partners, along with additional business and community partners, GEAR UP provides critical academic preparation and support for students and families to help them navigate the college-going pathway. GEAR UP partnerships supplement existing school reform efforts and use research-proven practices to promote academic rigor and student achievement. The program brings much-needed resources to increase student academic performance and preparation for college, increase student and family college awareness, increase teachers' capacity to prepare students for college, and create a college-going culture within the broader community. EPC provides a variety of school-based academic services in its two GEAR UP partnerships in Watsonville/Pájaro Valley and south Monterey County.

The Mathematics, Engineering, Science Achievement (MESA) Schools Program provides academic development for middle and high school students to prepare them for success in baccalaureate degree programs in STEM (Science, Technology, Engineering, Mathematics) majors. The MESA Schools Program works in partnership with the MESA Community College and MESA Engineering Programs, which support students after high school along college and career pathways. The primary goal of the MESA Schools Program is to support educationally disadvantaged students through fun-filled, hands-on projects and other college awareness activities to promote STEM college and career opportunities. The UCSC MESA program provides STEM academic support and enrichment, college knowledge, parent leadership, and teacher professional development to students, families, teachers, and partner schools in Santa Cruz and Monterey counties. The annual MESA Day Preliminary Competition brings hundreds of students to campus to compete against their peers in a variety of science, math, and engineering events.

EPC is located at the UCSC campus at the Oakes College Administrative Offices. For more information, call (831) 459-3500 or visit online at http://epc.ucsc.edu.

Monterey Bay Education, Science, and Technology (MBEST) Center

UCSC has played a leading role in the development of a multi-institutional center for science, technology, education, and policy—the MBEST Center—as a cornerstone of the Fort Ord defense conversion redevelopment plan.

The mission of the MBEST Center is to promote collaborative interaction among private businesses, government research agencies, public and private education and research institutions, and policy makers in strategic alliances to address the environmental opportunities and challenges of the new millennium.

In 1994, about 1,100 acres at the former Fort Ord Military Reservation were conveyed to the University of California. Of that land, 479 acres are available for development, and 605 acres of adjacent natural habitat are now part of the UC Natural Reserve System. Investments in roadway and utilities infrastructure have been completed, making 55 acres of real estate ready for development. In addition, the UC MBEST Center headquarters was

constructed and a high-technology business incubator was established in 2001.

Information about the center is available from the UC MBEST Center Office, 3180 Imjin Road, Suite 104, Marina, CA 93933, (831) 402-2165; via e-mail: info@ucmbest.org; Web: www.ucmbest.org

Santa Cruz Institute for Particle Physics (SCIPP)

Research in high-energy particle physics and astrophysics is done in the setting of an Organized Research Unit, the Santa Cruz Institute for Particle Physics (SCIPP). With approximately two dozen faculty from the Department of Physics, the Department of Astronomy and Astrophysics, and SCIPP appointments, plus post-docs, research staff, students, visitors, and administrative staff, SCIPP is home to vibrant and evolving research in experimental and theoretical particle physics and particle astrophysics. An especially exciting aspect of work in SCIPP is the productive interaction among the different research groups, including the close connections between theoretical and experimental work on topics such as measurements of the Higgs boson, searches for supersymmetry, the nature of dark matter, tests of fundamental physics, and a wide variety of high-energy phenomena on the ground, in the atmosphere, and in space.

SCIPP faculty, research staff, students, engineers, and technicians play major roles in experiments at the frontier accelerator laboratories in the world, including CERN (the European Organization for Nuclear Research), as well as in a variety of experiments that do not involve terrestrial accelerators, to answer the most important questions in particle physics and high energy astrophysics. These efforts usually include groundbreaking work on the technologies needed to advance this research. SCIPP is recognized as a world leader in the development of custom readout electronics and silicon micro-strip sensors for state-of-the-art particle detection systems. Always creating new opportunities, SCIPP personnel are also pursuing the application of these technologies to other scientific fields such as neurophysiology and biomedicine.

The research interests of the SCIPP Theory Group fall into two broad topical categories: (1) Theory and phenomenology of high-energy particles, with an emphasis on physics beyond the Standard Model of particle physics, and (2) Theoretical astrophysics and cosmology. High-energy particle physics is an excellent example of the close connections between the Theory Group and SCIPP experimental or observational efforts, especially with the Large Hadron Collider at CERN, planning for future international colliders, and the Fermi Gamma-ray Space Telescope, to which faculty and students have contributed many of the key early studies and publications. Theoretical cosmology studies on dark energy, dark matter, and structure formation and evolution are key to the SCIPP involvement in the Dark Energy Survey and future large surveys.

Graduate and undergraduate students take part in essentially all SCIPP projects, finding many opportunities for thesis work, independent study, and part-time employment. Students also gain experience in electronics, computer-aided design (CAD), large-scale scientific computing, instrumentation, and data analysis. The work by students in both theory and experiment often results in highly cited scientific journal publications. Web: scipp.ucsc.edu

University Affiliated Research Center (UARC)

Under an extended 10-year, $330 million research contract between NASA and the University of California, which began in September 2003, UC Santa Cruz is leading the UC-wide UARC at NASA Ames. The UARC was established to increase the safety, effectiveness, and scientific impact of NASA's missions through the infusion of new technologies and research knowledge. The UARC's primary mission is to perform mission-driven multi-disciplinary, integrative research and technology development that supports NASA's long-term program requirements.

UARC research, which takes place at the NASA Ames's Moffett Field facility as well as at several UC campuses, focuses on multidisciplinary research in the following areas:

- Aerospace Systems
- Earth Science
- Information Technology and Computer Sciences

- Quantum Computing
- Space Sciences
- Biological Sciences and Synthetic Biology
- Nano Sciences

In addition to task-based support provided by a team of scientists, engineers and support staff, the UARC engages in two education programs. Our Aligned Research Program (ARP) funds research by University of California faculty and students working in collaboration with NASA Ames scientists on projects directly aligned with NASA's priorities. The Systems Teaching Institute (STI) provides opportunities for students to work alongside university and Ames researchers, enhancing their educational experiences while training them to become world-class 21st-century scientists, engineers, and educators. By efficiently collaborating with organizations that are the best in their fields, the UARC is able to deliver excellence-driven research, while training the scientists of tomorrow. Web: uarc.ucsc.edu

University of California Observatories (UCO)

UCO astronomers became partners with California Institute of Technology astronomers to operate and provide instruments for the W. M. Keck Observatory, located at the summit of Mauna Kea in Hawaii. The two Keck 10-meter telescopes began operating in 1993 and 1996. These are the largest and most capable optical/IR telescopes in the world.

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In 1988 the Regents established an organization to manage the university's ground-based optical and infrared observatories as a single unit. Known as the University of California Observatories (UCO), the organization includes Lick Observatory and UC's component of the Keck Observatory and is headquartered at UCSC. UCO plays a large role in the Keck enterprise: both of the Keck telescopes' secondary mirrors were polished in the optical laboratory at Santa Cruz, and the high-resolution echelle spectrograph (HIRES), designed and constructed in the instrument-development laboratories here, was the first Keck instrument to become fully operational. The laboratories have also designed and constructed instruments for the second Keck telescope, including a powerful optical imager and multi-object spectrograph (DEIMOS) and a higher-resolution echelle optical spectrograph and imager (ESI). Web: www.ucolick.org

As resident members of the Santa Cruz faculty, the UCO staff are members of UCSC's Department of Astronomy and Astrophysics, which offers the graduate program in astronomy and astrophysics and an undergraduate minor (see Astronomy and Astrophysics). B.S. degrees in astrophysics are offered through the Physics Department (see Physics). The UCO laboratories are located on campus, as are optical, electronics, engineering, programming, and detector/instrument-development groups. There are resources for measurement, analysis, and computation of data on campus as well.

The telescopes and accompanying facilities on the 3,762-acre reservation on Mt. Hamilton east of San Jose are operated as an observatory, with observers either commuting to use the facility in person or using remote control rooms available at UCSC and at UCLA. Telescopes include the Lick 36-inch refractor, the CAT 24-inch and Nickel 40-inch reflectors, and the Katzman 30-inch robotic reflector, dedicated to searching for supernovas. The newest and now-operational telescope is the 94-inch Automated Planet Finder (APF), which is one of the world's most sensitive for discovering Earth-like planets among the stars. The largest and most powerful of the Lick telescopes is the Shane 120-inch reflector, which was completed in 1959 and remains one of the world's most productive telescopes. The observatory's equipment also includes a variety of auxiliary instruments used in connection with observations at the 120-inch telescope. Among them is the Hamilton echelle spectrograph, judged to be one of the world's most efficient instruments for high-resolution analysis of the light of stars and galaxies and the instrument by which astronomers have discovered new planets outside our solar system. Another instrument is the Kast double spectrograph, a pioneering example of UCO's

innovative instrumentation capabilities. One of the most exciting technological innovations developed at Lick Observatory, originally in conjunction with Lawrence Livermore National Laboratory, is the use of an adaptive-optics system with an artificial, laser-produced guide star to sharpen images normally blurred by the atmosphere. Advanced and improved adaptive-optics designs are continuing to be designed, built, and tested on the Shane Telescope by a team from UCSC and then used for science by UC astronomers. The observatory is a system-wide facility used extensively by faculty, researchers, and students from eight of the ten UC campuses and two national laboratories.

UCSC's courses in astronomy and astrophysics are taught on campus. Advanced students gain observing experience with the Mt. Hamilton telescopes and conduct research directed by the staff.

UCO astronomers work on a wide variety of astrophysical topics, including solar system and star formation, exoplanets, stellar evolution, the origin and evolution of the Galaxy and external galaxies, abundances of the chemical elements, the interstellar/circum-galactic/inter-galactic gas, dark matter and dark energy, and the size, structure, and evolution of the universe.

Since 2000, UCO has been a partner in an international project called the Thirty-Meter Telescope (TMT). This giant telescope with a 30-meter diameter primary mirror will be nearly 10 times more powerful than a 10-meter Keck telescope and is being built near the two Keck Telescopes in Hawaii. Its advanced adaptive optics systems and innovative instruments will make the TMT one of the most powerful astronomical facilities in the world for decades to come.

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Student Life

2014-15 General Catalog

Student Life

Campus life is all about learning, discussion, and debate; meeting people from diverse backgrounds; making new and lasting friendships; attending cultural celebrations and artistic and musical performances; and getting involved with student organizations and clubs. UCSC provides a wealth of opportunity for personal growth within the context of a rich and meaningful academic experience. You will live, study, and socialize with students from your college as well as with students from the other colleges. UCSC's colleges (see The Colleges) and various campus units provide a wide range of student services to respond to individual needs, interests, and levels of personal development. In addition, students can take advantage of the campus's stunning natural setting, the friendly and engaging local community, and easy access to the Monterey and San Francisco Bay areas.

Santa Cruz Community

Located on the northern tip of Monterey Bay, Santa Cruz is famous for its Mediterranean climate, forested state parks, and miles of scenic beaches. Recreational opportunities abound—hiking through redwood forests, bicycling along mountain roads, and surfing, sailing, and scuba diving. The Santa Cruz Mountains are minutes away; the majestic Sierra Nevada is a four-hour drive to the east.

The metropolitan centers of the San Francisco Bay Area are easily accessible. By car, Berkeley and San Francisco are less than two hours from campus. San José, Monterey, and Carmel are one hour away.

The city of Santa Cruz, with a population of about 60,000, was originally founded as a Spanish mission. Santa Cruz is a small community with cosmopolitan appeal and a strong awareness of environmental and political issues. Art exhibits, local theater companies, a symphony orchestra, fine restaurants, and a lively contemporary music scene combine to make Santa Cruz an interesting place to live.

Housing

College Residences

UC Santa Cruz combines the resources of a world-class public research university with a distinctive undergraduate experience characterized by our college system. Each college is a vibrant living/learning community supported by faculty and staff who provide academic support, organize student activities, and sponsor events that enhance the intellectual and social life of the campus. After accepting the UC Santa Cruz offer of admission, all undergraduate students become affiliated with one of our 10 colleges.

The colleges differ in academic focus, environment, location, architecture, and programs offered. However, all 10 colleges are dynamic, engaging learning communities that offer

opportunities for students to help build and shape their experiences. About 45 percent of single undergraduate students live in university housing.

Freshmen and new transfer students entering in fall quarter are guaranteed university housing for their first two years at UCSC. All deadlines must be met to qualify for guarantees.

Students accepting the offer of admission to UC Santa Cruz must complete the online acceptance process at MyUCSC. During the acceptance process you will be asked to indicate several college preferences. You may also choose to indicate "no preference," as many students do, meaning that you will be fine with any of our 10 colleges. After you have completed the acceptance process, and after the acceptance deadline (May 1 for freshmen; June 1 for transfers), the Office of Admissions will affiliate you with a college. The college assignment takes into account available space at each college and the preferences you have indicated. Once you have been affiliated with a college, you will be sent information about the housing options available to you and instructions for completing the online housing application/contract process. Housing application periods open in mid-May for new freshmen and mid-June for new transfers entering in the fall.

The housing options available to you will differ depending on whether you are a new freshman or a new transfer student—though all students have access to campus dining facilities. Freshmen are generally assigned to live in residence halls at their college, except at Kresge College, which has all apartments. Residence hall floors are typically shared by 15 to 50 students and have common bathrooms and lounge areas. Students can request to live in a coed or single-gender area. Gender-neutral rooms are also available. Apartments, typically shared by four to seven students, have common living/dining rooms, kitchens, and bathrooms, and a combination of shared and private bedrooms. Each community provides accessible housing for students with disabilities. Incoming transfer students reside at the Transfer Community, The Village, or the University Town Center, regardless of college affiliation.

A variety of theme-housing options are available for those who are interested. Based on academic pursuits, hobbies, individual backgrounds, and lifestyle preferences, these living/learning options serve to complement a student's experience in residence.

Each college's residential program is a team effort. Professional staff (coordinators of residential education) work with students trained as resident assistants. They help organize activities and events, provide referral information about academic or personal concerns, and assist with roommate problems.

All housing contracts for residence halls and apartments at the colleges, and at the Transfer Community, include meal plans. Students with meal plans may use their student ID cards to access any of the five dining halls on campus. Meal plans include Flexi Dollars (a dollar-for-dollar exchange for "food dollars" that can be used at college coffee shops, campus restaurants, and all dining halls). Additional Flexi Dollars may be added to any meal plan.

For more information on the colleges, refer to the brochure titled UC Santa Cruz, The Colleges: Communities of Learning, or contact the campus Housing Office.

Redwood Grove Apartments

Located on the west side of campus between Kresge College and Graduate Student Housing, Redwood Grove is an apartment community primarily for continuing seniors and juniors. Each apartment has private and shared bedrooms and a living room, kitchen, dining room, and bathroom. Call (831) 459-2977 or e-mail redwoodgrove@ucsc.edu for more information.

The Village

Located in the Lower Quarry, The Village houses a mix of continuing, transfer, re-entry, and graduate students. Each of the 17 houses features nine single bedrooms, three bathrooms, and a kitchenette. A meal plan is optional. A manager's apartment, office, laundry facility, community kitchen, and community lounge are located on site. Call (831) 459-4388 or e-mail village@ucsc.edu for more information.

University Town Center

The University Town Center (UTC), located at the corner of Pacific and Cathcart in downtown Santa Cruz, provides housing for continuing and transfer students in two- and three-person studio apartments. A meal plan is optional. Call (831) 459-4388 or e-mail utc@ucsc.edu for more information.

Family Student Housing

Family Student Housing, located on the west side of campus, has apartments for students and their families. Students must reside with at least one eligible family member on a permanent, full-time basis. Eligible family members include children, a spouse or adult partner, a parent, or a sibling. The apartments are unfurnished, and each has two bedrooms, a bathroom, a small study, a combined living/dining area, and a kitchen. Several apartments are accessible to people with mobility impairments. Call (831) 459-4080 or e-mail fsh@ucsc.edu for more information, or download an application at housing.ucsc.edu/fsh. Also, see information on childcare and youth programs, below.

Camper Park

The 42-space Camper Park on the north side of campus is available to students who own recreational vehicles. All have water and electrical hookups; eight also have sewer hookups. The community includes a small central facility with rest rooms, showers, a meeting room, and a laundry room. For more information about the park and the vehicle requirements, or to request an application, call (831) 459-4388 or e-mail rvpark@ucsc.edu.

Graduate Student Housing

Four-bedroom apartments for single graduate students are located on the west side of campus, between Kresge College and the Baskin Engineering Building. Call (831) 459-5712 or e-mail gradhsg@ucsc.edu for more information.

Campus Housing Office

This office is responsible for the application and contract records for all single students living in campus residence halls and apartments, The Village, University Town Center, and Graduate Student Housing. Staff are available to advise students about room and board billing, payment plans, and contractual responsibilities. Students can purchase meal plans or Flexi Dollars online at Student Housing Online.

Centrally located at 104 Hahn Student Services Building, the Campus Housing Office is open 8 a.m. to 5 p.m. Monday through Friday, (831) 459-2394; e-mail housing@ucsc.edu; Web: housing.ucsc.edu.

Community Rentals Office

Students interested in finding their own accommodations in the off-campus community are encouraged to use the resources available through the UCSC Community Rentals Office. Community Rentals maintains online rental listings to assist students in locating rental housing and serves as an information and advising resource.

Locating suitable housing in the Santa Cruz area can take from one to four weeks, depending on specific requirements and restrictions. Average rental rates are available at housing.ucsc.edu/cro/costs.html.

The Community Rentals Office, located at 104 Hahn Student Services (North Entrance), is open 8 a.m. to 5 p.m., Monday through Friday. For information, call (831) 459-4435; e-mail communityrentals@ucsc.edu; web: communityrentals.ucsc.edu

The Sustainable Living Center (SLC) at UCSC

The Sustainable Living Center's mission is to develop a model Action Education Center at UC Santa Cruz where a diversity of students engage meaningfully with food systems sustainability and justice through experiential learning. We believe that through community-based learning students will become leaders, educators, and engaged agents of change and embody the values of environmental consciousness and social justice to create a more sustainable world.

The SLC is located in The Village of the Lower Quarry on campus. It is home to the Program in Community and Agroecology (PICA) and Friends of the Community Agroecology Network

(FoCAN). At the SLC, students from diverse majors are engaged in projects that include food production, ecological landscaping, green building, alternative trade systems, and much more.

At the SLC, young people learn the necessary skills and tools to become leaders in educating and engaging communities in sustainable and equitable food systems. We follow an educational model in which students engage in project-based learning, gain experience through community internships, and use the knowledge they gain from their internships to educate others in the student community.

Sustainable Living Center Programs

Program in Community and Agroecology (PICA), an academic program of the Environmental Studies Department, is an experiential living/learning program at UCSC where students use agroecology principles in the maintenance of a half-acre organic garden, work together to develop community projects, and share in the many aspects of sustainable living—by harvesting, cooking, and eating healthy food grown organically right next to their rooms. Through a unique collaboration that integrates classroom instruction and community-based experience, PICA has become a model for an experiential learning program that allows students to practice sustainability at a hands-on level.

On-campus living at PICA. The PICA residential program offers students an alternative to traditional on-campus living. At the Village in the Lower Quarry, students from across academic disciplines come together to create a sustainable living environment on campus. PICA residents grow organic food at the nearby Foundational Roots Garden, come together to share in weekly community meals, and manage a Village-wide composting program. This living/learning experience allows students a way to link healthy communities with healthy food systems.

Friends of CAN (FoCAN) is a UCSC student organization affiliated with the Community Agroecology Network (CAN), a nonprofit organization that works with partner communities in rural Mexico and Central America to develop self-sufficiency and sustainable farming practices. CAN promotes integrated approaches to sustainable community development as a means to sustain rural livelihoods and environments through three programs: Action Education, Trade Innovations, and Action Research Initiatives. CAN's Field Study opportunities, intercultural exchanges, research, and the annual Agroecology Shortcourse inspire action for environmental sustainability and social justice.

Field Studies. The CAN Field Study program provides college students and recent graduates the opportunity to live and learn in rural Mexico and Central America. It offers students a realistic first step in doing international work that focuses on environmental sustainability and social justice. In developing close relationships with a rural community and working with them on a project, students come to understand the complexity and satisfaction of engaging meaningfully in international community development. CAN also offers local internship and volunteer opportunities to students interested in engaging with community projects connected to CAN's international partners in Mexico and Central America.

Together PICA and FoCAN facilitate hands-on learning activities that engage students with all aspects of a sustainable food system—from growing organic food that supports local communities to conscious consumerism on a global level.

For further information, contact Mira Michelle at mmichel1@ucsc.edu. web: http://ucscpica.org

Student-Run Cooperatives

Kresge Food Co-op

Mission statement: "We are a group of students whose goal is to run a natural food store through consensus decision-making and group responsibility. We embrace cooperation as our tool for social change. We are not for profit; we are for collective power. As a cooperative business we seek to educate all members of the community, including ourselves. We use our buying power to reflect our ideals regarding ecological, social, and political issues. For this reason we carry healthful, locally based, cruelty-free, organic products. We focus on products that are good for the earth, the people who produce them, and the people who consume them. Open to all, we provide a space where good food and

revolutionary action meet at the checkout line." Call (831) 426-1506 for more information.

Bike Co-op

The Bike Co-op is student owned and operated, run cooperatively, and nonprofit. Whether you need to purchase a bike, repair a bike, or want to learn, the co-op can accommodate your needs. People are encouraged to attend meetings, learn more about cooperatives, and get involved. The Bike Co-op is located at the Student Union. For information, come by or call (831) 457-8281.

Transportation and Parking Services (TAPS)

The UC Santa Cruz campus is designed to preserve the natural beauty of our magnificent setting and strives to minimize automobile traffic and congestion. Because parking is such a limited resource, the majority of campus parking spaces are available only to commuting students, faculty, staff, and visitors. UCSC has a parking prohibition for first and second year residential students; students with fewer than 90 units who live in university housing facilities are not eligible to purchase a campus parking permit. Parking regulations are strictly enforced; all students who bring a car to campus must purchase a permit in advance. UCSC requests that students not bring vehicles to campus if they are not eligible to purchase an on-campus parking permit. For additional information, visit http://taps.ucsc.edu/.

Transportation Options

Airports and Long-Distance Bus Service: The nearest commercial airport is in San José, approximately 35 miles from Santa Cruz. The San Francisco Airport is about 70 miles from campus. Both airports are accessible by commercial van and limousine services. Santa Cruz is also served by commercial bus lines on a regularly scheduled basis.

Campus Transit: On-campus buses and paratransit services are provided on a no-fare basis; these services are supported by the mandatory Student Transit Fee. TAPS buses operate on campus from approx. 7:30 a.m. to 11:30 p.m. Monday through Friday, and from 6:00 p.m. to 11:30 p.m. on weekends. TAPS also operates a Night Owl service to transport UCSC affiliates between the campus and downtown Santa Cruz. The Night Owl operates until 1:15 a.m. Sunday through Thursday, and until 2:50 a.m. on Friday and Saturday.

Metro Buses: Santa Cruz Metro Transit District is the bus service provider for Santa Cruz County. Metro operates over 35 bus routes throughout the county, including six routes to and from UC Santa Cruz. UCSC students can ride Metro buses throughout the county by showing a student ID card with a current quarter validation sticker; no additional fare is required to ride.

Bike Program: TAPS offers a variety of programs to support those who choose bicycles as their main mode of travel, including over 3,500 bike-rack spaces, bike "fix-it" stations, free weekly bike repair and maintenance clinics, free (required) bike licensing, and free morning bike shuttles that run from two off-campus locations up to campus. Popular student-run bike services include the Bike Library (where you can borrow a bike on a quarterly basis for free) and the Bike Co-op (a not-for-profit, full-service bike shop located near the Bay Tree Bookstore).

Car Sharing: Zipcar is a membership-based car share program that allows students 18 and over to rent cars on campus on an hourly or daily basis. Use fees start at $8 per hour and include all vehicle fees, gas, insurance, mileage, and reserved parking on campus. Members have access 24 hours per day to 18 vehicles—ten on campus and eight at other nearby Santa Cruz locations. For detailed information, visit http://www.zipcar.com/ucsc.

Ridematching: Zimride is a social networking ridematching program exclusive to the UCSC community. You can find someone to share your regular commute or one-time trip through Zimride, even if you don't have a car—just post the ride you need. If you have a car, you can share your Zipcar trip with others and save on costs. For more information, go to http://zimride.ucsc.edu.

Walking: UC Santa Cruz is one of the most beautiful campuses in the world, and the best way to experience it is on foot! Walking is the single most sustainable means of getting around (and often the most direct way, as well) so be sure to bring a pair of sturdy walking

shoes. A walking map of the campus is provided to all new students.

Student Health Services

Located on McLaughlin Drive across from Colleges Nine and Ten, the Student Health Center provides quality health care focused on the particular needs of students. All registered students have access to the Student Health Center regardless of their insurance plan, as services are partially supported by their Student Services fee. Care is provided by board-certified physicians, nurse practitioners, and physician assistants. Students can be seen by appointment or, in cases of acute illness or injury, on the same day at the Same Day Clinic. In case of emergencies, either during the day or after normal operating hours, please call 911.

In addition, the Student Health Center offers counseling and psychiatry services, nutritional counseling, health promotion, x-ray, laboratory, optometry and pharmacy services on site. The center is open weekdays during the regular academic year. For summer services and hours, visit the Student Health Center's web site. For more information about the Student Health Center, e-mail healthcenter@ucsc.edu; Web: healthcenter.ucsc.edu.

Student Health Insurance

To ensure that emergencies and other health care costs do not interfere with a student's education, all University of California students are required to carry medical insurance. A comprehensive and affordable program specifically designed for students is available through the university via the University of California Student Health Insurance Plan (UC SHIP). All students are automatically enrolled in UC SHIP and billed quarterly through their student account, unless they choose to waive this coverage by providing proof of comparable insurance by the specified deadline. For detailed information regarding insurance coverage and the waiver process, visit http://healthcenter.ucsc.edu/billing-insurance/index.html. You may also contact the insurance office at insure@ucsc.edu or (831) 459-2389.

Fees will be assessed for most visits for students without UC SHIP.

Mandatory Hepatitis B Immunization

California state law mandates that all entering students under 19 years old must be immunized against Hepatitis B. These students are required to provide the Student Health Center with documentation proving their compliance with this law. Those not in compliance at the beginning of the quarter may be dropped from their classes. For more information, visit healthcenter.ucsc.edu or call (831) 459-2211.

Student Health Outreach and Promotion (SHOP)

SHOP is UCSC's destination for health-related information, conversation, and self-exploration. It's the place for students to learn about health and wellness in a safe, non-judgmental environment. SHOP does not tell people what we think they should or shouldn't do. We help students do what they choose to do in the safest way that they can.

SHOP offers information, education, resources, and support on issues related to alcohol and other drug use; sexuality and sexual health (including HIV and other sexually transmitted infections); safer sex; unplanned pregnancy and contraception; and sexual assault and violence prevention. Students can get involved with SHOP by becoming peer educators, HIV test counselors, volunteers for the Condom Co-op, and/or CUIP interns.

Alcohol and Other Drug (AOD) Education

SHOP empowers students to reduce risks related to substance use/abuse. Students can meet with staff confidentially to discuss their personal AOD involvement, discuss concerns about friends or family members, obtain educational materials, participate in workshops, and access resources for students in recovery. Educators provide formal and informal sessions and workshops for students, college residential staff, and other campus groups. Staff also serve on the campuswide AOD Advisory Committee, which develops, implements, and assesses policies. For information call (831) 459-1417 or visit the SHOP web site. NOTE: In January 2014, UC Santa Cruz implemented a campuswide smoke and tobacco-free

policy.

HIV and Other Sexually Transmitted Infection (STI) Prevention

SHOP offers many resources for promoting sexual health, including:

- Free, anonymous HIV testing with Orasure (no needles) provided by student peer test counselors. Results in 20 minutes.
- The Condom Co-op, selling safer sex supplies at reduced cost.
- Workshops, activities, and events.
- Sexual health questions? SHOP has many resources.

Sexual-Assault Facts and Education (S.A.F.E.)

The Sexual Assault Facts and Education program at SHOP provides confidential support, information, and resource referrals to survivors of sexual violence, dating violence, and stalking. An experienced sexual violence prevention educator is available for individual appointments and provides nonjudgmental support for those who have experienced sexual assault, dating violence, or stalking. These resources are also available for their friends and loved ones. The sexual violence prevention educator is certified as a crisis counselor by the state of California and can be reached at (831) 459-2721. Police officers are available 24 hours a day, as are emergency phones, guards at campus entrances from 8 p.m. until 3 a.m., and frequent shuttles and buses.

Since 1979, UCSC has actively addressed issues related to sexual violence on campus. Students are required to take an online education course and to attend educational presentations that encourage respect, responsibility, and bystander intervention among students. Workshops are organized in the residence halls, and a variety of educational resources are available for all students.

SHOP is located at the Student Health Center. For more information on SHOP programs, call

(831) 459-3772 or e-mail at shop@ucsc.edu. Web: http://healthcenter.ucsc.edu/shop/

Counseling and Psychological Services

Counseling and Psychological Services (CAPS) offers a range of professional services to undergraduate and graduate students seeking help with personal concerns. We provide assistance for students with academic and personal stress, relationship and family issues, drug and alcohol problems, psychological problems, and crisis situations. Psychiatry services include diagnostic evaluations or prescribing of medication in certain situations. Depending on a student's needs, a student may be provided with brief individual or couples counseling, group counseling, psychiatric services, crisis intervention, or a referral for open-ended or long-term therapy off campus. Information provided to any CAPS professional staff member is confidential within the student health center and cannot be released without a student's permission except in specific circumstances involving risk and safety. All services are aimed at helping a student gain greater personal effectiveness and academic success. Professional staff members are available at various locations on campus, including the Student Health Services building, the colleges, the Academic Resource Center, and Family Student Housing. Emergency on-site crisis services and after hours crisis services are also available.

Staff members are available to provide consultation to staff, faculty, individuals, or family members for assistance in helping students in distress. Counseling psychologists can also provide trainings and programs on a variety of mental health topics, stress and coping skills, multicultural issues, and organizational development.

For more information about Counseling and Psychological Services, please call (831) 459-2628 or visit our web site at http://caps.ucsc.edu/

Resource Centers

African American Resource and Cultural Center (AARCC)

The African American Resource and Cultural Center (AARCC) develops and fosters co-curricular initiatives that promote academic success, leadership training, and student

development. Since the center's inception in 1991, the program's primary mission has been to serve as a key resource to acclimate students to general campus life and academic culture. In addition, the program provides advocacy and support in helping to monitor students' academic progress and subsequent achievement of their educational goals. AARCC works closely with overall campus outreach to enhance the recruitment and retention of students of African descent.

AARCC hosts a couple of community groups to allow for engagement and interaction, such as Sisters' Corner and Black Men's Initiative. Other organizations AARCC co-sponsors and/or supports are National Society of Black Engineers (NESBE), the African American Mentoring Program (AMP), African/Black Student Alliance, African American Theater Arts Troupe, African Student Union, Black Sistas United, Black Men's Alliance, Destination Higher Education, Rainbow Theatre, Rosa Parks African American Theme House (R.PAATH), and Delta Sigma Theta Sorority.

AARCC works collaboratively with others campus units/departments and in the surrounding community to enhance cultural and ethnic diversity initiatives on the UCSC campus. The center is located on the third floor of the Bay Tree Building in Quarry Plaza, and is open Monday through Friday from 8 a.m. to 5 p.m. For more information, call (831) 459-2427, fax (831) 459-2469, e-mail aarcc@ucsc.edu or visit aarcc.ucsc.edu.

American Indian Resource Center (AIRC)

The American Indian Resource Center (AIRC) works in collaboration with the Student Alliance of North American Indians (SANAI), the University of California American Indian Counselors/Recruiters Association, the Amah Mutsun Band of Ohlone Indians, and native faculty and staff, as well as the indigenous tribal community leaders of the region to develop co-curricular programming, cultural activities, and events that assist public understanding of native peoples. Invested in creating a campus climate that supports all students, the center provides leadership development, internship opportunities, mentoring, and personal and academic advising. The AIRC is located on the third floor of the Bay Tree Building in Quarry Plaza. For more information, call (831) 459-2881, e-mail airc@ucsc.edu, or visit http://airc.ucsc.edu/

Asian American/Pacific Islander Resource Center (AA/PIRC)

The Asian American/Pacific Islander Resource Center (AA/PIRC) provides and enhances opportunities for education and dialogue on issues affecting Asian Americans and Pacific Islanders, as well as opportunities for leadership development and community building. AA/PIRC aims to address students' multiple and diverse academic, social, cultural, and other co-curricular needs through programs and services. Programs include Asian American/Pacific Islander Heritage Month, Year-End Ceremony for graduating seniors, leadership skills workshops, graduate school panels, and community receptions.

AA/PIRC events also highlight writers, performance artists, scholars, and community leaders. AA/PIRC sponsors academic and paid internships for students interested in gaining professional experience. Through AA/PIRC, students benefit from networking with individuals and resources such as alumni, faculty, and staff, off-campus community-based organizations, and on-campus student organizations.

AA/PIRC is located on the third floor of the Bay Tree Building with the African American, American Indian, and Chicano Latino Resource Centers. Add your e-mail address to AA/PIRC's listserv to receive announcements on leadership, scholarship, internship opportunities, events, and community news. For more information, call (831) 459-5349; e-mail aapirc@ucsc.edu; or visit them on Facebook.

Chicano Latino Resource Center (El Centro)

The Chicano Latino Resource Center (El Centro) is a hub of organized activities and resources that support Chicano and Latino student transition, retention, and academic advancement at the university. Through collaborative efforts with campus partners, students can participate in a host of activities that encourage intellectual growth, leadership development, preparation for graduate or professional school, and career options. El Centro encourages and supports student and community development through cultural and educational programming. Annual programs include the following: New

Student Welcome Program; Día De Los Muertos; Pachanga; César Chavez Convocation; dialogue on academic, social, cultural, and personal issues that affect the Chicano and Latino community; and a weekly online newsletter, CHISME E-news. El Centro offers student internships that support leadership-skills development while students help to organize events and activities. For more information or to schedule an appointment, call (831) 459-5806 or e-mail elcentro@ucsc.edu. Web: elcentro.ucsc.edu

Gay, Lesbian, Bisexual, Trans*, Intersex (GLBTI) Resource Center

The Lionel Cantú Gay, Lesbian, Bi, Trans*, Intersex (GLBTI) Resource Center (aka the Cantú Queer Center), housed in a beautiful cabin in a redwood glen near Crown and Merrill Colleges, is a friendly, welcoming space for the entire community. The center's mission is to provide educational, psychosocial, advocacy, and supportive services to students, staff, faculty, and alumni on GLBTI issues. The Cantú Queer Center is home to several student organizations that meet weekly; a host of exciting programs; the GALA art gallery; and a library offering 3,000 books, magazines, and films. Information and referral to campus and community resources is available by phone or in person. Throughout the year, the Cantú Queer Center coordinates student programming with a queer focus—beginning with National Coming Out Day in the fall and culminating in the Rainbow Graduation Ceremony in the spring. Education of the entire campus population is another function of the resource center; the Cantú Queer Center's professional staff members offer workshops/trainings for groups, classes, and dorms on a range of GLBTI topics. Everyone is welcome to use the center's cozy lounge, full kitchen, and computer corner to study, relax, socialize, and become involved in the campus's queer community. The center is open Monday through Friday; usual hours are 9 a.m. to 5 p.m. Stop by and meet the center's friendly, knowledgeable staff. Come discover why UCSC has been consistently rated one of the best-of-the-best universities for queer students! You can reach the center at (831) 459-2468 or via e-mail at queer@ucsc.edu. The center's web site, queer.ucsc.edu, provides an overview. Self-subscribe to QConnect, the center's e-newsletter and calendar, on the site's home page.

Women's Center

Located in Cardiff House, a historic farmhouse near the main entrance to campus, the Women's Center is devoted to helping students maximize their success at UCSC. Resource referrals and informal advising are always available, and weekly events include films, readings, and talks. At least one staff member is a state-certified domestic violence and sexual assault advocate. We create or sponsor student-oriented workshops on topics ranging from money management to positive body image and stress reduction.

The Women's Center is home base for a variety of student groups and student-run community-service efforts. Other opportunities for involvement include internships, independent study, and work-study jobs. Students can become involved in such Women's Center projects as the 51% Pipeline Project (leadership), Take Back The Night (anti-violence), Inside Out Writing Project (women in jail)—or create projects with the support and mentorship of staff.

The Center, a haven located in a picturesque meadow, is also close to the campus police station. The center's meeting rooms, kitchen, and garden are ideal places to study, relax, or connect with students, staff, faculty, and community members. Rotating art exhibits bring the center's walls to life, and students are encouraged to inquire about showing their work.

For more information call (831) 459-2072, e-mail women@ucsc.edu, or visit womenscenter.ucsc.edu

The Office of Physical Education, Recreation and Sports (OPERS)

Physical education classes, recreation, sports, and fitness programs at OPERS provide a variety of interesting and challenging activities intended to attract you to becoming an active participant. The emphasis is on giving you an opportunity to develop knowledge, skills, and habits related to wellness that last through a lifetime of enjoyable physical and recreational activity.

Obtain further information about the programs described below from the Office of Physical Education, Recreation, and Sports, located at the East Field House, (831) 459-2531. Web: http://opers.ucsc.edu

Physical Education Courses

Regularly scheduled courses, which carry no academic credit but are recorded on your transcript, are available in a broad range of physical activities (see Physical Education). Many classes are small, and all offer expert instruction and carefully designed practice periods so that you can accomplish much in sessions of two to three hours per week. Most activities have intermediate and advanced sections as well as courses for beginners. Subjects offered include swimming, scuba, sailing, rowing, kayak, basketball, racquetball, tennis, volleyball, ballet, folk dance, jazz dance, modern dance, fencing, soccer, tai chi chuan, strength training, fitness and conditioning, yoga, aikido, and tae kwon do. Web: http://opers.ucsc.edu/

Intramural Sports

The intramural sports program includes competitive leagues, tournaments, and special one-day events. Many of the activities are coeducational. The leagues feature basketball, flag football, dodgeball, indoor and outdoor soccer, softball, indoor and outdoor volleyball, ultimate Frisbee and innertube water polo. Some of the leagues are divided into different skill levels. Special events include a 5-mile run. Prospective participants are encouraged to form their own teams. Individuals looking to be placed on a team are also welcome (but there is no guarantee of team placement). Web: http://opers.ucsc.edu/intramurals/index.html

Sports Clubs

The sports club program offers a variety of activities depending on student interest. Currently, active clubs include men's and women's rugby, men's and women's water polo, men's and women's ultimate frisbee; men's soccer, baseball and lacrosse; coed cross-country and track and field; coed Special Olympics; and coed cheerleading, dance, equestrian, triathlon, disc golf, cycling, sailing, badminton, and fencing. Web: http://www.ucscsportsclubs.com/

Intercollegiate Athletics

UC Santa Cruz offers the only National Collegiate Athletic Association (NCAA) Division III program in the UC system. As a Division III member, the program offers no scholarships or grants in aid that are based on athletic ability. UCSC sponsors the following intercollegiate sports: men's and women's basketball, soccer, swimming and diving, tennis, volleyball, and cross country, and women's track and golf. For information on teams, rosters, schedules, and the Slug Booster Club, go to www.goslugs.com.

Recreation Program

The Recreation Program is designed to fulfill the diverse needs and interests of all members of the UCSC community. More than 100 activities, workshops, classes, off-campus outings, and special events are scheduled quarterly. In addition, the program offers a 10-day Wilderness Orientation (WO) prior to the start of school. WO is an invaluable experience for incoming college students, serving as an introduction to mountain travel and the "journey" of college education. The beautiful settings of the Sierra Nevada provide students an opportunity to form new friendships and discuss their hopes and fears about entering college while learning outdoor skills. No previous backpacking experience is necessary.

The Outdoor Equipment Rental Center offers recreational equipment including surfboards, wetsuits, and high-quality backpacking and camping gear. If you are interested in planning your own outing, contact the Recreation Program Office for assistance. The office has extensive files, and staff members act as consultants, planning with people as well as for them. The office also provides bicycle licensing and offers a free weekly drop-in bicycle maintenance program. Open recreation hours are scheduled quarterly; you are strongly encouraged to use the facilities. Sports equipment may be borrowed without charge. There are also recreation clubs if you are primarily interested in organized recreation and individual performance. Clubs are coed and feature some combination of recreational participation, advanced instruction, and individual competition. Web: ucscrecreation.com.

Banana Slug Mascot

The Banana Slug, a bright yellow indigenous gastropod found in the campus's redwood forest, was the unofficial mascot for UCSC's coed teams beginning in the university's early years. In 1981, when some campus teams wanted more organized participation in extramural competition, UCSC joined Division III of the NCAA. Since the application required an official team name, UCSC's then-chancellor polled the student players, and out of this small group emerged a consensus for a new moniker—the sea lions. It was a choice that the chancellor considered more dignified and suitable to serious play than the Banana Slugs. But the new name did not find favor with the majority of students, who continued to root for the Slugs even after a sea lion was painted in the middle of the basketball floor. After five years of dealing with the two-mascot problem, an overwhelming pro-Slug straw vote by students in 1986 convinced the chancellor to make the lowly but beloved Banana Slug UCSC's official mascot.

Facilities

To make it convenient for you to utilize campus physical education, recreation, and sports facilities, field houses are located on the east and west sides of the campus. At both the East Field House and the West Field House, you will find the following: gymnasium, tennis courts, outdoor basketball and volleyball courts, and locker rooms. The East Field House also has the Wellness Center, which offers two floors of state-of-the-art cardiovascular and strength-training equipment, a dance studio, the martial arts room, handball/racquetball courts, equipment center, 50-meter swimming pool, half-mile jogging track, and sports fields. An outdoor strength-training and cardiovascular-fitness court is located near the east jogging track. In addition, personal training and drop-in fitness classes are offered. More information is available on the website at opers.ucsc.edu.

The UCSC Boating Center is located on FF Dock at the Santa Cruz Small Craft Harbor. The boating program offers PE instruction as well as a boating club with boat usage for students and community members alike. Boating courses are offered for dinghies, 24'-32' keel boats, sea kayaks, and rowing shells. Web: http://opers1.ucsc.edu/boating/

The Student Union

The Student Union is a student-governed facility where students can take a break and lounge, play pool or ping-pong, use computers, meet, or watch television. Located in the Quarry Plaza across from the Bay Tree Bookstore, the Student Union complements college facilities by providing a centrally located place for social, recreational, and educational gatherings for all students and members of the campus community.

The Student Union is also home to the campuswide student government (Student Union Assembly) and student organizations, the Bike Co-op, Engaging Education, and Student Organization Advising and Resources (SOAR).

The Union is open Monday through Thursday 9 a.m. to 9 p.m., Friday 9 a.m. to 6 p.m. The Union is closed holidays and quarter breaks. For more information, call (831) 459-3167.

Graduate Student Commons (see Grad Commons)

Student Activities

Campuswide Student Activities: SOMeCA

SOMeCA brings together three dynamic areas of campuswide student engagement: Student Organization Advising and Resources (SOAR), Student Media, and Cultural Arts and Diversity. The organizations and programs of SOMeCA offer students a place of self-discovery. SOMeCa's professional and experienced staff offers instruction, mentorship, leadership training, organizational development advising, and project management to all students. Visit: http://someca.ucsc.edu.

Student Organization Advising and Resources (SOAR)

UCSC offers the student body over 150 student-initiated organizations, including cultural, social, political, religious, academic, ethnic, and environmental organizations, as well as fraternities and sororities. Participating in a UCSC student organization provides valuable experience in leadership and teamwork and develops a network of rewarding and lifelong

friendships.

UCSC student organizations govern large-scale and established programs. For example, student leaders host high school students to encourage and support their entrance into college. Others produce major campuswide events to raise funds for cancer research and local community nonprofits. Performing arts organizations perform at conferences and competitions across the country. These are just a few examples of organization experiences that contribute to UCSC students becoming more self-directed, connected, and successful in pursuing their studies and careers.

Student organization membership is open to all UCSC students. Learn more at the Student Organization Advising and Resources (SOAR) office. Contact SOAR at (831) 459-2934, e-mail soar@ucsc.edu, or visit www.soar.ucsc.edu. SOAR is located on the second floor of the Student Union.

Student Media

Student Media at UCSC include 20 print publications and campus Student Cable Television (SCTV). Every year, hundreds of students enrich their educational experience through internships, academic credit, fellowships, and employment opportunities with media organizations.

The award-winning student newspaper of record, *City on a Hill Press*, covers campus and local news, sports, music, and offers art reviews and commentary. *Fish Rap Live!* provides an alternative forum for free expression of ideas, humorous coverage of local and campus events, and personal journalism. TWANAS, the Third World and Native American Students Press Collective, publishes a newsmagazine that seeks to broaden awareness of perspectives of color in the campus community. Other campus magazines include the critical film journal, *EyeCandy*; *Leviathan Jewish Journal*; *Gaia*, which focuses on environmental issues; and the *Disorientation Guide*. Annual literary journals include Chinquapin, Red Wheelbarrow, ALAY, and Matchbox.

Artistic, narrative, experimental, documentary, news, and public-service film and video are produced by broadcast organizations, including Banana Slug News, Rainbow TV, Film Production Coalition, On the Spot, and others. Many of the participating students are affiliated with UCSC's Film and Digital Media major; however, students from all disciplines are encouraged to participate.

To contact student media organizations, call the Student Media Center at (831) 459-2840 or SCTV at (831) 459-5360. Visit the Student Media web site for links to print, radio and broadcast organizations.

Cultural Arts and Diversity (CAD)

Cultural Arts and Diversity (CAD) strives to enhance the cultural climate of UCSC and its surrounding community by celebrating diversity. CAD fosters the spirit of unity between cultures by providing students with outlets for the creative talents of various cultures through theater, lectures, presentations, and productions. By promoting access to resources and services that support these endeavors, CAD strives to provide cultural awareness and diversity, build collaborative partnerships and community outreach, enhance retention and recruitment efforts, and provide opportunities for leadership and educational development. The Cultural Arts and Diversity Center promotes the following programs:

- African American Theater Arts Troupe
- Rainbow Theater
- Rainbow/African American Theater Arts Troupe Outreach
- Classes offered through Theater Arts and Stevenson College

Contact the CAD Office at (831) 459-1861 or visit the web site at: http://www.cadrc.org/.

UCSC and Systemwide Student Governance

UCSC offers a wide variety of opportunities to participate in university governance at the college, campus, systemwide, and national levels. Regardless of what level you choose,

participating in student government provides a wonderful opportunity to practice leadership skills, meet others who share your interests, and learn a great deal about yourself and the university.

Student Union Assembly

The Student Union Assembly (SUA) is the undergraduate advocacy organization and the official student voice of UCSC. It comprises three representatives from each college government; six elected officers (chair, internal vice chair, external vice chair, organizing director, commissioner of academic affairs, and commissioner of diversity); and one appointed representative from each of the following student organizations that represent historically underrepresented people within the UC system: African/Black Student Alliance; Asian Pacific Islander Student Alliance; The Network (Gay, Lesbian, Bisexual, Trans*, and Intersex Students); Movimiento Estudiantil Chicano de Aztlan; Student Alliance of North American Indians; and Ethnic Student Organization Council. The SUA also provides paid part-time internship opportunities for students each year. These internships include, but are not limited to, field organizers, treasurers, outreach and publicity, and strategy and planning.

The SUA conducts open meetings every Tuesday at 6 p.m. throughout the academic year. Students interested in advocacy, activism, and politics, as well as those concerned with their own and their friends' lives, are invited to get involved. The assembly operates via issue-specific campaigns and around general campus concerns. In the past, the SUA has formed campaigns around fighting fee-hikes, defending affirmative action, saving financial aid on a national and state level, striving for reasonable campus growth, and reforming UC Regents' procedures. Current issues have been fighting to make a UC education affordable, fighting to stop balancing budgets on the backs of students, fighting for the rights of UC workers, and working with community groups because UCSC students are also Santa Cruz residents. The SUA also works with the UC Student Association and the United States Student Association on system, state, and national issues. For more information, contact the SUA at (831) 459-4838. Visit the SUA office on the second floor of the Student Union or visit the SUA web site.

Systemwide Student Government: UCSA

The UC Student Association (UCSA) is the statewide association of graduate and undergraduate student governments from the 10 UC campuses. UCSA is the officially recognized voice of the students to the UC Board of Regents, various UC administrative offices, and the UC Office of the President. Issues covered by UCSA include UC fees and financial aid, comprehensive admissions policies, and academic policies, as well as broader issues of social responsibility such as environmental concerns and civil rights. UCSA coordinates the yearly selection of the UC Student Regent.

The SUA external office provides grassroots membership and support for the two main UCSA offices in Oakland and Sacramento. The campus office organizes students to run the grassroots campaigns that are adopted each summer during the UCSA Congress. At this session, delegates from the 10 UC campuses come together and choose the critical issues to be worked on for the next year. Issues in the past have included voter registration drives, letter-writing campaigns on particular UC issues, and increases in financial aid. UCSA provides a thorough introduction to UC politics and student representation. Students may also serve on systemwide committees through UCSA and gain a wide knowledge of the entire UC system though their service.

Two officers help to coordinate UCSA activities on our campus. The external vice-chair (EVC) is the official representative to the UCSA Board of Directors. This position has voting rights for UCSC, is the primary contact regarding all UCSA issues, and coordinates all lobbying of UCSA and local, state, and Federal governments on behalf of UCSC students. The organizing director (OD) coordinates with the EVC to effectively run the grassroots campaigns that are sponsored by UCSA every year. These positions are elected for one-year terms during spring quarter every year.

The Student Union Assembly officers in charge of UCSA activities can be reached at (831) 459-4838.

College Student Governments

Each college has its own form of student government, enabling students to gain experience in planning, budgeting, implementing, and evaluating a wide range of college programs and policies. Like the colleges themselves, each college governing body has its own character, structure, and meeting times and dates. For information, inquire in your college office or talk to our college programs coordinator.

The Graduate Student Association (GSA)

The Graduate Student Association (GSA) provides governance and representation for graduate student interests with regard to tuition and fees, health insurance, parking, on-campus housing, and other important issues. The GSA makes available quarterly travel grants for graduate students attending conferences or traveling on thesis-related research. The GSA also organizes and co-sponsors events campuswide, in addition to offering annual graduate student and solidarity orientations. The GSA is strongly committed to working toward intellectual and social diversity, including advocating for and working with underrepresented groups at the university. For more information, contact the GSA (gsa.ucsc.edu), or visit our office at the Graduate Student Commons.

Student Representation on Campuswide Committees

Serving on a campus advisory committee is a recognized channel for student involvement in the university's decision-making processes. Advisory committees, composed of faculty, staff, and student representatives, are established to develop and recommend policies on a wide range of topics. Each year the Student Committee on Committees (composed of one student appointed by each college and chaired by the Internal Vice-Chair of the Student Union Assembly) nominates more than 100 students to serve on over 50 administrative and Academic Senate committees. For information about the selection process, contact Student Committee on Committees, (831) 459-5533, or the Student Union Assembly, (831) 459-4838.

Community Service Opportunities

Community service is a vital part of the university's mission. It is possible for individual students, as well as campus-wide student organizations, to develop service projects that link the university with the broader Santa Cruz community. With the financial support of the campus' Community Service Project funding, students have aided local groups such as Students Toward Achievement in Writing Success, the Strange Queer Youth Conference, and the Walnut Avenue Women's Center.

The Student Volunteer Center, located in the Dean of Students Office at Hahn Student Services, connects students with local volunteer opportunities based on skills and interest. Volunteer opportunities range from aiding youth and elderly to addressing homelessness and environmental issues. The Student Volunteer Center also sponsors events for the campus community where students can volunteer their time.

For more information about service opportunities, see the web site volunteer.ucsc.edu or contact the Student Volunteer Center at (831) 459-3364 or e-mail volunteer@ucsc.edu.

Campus Cultural Programs

Throughout the year, UCSC offers frequent and varied cultural opportunities. Students, faculty, and staff may participate as audience members, performers, or behind-the-scenes support crew. The considerable range of offerings includes art exhibits, lectures, films, concerts, recitals, and dance and drama presentations; programs vary from single performances to weeklong cultural celebrations. The colleges host a number of events, and the departments frequently engage speakers of particular academic interest to address the campus community or present lecture-demonstrations.

The Arts Division serves as a gateway to the entire university, presenting high-quality research and work by faculty, students, and guest artists. Art exhibitions, film screenings, digital arts presentations, music recitals, as well as several theater, dance, and music presentations, are offered in conjunction with the academic programs. In addition, the Arts Division offers regular public lectures and colloquia to introduce audiences to professional practitioners and scholars in the traditional and digital arts.

In addition to attending Arts Division activities, UCSC students are invited to participate in a

wide variety of activities open to all UCSC students. Join an Indonesian gamelan ensemble, sing in the UCSC Concert Choir, play in the UCSC Orchestra, or audition for a theater or dance production.

For up-to-date information about cultural offerings from the Arts Division, contact the Arts Division Events Office at (831) 459-2787 and visit us online at arts.ucsc.edu and on Facebook.

Bay Tree Bookstore

UCSC's Bay Tree Bookstore is located in the Quarry Plaza complex in the center of campus, at the intersection of Hagar Drive and Steinhart Way. The bookstore serves as the campus resource for UCSC course materials, including new and used course books and customized faculty publications; general reading and reference books; a wide variety of school and personal supplies (including computers and computer supplies); and many other items such as residence hall living needs, small appliances, backpacks, emblematic apparel, art supplies, posters, gifts, greeting cards, testing supplies, and academic regalia. Services include online reservations for course materials, textbook rentals, student debit accounts, special ordering of books, book buyback services, passport photos and passport application processing, fax services, and limited check cashing. The bookstore also houses the campus's convenience store (the Express Store) and Student ID Card Services. For more information, call (831) 459-4544. Web: slugstore.ucsc.edu/

Child Care and Early Education Services

Child Care and Early Education Services offers programs for children of students currently enrolled in classes at UCSC. All of our centers are conveniently located on campus near the West Entrance. Free or low-cost tuition rates are available for students who meet the eligibility requirements for subsidized care (please see Eligibility for State Funding Chart at childcare.ucsc.edu. All meals are included in the program (breakfast, lunch, and afternoon snack).

Our programs are dedicated to providing the highest-quality developmental care possible in a secure, homelike environment characterized by warmth, affection, and support. The classrooms stress the importance of meeting children's needs in all areas of development: social, emotional, physical, cognitive and creative. The curriculum emphasizes play as a learning process and provides environments that are rich and challenging.

Programs are open to all children without regard to religion, color, ethnicity, gender, and physical or mental ability. All of our centers are located in the Family Student Housing Complex. Each of our centers is operated during the academic year from September through June, and closed during the summer months, administrative and university holidays, and staff development days. All of the child care spaces are provided for children of student families only. The majority of the spaces are reserved for students who meet the qualifications for subsidized care. Fee-for-service spaces at a below market rate may be available for student families whose income exceeds state-subsidy requirements.

Information about programs, fees, and applications is available at childcare.ucsc.edu and at the Early Education Services Office in the Community Building at Family Student Housing; at (831) 459-2967, or by e-mail at earlyeducation@ucsc.edu.

Infant Center

The Infant Center serves 12 children ages 11 to 24 months. Small groups, low child-to-adult ratios, and primary caregivers ensure consistent and nurturing care. The hours of operation are 7:30 a.m. to 6:15 p.m.

Preschool Center

There are three preschool classrooms that serve a total of 36 children from 24 months until they enter kindergarten. Each classroom provides small groups with low child-to-adult ratios, and an environment that provides a stimulating and rich curriculum, which helps prepare children for kindergarten. The hours of operation are 7:30 a.m. to 6:15 p.m.

School Age Center

The School Age Program serves 16 children. It operates as an after-school recreation

program during the academic year. The program provides developmentally appropriate arts and crafts, life-skills and sports activities, occasional community outings and quite time for homework. The hours of operation are 12 noon to 6:15 p.m. for kindergarteners; and 2:30 p.m. to 6:15 p.m. on Mondays, Tuesdays, Thursdays, and Fridays for 2nd through 4th graders. On Wednesdays (public school minimum days), care is available from 12 noon to 6:15 p.m. for all school-age children. Extended care is available on a sign-up basis on some Santa Cruz City Schools closure days (university closure days excluded).

UCSC Alumni Association

UCSC's graduates—more than 90,000 of them—can maintain a lifelong connection to the campus through the UCSC Alumni Association. Through the dues they pay, Association members contribute to the living-learning environments at each college and the enrichment of the entire campus. Membership dues directly support student programs, special activities, and other projects at the colleges and campuswide.

The association promotes excellence at UCSC by making annual awards. It supports students by offering two types of scholarships (college service and financial need), and enriches campus and college intellectual life through its Distinguished Visiting Professor program and endowment.

The association sponsors programs that engage and reconnect alumni with each other and the campus. Hundreds of alumni return to campus during the annual Alumni Weekend to enjoy receptions, tours, panel discussions, and other programs through which they reconnect with old friends, faculty, and students. Thousands more reconnect through the Online Community (www.alumni.ucsc.edu/), which offers an online alumni directory, association event information and RSVP services, and much more. Many alumni also reconnect at regional events across the country and through Association-sponsored affinity groups.

The association connects alumni and students through career programs. Alumni act as career mentors online through the Career Services' Career Advice Network, and in person at the annual Multicultural Career Conference and similar events. The Alumni Association, in partnership with other UC Alumni Associations, brings politically minded graduates to Sacramento for an annual legislative conference aimed at increasing support for UC.

Members of the Alumni Association enjoy a range of benefits. These include use of the campus pool and recreation facilities, Kaplan and Princeton Review course discounts, library privileges across the entire UC system, access to the online Digital Library, and more.

Information about the Alumni Association is available by contacting us at 1156 High Street, Santa Cruz, CA 95064, locally at (831) 459-2530, toll-free at (800) 933-SLUG, via e-mail at alumni@ucsc.edu, and on the web: alumni.ucsc.edu.

University Interfaith Council

The University Interfaith Council (UIC) seeks to integrate spirituality with academic life and to promote tolerance, peace, and understanding of all faiths and spiritual traditions. The UIC is open to all religious groups. Programs include celebrations and interfaith gatherings; educational events, including religious study courses; community service; worship/meditation; and spiritual care and counseling for students, faculty, and staff. The UIC strengthens a campuswide sense of spirituality and increases awareness of options for spiritual life on campus. For more information on University Interfaith Council events and discussion boards, visit the UIC web site.

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The Colleges

UC Santa Cruz combines the resources of a world-class public research university with a distinctive undergraduate experience characterized by our college system. All undergraduate students and most faculty are affiliated with one of our 10 colleges, their home within the larger university. The colleges are committed to fostering a nurturing and academically thriving environment for students of all backgrounds. Each college strives to promote the attributes of a diverse and multicultural community in its own unique way. In order of founding, the colleges are Cowell, Stevenson, Crown, Merrill, Porter, Kresge, Oakes, College Eight, College Nine, and College Ten.

Self-contained and architecturally distinct, each college is a relatively small community of 30 to 110 faculty members and between 1,400 and 1,700 students, about half of whom live on campus. Each college has its own housing, as well as academic and recreational programming, and each is an integral part of the larger campus. The colleges have their own academic emphases and cultural traditions, although each seeks faculty and students from a variety of disciplines to foster broad intellectual interests. The colleges play a primary role in academic advising and are the center of student life. Students graduate from their college. At the same time, all university academic programs, resources, and student services are open to students of every college.

During the process of accepting the offer of admission, entering students are asked to list several colleges in order of preference; whenever possible, students are assigned to one of their preferred colleges. The information students need to rank their college preferences can come from a variety of sources—personal acquaintance, a campus visit, literature available from the colleges, campus web sites, and the descriptions in this section of the catalog. Students also have the option to indicate "no preference," meaning they will be fine with any of our 10 colleges, and the Admissions Office will assign those students to one of the colleges.

Similarities and Differences

The colleges are small-scale residential communities, each providing an academically and socially supportive environment and offering special programs designed to help students transition to campus life, build a strong connection with the campus, and get the most out of their UCSC experience.

Most frosh choose to live on campus, as do a number of sophomores, juniors, and seniors. The particular style of housing varies among the colleges, ranging from residence halls, with a mix of single, double, and triple rooms, to apartment-style housing, where students live together in small groups and may do some of their own cooking. Each college's

residential program is a team effort. Professional staff (coordinators of residential education) work with students trained as resident assistants. They help organize activities and events, provide referral information about academic or personal concerns, and assist with roommate problems.

The faculty, or fellows, of each college come from a variety of academic disciplines; many faculty have their offices in the colleges.

Each college offers a distinctive academic program for entering frosh. The required course provides a significant bridge between academic and residential life, since all frosh, regardless of major, will be in the course, and most will be in residence as well. The colleges also offer selected courses in their area of interdisciplinary emphasis and host events and speakers that enhance this focus.

Each college provides academic advising as well as academic and general campus orientations to help you plan your academic program. College academic preceptors and advisers provide advice on general academic matters outside a student's major, including general education, choosing a major, and strategies for academic success. Psychological and personal counseling is also available in each college.

The colleges differ in architecture; each was planned by a different architect, who was encouraged to convey the distinct personality of that college through the design of its buildings and their placement in the natural environment. Above all, the colleges differ in subtle ways having to do with their intellectual and social traditions, the different designs of their student governments, and the predominant interests of their students and faculty.

Changing Colleges

Most students, having affiliated with a particular college, develop friendships and intellectual attachments there, and they remain members of that college throughout their undergraduate years. Some students find that changing academic interests draw them to a different college. During specified filing periods, students may request a change of college with the approval of both college administrations.

Cowell College

Cowell College inaugurated the Santa Cruz campus when it opened with a pioneer class of 600 students in 1965. The founding faculty shaped an educational program that challenged and enriched students through wide-ranging inquiry and disciplined study. Today, Cowell has more than 1,500 affiliated students and over 90 faculty fellows. Its motto—The Pursuit of Truth in the Company of Friends—expresses a continuing commitment to create a serious academic environment within a humane and broadly inclusive community. The college is named for the S. H. Cowell Foundation, which endowed the college at its founding.

Academic Emphases

The academic theme of the college encourages students to pursue their general and disciplinary study with attention to the values of liberal arts education: understanding one's individual perspectives by exploration of its historical background and world context. Students affiliated with the college pursue majors from all departments on campus.

In satisfying their general education requirements, first-year Cowell students are required to take the Cowell Core Course in the fall term. The core course, Cowell 80, taught in small seminar sections, seeks to develop critical reading, analytical writing, and seminar discussion skills by reading a selection of classic and contemporary texts focused on the theme of justice.

Enrichment courses are offered every term at the college, and priority is given to Cowell students. Some courses emphasize the development of skills such as public speaking or researching in library collections. Some courses take a broader perspective, examining the role of education in democracy or the epistemological bases of our judicial system.

The college also enriches the intellectual and cultural life of the campus by sponsoring events of various kinds: lectures and presentations by local faculty and visiting scholars, theatrical and musical performances, and forums and debates on topics of current interest.

Students who develop ideas for research, creative projects, community service, or internship experiences may apply to the college provost for financial support. The college also awards several annual scholarships and sponsors prizes for outstanding academic work.

The faculty fellows affiliated with the college represent all academic divisions (arts, engineering, humanities, physical and biological sciences, and social sciences). The faculty fellows guide the college academic programs and often contribute to the college-based advising system.

The college academic buildings house humanities faculty, with notable concentrations in philosophy, classics (study of ancient Greek and Latin language and civilization), and modern foreign languages, especially Chinese, French, Italian, Russian, German, and Japanese. Interdisciplinary faculty groups in visual and performance studies and in pre-and early-modern studies are centered at Cowell College.

Honors Program

Cowell participates in the UCSC First-Year Honors Program. Each year a small set of students who demonstrated high academic achievement in high school is invited to join the university-wide program. Cowell hosts one cohort group, with members housed together in one of the residence halls. In the fall of their first year, the students take a special advanced section of the core course. During the winter, they chose one of the honors program seminars, which are offered by the colleges participating in the program. During the spring, all students in the program take a special two-unit class together, which includes special lectures and dinners.

College Community and Facilities

Cowell's seven residence halls and three apartment buildings are arranged in three quadrangles on a hillside overlooking the city of Santa Cruz and Monterey Bay. About 700 students are housed in the college. Most floors are coed, with men and women sharing common lounges and other facilities, but single-gender floors are provided for those who prefer this arrangement. Apartments house continuing students, mostly juniors and seniors. The residential staff members facilitate diverse educational, social, and recreational programming to enhance the living and learning environment.

Arranged around the college's central courtyard are the dining hall, the Page Smith Study Library, the fireside lounge, the coffee shop, and conference rooms and classrooms. The Cowell Press, where students can learn the fine technique of hand-operated letterpress printing, is a stone's throw away from the plaza. Also nearby are the Cowell Galleries, including the Eloise Pickard Smith Gallery and the Annex Gallery.

Since the college's founding, regularly scheduled College Nights in the dining hall have offered students, staff, and faculty a special meal and a rich mix of programs. Community life is enlivened by many other scheduled and impromptu intellectual, cultural, and social events.

The Student Senate meets weekly to discuss campus issues and student government. The Senate advises the college on the allocation of funds for student activities and programs. Members of the Senate are selected each year by lot, but any student may become a voting member by steady attendance at meetings. The college's student groups, staff, and faculty work together to create a supportive community for students from all ethnic groups, all religious traditions, and all sexual orientations and to increase awareness of the many dimensions of diversity in the community.

For more information on the college, see cowell.ucsc.edu or call (831) 459-2253.

Cowell Faculty and Staff

Provost

FAYE J. CROSBY, Psychology

Fellows

ZSUZSANNA ABRAMS, German Language
RAM AKELLA, Electrical Engineering
MARK AKESON, Biomolecular Engineering

ERIC ALDRICH, Economics
MARGARET AMIS, Literature
DANE ARCHER, Sociology
LORA BARTLETT, Classics
KAREN BASSI, Classics
DORIAN BELL, Literature
PHILLIP BERMAN, Biomolecular Engineering
JAMES H. BIERMAN, Theater Arts (Drama)
RAUL BIRNBAUM, History of Art and Visual Culture
HUNTER BIVENS, Comparative and German Literature
HINRICH BOEGER, Molecular, Cell, and Developmental Biology
MICHAEL BOLTE, Physical & Biological Sciences
DOUGLAS BONNETT, Psychology
JOHN BOWIN, Philosophy
ALEXANDRE BRANDWAJN, Computer Engineering
DONALD BRENNEIS, Anthropology
JEAN P. BRODIE, Astronomy and Astrophysics
GEORGE BULMAN, Economics
CATHERINE CARLSTROEM, Writing
BENJAMIN CARSON, Music
GIULIA CENTINEO, Italian Language
MICHAEL CHEMERS, Dramatic Literature
JAMES CHRISTIANSON, Writing
SANDRA CHUNG, Linguistics
PHILIP CREWS, Chemistry
NICHOLAS DAVIDENKO, Psychology
AMY ROSE DEAL, Linguistics
JONATHAN ELLIS, Philosophy
ANGELA ELSEY, French Language
MARK FRANKO, Theater Arts
SAKAE FUJITA, Japanese Language
ALEXANDER GAMBURD, Physical and Biological Sciences
RAYMOND W. GIBBS JR., Psychology
PER GJERDE, Psychology
GARY GLATZMAIER, Earth Science
WLAD GODZICH, Literature
DANIEL GUEVARA, Philosophy
PURAGRA GUHA THAKURTA, Astronomy and Astrophysics
GILDAS HAMEL, French Language and Classical Studies
SUSAN HARDING, Anthropology
CHARLES W. HEDRICK JR., History
THEODORE HOLMAN, Chemistry and Biochemistry
CHRISTINE HONG, Literature
THEO HONNEF, Literature
JEREMY HOURIGAN, Earth and Planetary Sciences
JOCELYN HOY, Philosophy
GRETA HUTCHISON, French Language
MICHAEL M. HUTCHISON, Economics
KIMBERLY JANNARONE, Theater Arts
CATHERINE JONES, History
ROHINTON KAMAKAKA, Molecular, Cell, and Developmental Biology
KEVIN KARPLUS, Computer Engineering
SEAN KEILEN, Literature
RAPHAEL KUDELA, Ocean Sciences
SRI KURNIAWAN, Computer Engineering
WILLIAM A. LADUSAW, Linguistics
CAMPBELL LEAPER, Psychology
JU HEE LEE, Applied Mathematics and Statistics
H. M. LEICESTER JR., English Literature
WENTAI LIU, Electrical Engineering
BRUCE LYON, Biological Sciences
PATRICE L. MAGINNIS, Music

WENDY MARTYNA, Sociology
PEYMAN MILANFAR, Electrical Engineering
ADAM MILLARD-BALL, Environmental Studies
TYRUS MILLER, Literature
GLENN L. MILLHAUSER, Chemistry and Biochemistry
JOHN MUSACCHIO, Technology and Information Management
JEROME NEU, Philosophy
JASON NIELSEN, Physics
MATTHEW O'HARA, History
GREGORY O'MALLEY, History
SHIGEKO OKAMOTO, Language
RICHARD E. OTTE, Philosophy
RAQUEL PRADO, Applied Math and Statistics
XAVIER PROCHASKA, Astronomy and Astrophysics
S. RAVI RAJAN, Environmental Studies
PACO RAMIREZ, Spanish
BETH REMAK-HONNEF, Librarian
B. RUBY RICH, Film and Digital Media
PAUL ROTH, Philosophy
SETH RUBIN, Chemistry and Biochemistry
GURIQBAL SAHOTA, Literature
FELICITY SCHAEFFER-GABRIEL, Feminist Studies
ZACK SCHLESINGER, Physics
SUSAN Y. SCHWARTZ, Earth and Planetary Sciences
WILLIAM SCOTT, Chemistry and Biochemistry
DANIEL SELDEN, Literature
BETH SHAPIRO, Physical and Biological Sciences
PRICILLA SHAW, Literature
DEANNA SHEMEK, Italian and Comparative Literature
DAVID SMITH, Physics
ABRAHAM D. STONE, Philosophy
BENJAMIN STORM, Psychology
JOSHUA M. STUART, Biomolecular Engineering
ELAINE SULLIVAN, Anthropology
NINA TREADWELL, Music
ANTHONY J. TROMBA, Mathematics
MARTIN H. WEISSMAN, Mathematics
AARONETTE WHITE, Psychology
PAUL WHITWORTH, Theater Arts
JAMES WILSON, Writing, College Academic Preceptor
DAVID YAGER, Arts
GARY YOUNG, Literature
EVE ZYZIK, Language

Emeriti Fellows

W. EMMANUEL ABRAHAM, Philosophy, Emeritus
GEORGE T. AMIS, English Literature, Emeritus
HARRY BERGER JR., English Literature and Art History, Emeritus
RALPH J. BERGER, Ecology and Evolutionary Biology, Emeritus
MARGARET R. BROSE, Italian and Comparative Literature, Emerita
CHARLES W. DANIEL, Molecular, Cell, and Developmental Biology, Emeritus
JOHN DIZIKES, American Studies, Emeritus
ROBERT M. DURLING, Italian and English Literature, Emeritus
MIRIAM ELLIS, French Language, Emerita
CAROL M FREEMAN, Writing, Emerita
MARY-KAY GAMEL, Classics and Comparative Literature, Emerita
ROBERT GOFF, Philosophy, Emeritus
MARGO HENDRICKS, Literature, Emerita
DAVID C. HOY, Philosophy, Emerita
CHIYOKO ISHIBASHI, Japanese Language, Emerita
VIRGINIA JANSEN, History of Art and Visual Culture, Emerita
S. PAUL KASHAP, Philosophy, Emeritus

BRUCE D. LARKIN, Politics, Emeritus
THOMAS A. LEHRER, American Studies and Mathematics, Emeritus
HERVE LEMANSEC, French Language, Emeritus
JOHN P. LYNCH, Classics, Emeritus
MELANIE J. MAYER, Psychology, Emerita
GARY B. MILES, History, Emeritus
PEGGY MILES, Writing, Emerita
ANDREW TODD NEWBERRY, Ecology and Evolutionary Biology, Emeritus
RICHARD R. RANDOLPH, Anthropology, Emeritus
CATHERINE M. SOUSSLOFF, History of Art and Visual Culture, Emerita
AUDREY E. STANLEY, Theater Arts, Emerita
ELLEN SUCKIEL, Philosophy, Emerita
THOMAS A. VOGLER, English and American Literature, Emeritus
MICHAEL J. WARREN, English Literature, Emeritus
DAVID WELLMAN, Community Studies, Emeritus
HAYDEN WHITE, History of Consciousness, Emeritus
JOHN WILKES, Science Communication, Emeritus
STANLEY M. WILLIAMSON, Chemistry and Biochemistry, Emeritus

College Administrative Officer

CAROLYN GOLZ

Staff

GABRIELA ALANIZ, Housing Office Coordinator
DEBORAH ALEXANDER, Dining Hall Manager
JOAN BLACKMER, Gallery Curator
JOSH CLINE, Coordinator for Residential Education
MAIDA CORDERO, Coordinator for Residential Education
ELIZABETH COWAN, Financial Analyst
CLAIRE CRUM, Groundskeeper
JOHN HADLEY, Coffee Shop Manager
KAREN HILKER, Associate College Programs Coordinator
ETHAN HUTCHINSON, Academic Adviser
KATIE LINDER, Provost Events Coordinator
JED MILROY, Housing Coordinator
DAN MONKO, Facilities Asset Coordinator
MARY JAN MURPHY, Counseling Psychologist
EMILIO NAVARRO, Senior Building Maintenance Supervisor
ARMIN QUIRING, Community Safety Officer Supervisor
GARY ROE, Groundskeeper
EMILY SLOAN-PACE, Assistant to the Provost
KARA SNIDER, College Programs Coordinator
JORDY TERRILL, Building Maintenance Worker
ELIZABETH THOMPSON, Academic Preceptor

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Stevenson College

"We are Stevensonians; we are free agents of history and masters of our own destinies. Every one of us is important, and we cherish our differences as much as we cherish our shared values of love, chivalry, honesty, hard work, and responsibility."

—Seung Kyun Joseph Mok, Stevenson Alumnus/Regents Scholar

Stevenson College is named after former statesman and U.S. Ambassador to the United Nations Adlai E. Stevenson. Our faculty, students, and staff take pride in intellectual critical inquiry, academic and civic leadership, and respect for students' concerns about shared student governance, human rights, and social justice.

Stevenson College has a long-standing reputation for excellence in liberal education. The college strives to provide an academically, culturally, and socially supportive environment for all its members, fostering social responsibility and academic achievement. Stevenson

has brought to the campus distinguished individuals such as Senator George McGovern, Congresswoman Bella Abzug, Nobel Laureate Elie Wiesel, Chief of the Miwok Tribe Greg Sarris, Producer Lourdes Portillo, and Associate Director-Counsel Theodore M. Shaw of the NAACP Legal Defense and Educational Fund.

The college's faculty and staff offer professional and personal service for the diverse needs of students. Faculty and staff assist students in all areas of their academic and social experience at Stevenson College, and are committed to instilling respect for the diverse backgrounds of Stevenson students.

Academic Emphases

- Faculty drawn from social sciences, humanities, natural sciences
- Two-quarter frosh core course
- Writing Assistants
- Junior Fellows Program

The faculty at Stevenson, drawn from a variety of disciplines in the social sciences, humanities, and physical and biological sciences, share a common concern for the study of social processes that shape modern society and determine the quality of our individual lives throughout various global regions and periods of world history. Linguistics, history, sociology, politics, psychology, biology, chemistry, and computer science are strongly represented in the college.

Stevenson distinguishes itself as the only college with a two-quarter core course intended to provide all first-year students with a common academic experience. The core course allows for more rigorous development of students' critical, writing, and analytical skills. It provides a unique learning environment and a supportive intellectual community for all Stevenson first-year students. Those admitted as transfer students are exempt from the core course requirement but may take the core course at their option pending available space; lower-division transfer students who, prior to enrolling, have not completed at least one UC-transferable college English composition course with a minimum grade of C (2.0) are able to take the core course to satisfy the C1 requirement. Stevenson alumni can be found in legal, political, educational, engineering, medical, computer and information sciences, business, and public administration careers, among others.

The Stevenson core course, Self and Society, enables students to examine the nature of the self and the relationship of the individual to society. In addition, the course fosters an intellectual commitment to the general philosophy that has helped to define Stevenson College since its inception: preservation of human dignity, the social cultivation of individual creativity and citizenship, and a belief in ethical responsibility. The core course reflects the college's long-standing commitment to interdisciplinary and culturally diverse readings, while at the same time it affords students an opportunity to develop research interests, to acquire greater understanding of the role of research universities in contemporary societies, and to acquire the requisite skills to engage in increasingly more sophisticated intellectual work while at UCSC.

Students have the opportunity to apply for funding for special research projects each quarter. Stevenson also provides several annual scholarships and service awards, including the Michele Guard Memorial Scholarship, the Matthew Graviano Memorial Scholarship, the John Halverson Scholarship, the Sandor Callahan Scholarship Award, and the Robert Dodge Service Award.

The Stevenson College Junior Fellows Program offers juniors and seniors an opportunity to serve as instructors in Self and Society. Junior fellows, who must have completed outstanding work in Self and Society during their first year, undergo a rigorous application and selection process. Junior fellows (enrolled in Stevenson 120, Teaching Practicum) earn five course credits.

Stevenson provides writing assistance for all of its students. Stevenson Writing Assistantships are paid student positions open to juniors and seniors with excellent academic records.

College Community Programs

- College Nights
- Stevenson Student Council
- Stevenson Ethics Bowl Team
- Multicultural Advisory Committee (MAC)
- Path to a Greener Stevenson (PTAGS)
- Social and Multicultural Programs/Activities
- Stevenson Housing Association (SHA)
- Rainbow Theater

Stevenson holds regular College Nights, where joining together for a special dinner presents an opportunity for Stevenson faculty, staff, and students to get together in a social context. College Nights—such as Cinco de Mayo, Chinese New Year, and Vietnamese College Night—provide the opportunity to celebrate many different cultures. Dinner is followed by entertainment.

The Stevenson Student Council meets on Thursday evenings. This group is responsible for allocating college membership fees to student activities. The council also serves as a forum for the discussion of college and campuswide issues and appoints student representatives to college and campuswide committees.

Facilities

- Eight small residence halls
- Three apartment buildings
- Theme floors in residence halls:
- —Multicultural and Social Justice House
- —Outdoor Adventure House
- —Continuing Student House
- Coffee house
- Wagstaff Fireside Lounge
- Writers' Center
- Stevenson Library
- Stevenson Event Center
- Silverman Conference Room
- Recreation room

Stevenson has a wide variety of facilities and activities to appeal to many tastes. The college, designed by San Francisco architect Joseph Esherick, has won many architectural awards. The buildings are situated amid redwood trees and sprawling lawns, and the main quad overlooks Monterey Bay. Stevenson is situated close to the campus bookstore, restaurants, McHenry Library, gym, and pool. There are eight small residence houses at the college providing a choice of single-gender or coed floors; each house accommodates about 65 undergraduates. The apartments provide space for 156 continuing students. Nearby are a picnic area, playing fields, and a garden.

The Stevenson Coffee House, which has become *the* gathering place in the college, is a friendly and inviting spot to enjoy lunch or an espresso and pastry— indoors or out on the patio. It is the scene of lively conversation, occasional musical entertainment, and chess matches. Adjoining the coffee house is the recreation room, with Ping-Pong, foosball, pool tables, and television. This area is also the site of much socializing and spontaneous group activity.

In contrast, the Stevenson Library is a striking building designed for quiet reading and

study. The Wagstaff Fireside Lounge, a retreat for relaxed discussion, is also used for recitals, special lectures, meetings, and residence house activities. Art exhibits (both student and professional) are on display throughout the year in the lounge, library, and coffee house.

For more information, call (831) 459-4930 or visit the web site: stevenson.ucsc.edu.

Stevenson Faculty and Staff

Provost

ALICE YANG, History

Senate Faculty Fellows

MARTIN ABADI, Computer Science
JUDITH AISSEN, Linguistics
PRANAV ANAND, Linguistics
DAVID ANTHONY, History
DANE ARCHER, Sociology, Emeritus
ELLIOT ARONSON, Psychology, Emeritus
NORIKO ASO, History
MURRAY BAUMGARTEN, Literature
JONATHAN F. BEECHER, History, Emeritus
DORIAN BELL, Literature
ILAN BENJAMIN, Chemistry and Biochemistry
REBECCA BERNSTEIN, Astronomy and Astrophysics
NEEDHI BHALLA, Molecular, Cell, and Developmental Biology
PETER H. BODENHEIMER, Astronomy and Astrophysics
HINRICH BOEGER, Molecular, Cell, and Developmental Biology
ALEXANDRE BRANDWAJN, Computer Engineering
REBECCA BRASLAU, Chemistry and Biochemistry
ADRIAN BRASOVEANU, Linguistics
FRANK G. BRIDGES, Physics
BRIAN CATLOS, History
SHAOWEI CHEN, Chemistry
ALAN CHRISTY, History
MARK CIOC, History
CATHERINE R. COOPER, Psychology and Education
CYNTHIA CRUZ, Education
AMY DEAL, Linguistics
GRACE DELGADO, History
NATHANIEL DEUTSCH, History
MARIA DIAZ, History
MICHAEL DINE, Physics
G. WILLIAM DOMHOFF, Psychology, Emeritus
MARIA EVANGELATOU, History of Art and Visual Culture
SYLVANNA FALCON, Latin American and Latino Studies
DONKA FARKAS, Linguistics
ADRIAN FELIX, Latin American and Latino Studies
MAYANTHI FERNANDO, Anthropology
DANA FRANK, History
HIROSHI FUKURAI, Sociology
ROBERT E. GARRISON, Earth and Planetary Sciences, Emeritus
DEBORAH GOULD, Sociology
HERMAN GRAY, Sociology
MARVIN J. GREENBERG, Mathematics, Emeritus
ISEBILL V. GRUHN, Politics, Emerita
LISBETH HAAS, History and Feminist Studies
HOWARD E. HABER, Physics
PHILLIP HAMMACK, Psychology
CRAIG W. HANEY, Psychology
JORGE HANKAMER, Linguistics
DAVID M. HARRINGTON, Psychology

CHARLES HEDRICK, History and Classical Studies
CHRISTINE HONG, Literature
EMILY HONIG, History and Feminist Studies
JENNIFER HORNE, Film and Digital Media
MINGHUI HU, History
AIDA HURTADO, Psychology
JUNKO ITÔ, Linguistics
CATHERINE JONES, History
JONATHAN KAHANA, Film and Digital Media
MICHAEL KAHN, Psychology, Emeritus
AL KELLEY, Mathematics, Emeritus
KENNETH KLETZER, Economics
PETER KENEZ, History
KENNETH KLETZER, Economics
JOSEPH P. KONOPELSKI, Chemistry and Biochemistry
ROBERT P. KRAFT, Astronomy and Astrophysics, Emeritus
JEAN H. LANGENHEIM, Ecology and Evolutionary Biology, Emerita
ROBERT A. LEVINSON, Computer Science
RONNIE D. LIPSCHUTZ, Politics
AMY LONETREE, American Studies
BORETH LY, History of Art and Visual Culture
MARC S. MANGEL, Environmental Studies
MICHAEL MATEAS, Computer Science
MARK MATERA, History
JAMES MCCLOSKEY, Linguistics
DENNIS C. MCELRATH, Sociology, Emeritus
GRANT MCGUIRE, Linguistics
R. ARMIN MESTER, Linguistics
MARCIA MILLMAN, Sociology
MEGAN MOODIE, Anthropology
MATT O'HARA, History
GREG O'MALLEY, History
BRAD OLSEN, Education
JAYE PADGETT, Linguistics
MAYA PETERSON, History
THOMAS F. PETTIGREW, Psychology, Emeritus
IRA POHL, Computer Science
CYNTHIA POLECRITTI, History
ERIC PORTER, History
ANTHONY R. PRATKANIS, Psychology
CRAIG REINARMAN, Sociology
RALPH H. QUINN, Psychology
CRAIG REINARMAN, Sociology
FORREST ROBINSON, American Studies
DONALD T. SAPOSNEK, Psychology
FELICITY SCHAEFFER-GRABIEL, Latin American and Latino Studies
PETER L. SCOTT, Physics, Emeritus
JUNED SHAIKH, History
BUCHANAN SHARP, History
PRISCILLA W. SHAW, English and Comparative Literature, Emerita
MELANIE SPRINGER, Politics
ELLEN SUCKIEL, Philosophy, Emerita
MARSHALL SYLVAN, Mathematics, Emeritus
RENEE TAJIMA-PENA, Community Studies
DANA TAKAGI, Sociology
HIROTAKA TAMANOI, Mathematics
KIP TÉLLEZ, Education
DAVID J. THOMAS, Politics, Emeritus
BRUCE THOMPSON, History
JOHN N. THOMPSON, Ecology and Evolutionary Biology
AVRIL THORNE, Psychology
MAZIAR TOOSARVANDANI, Linguistics

MARK TRAUGOTT, History
MICHAEL E. URBAN, Politics
MATT WAGERS, Linguistics
MARILYN WALKER, Computer Science
HOWARD H. WANG, Molecular, Cell, and Developmental Biology, Emeritus
NOAH WARDRIP-FRUIN, Computer Science
MANFRED K. WARMUTH, Computer Science
RICHARD A. WASSERSTROM, Philosophy, Emeritus
CANDACE WEST, Sociology
MARILYN WESTERCAMP, History
HAROLD WIDOM, Mathematics, Emeritus
RONALDO WILSON, Literature
ALICE YANG, History
EILEEN ZURBRIGGEN, Psychology

Lecturers and Core Course Fellows

CAREN CAMBLIN
STEPHEN CARTER
GEOFF CHILDERS
LINDSEY COLLINS
JEROME FRISK
EDWARD KEHLER
MATTHEW LASAR
TAMMI ROSSMAN-BENJAMIN
ANDREW SCHAFER
STEPHEN SWEAT
JESSICA SAMUELS
KIVA SILVER
EMILY SLOAN-PACE
BRUCE THOMPSON
RAISSA TRUMBULL
ROBERT TRUMBULL
AMY WEAVER
DON WILLIAMS

Honorary Fellows

JACK BASKIN
BORIS KEYSER
NORMAN LEZIN
ELEANOR MCGOVERN
CHARLES NEIDER
CHARLES H. PAGE
WILLIAM M. ROTH
ALMA SIFUENTES
F. M. GLENN WILLSON

Stevenson Fellows-in-Residence

GEORGE MCGOVERN (1982)
BELLA ABZUG (1983)
PAUL SARBANES (1983)
ARTHUR S. FLEMMING (1984)
CAROLE KING (1985)
CLARK KERR (1987)
PETER SHAFFER (1987)
DONALD MCHENRY (1988)
PAT CONROY (1990)
MOCTESUMA ESPARZA (1992)
LOURDES PORTILLO (1992)
GREG SARRIS (1997)
JESSE JACKSON (1998)
AMIRI BARAKA (1999)

RON DELLUMS (1999)
THEODORE M. SHAW (2002)

College Administrative Officer

CAROLYN GOLZ

Staff

GABI ALANIZ, Office Coordinator
MARY ALVAREZ, Academic Adviser
CAREN CAMBLIN, Core Course Coordinator
CHRISTINE CHOI, College Programs Coordinator
ELIZABETH COWAN, Financial/Budget Specialist
DARLENE DENNY, Groundskeeper
CANDACE FREIWALD, Academic Services Officer
JOHN HADLEY, Coffee House Manager
JED MILROY, Housing Coordinator
DAVID MORI, Provost Assistant
GUSTAVO NOLAZCO, College Assistant/Records Coordinator/Mail Services Supervisor
STAN PRATHER, Coordinator for Residential Education
ARMIN QUIRING, CSO Supervisor
BLAKE REDDING, Coordinator for Residential Education
AMY WEAVER, Writing Program Coordinator
MARIE YOO, Senior Academic Preceptor

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Crown College

Crown College faculty and students represent a wide variety of academic disciplines. The majority of the faculty teaches in the physical, biological and social sciences. Although Crown has more science and engineering students than any of the other colleges, most of Crown's students major in the social sciences, humanities, and arts. This diversity of interests and academic training enriches our intellectual environment. An important goal of the college is to foster an appreciation for the contributions of diverse cultural groups and to provide an atmosphere in which issues of both diversity and common social purpose are integrated into a wide range of programs and discussions.

Crown is located on a hilltop surrounded by a redwood forest. The core buildings consist of an administration office, dining commons, lounge spaces, study spaces, faculty offices, and classrooms built around a large patio and central fountain. The award-winning architecture with its white walls and high-pitched tiled roofs suggests a hillside Mediterranean village. The college's residential facilities house approximately 800 students. The facilities at Crown College were built through a partnership of public funds and a gift from the Crown Zellerbach Foundation.

Academic Emphases

From the time of its founding in 1967, issues pertaining to the role of science and technology in society have been a focus of special interest at Crown College. We approach these issues from an interdisciplinary perspective that recognizes the influence of social and cultural factors on the scientific enterprise, as well as the ways in which science and technology influence our society.

Beginning with the 2014-15 academic year, the Crown College core course becomes a two-quarter sequence. Our students take the two-unit Crown 79, *Introduction to Ethical Foundations*, in the fall. This course introduces the foundations of ethical decision-making and is designed to develop students' skills in understanding and making ethical arguments. Crown 79 prepares students to take winter quarter sections of Crown 80A/B. Crown 80A/B, *Ethical Issues in Emerging Technologies*, is an interdisciplinary seminar concerning the effects of these world-changing technologies and encourages students to develop decision-making strategies to steer them. The course examines these technologies' impacts on society using a variety of disciplinary approaches that engage the perspectives of both humanists and scientists. Both the fall and winter core courses are required of all non-transfer students during their first quarters at UCSC. As with the core courses from

our sister colleges, the development of critical reading and writing skills is a major thrust of Crown 79, 80A, and 80B.

Crown College is one of two colleges at UCSC participating in the First-Year Honors Program. This innovative new program offers a congenial and challenging academic home for a select group of well-prepared students at UC Santa Cruz. The enriched program of study includes special courses, seminars, colloquia, and other events during each quarter of the academic year. Admission to the First-Year Honors Program is by invitation during the admissions process.

The Crown Science Learning Community (SLC) is an innovative program to support first-year students who are interested in pursuing a major in engineering and the sciences. Students enrolled in this program live together, forming a supportive community promoting collaborative learning and group problem solving. To facilitate this process, SLC students are placed in a special section of Chemistry 1A or Math 3 and participate in a residentially based study group. The program is designed especially for students who have a strong interest in the sciences but feel slightly underprepared for university-level course work. It often acts as a bridge to the ACE Program in the physical and biological sciences and engineering. Participation—limited to first-year students at Crown College—requires a commitment to succeed, a willingness to work hard, and a positive attitude.

Similar to the Science Learning Community, Crown's Engineering Learning Community focuses on underrepresented student success in engineering. Participants receive support from the Baskin School of Engineering, including tutoring, mentoring, and specialized programs. All Crown juniors and seniors can participate in the college's Undergraduate Research Fellowship Program, which awards $900 fellowships to student-faculty teams and encourages their interaction through undergraduate research.

College Community and Facilities

Crown sponsors a wide variety of co-curricular events spanning cultural, educational, and social areas of interest. One popular series is the Science/Public Affairs Tables, informal dinners at the Provost House offering students an opportunity to socialize with a faculty member outside the classroom and learn about his or her research.

Students become involved in Crown life by both initiating and participating in a wide range of activities. Social activities vary each year according to the interests of students. At the monthly College Night in the dining commons, a special dinner is followed by entertainment, both often sharing a common cultural theme. Some major events have become a tradition: for example, Epic Game Tournaments, the Crown Semi-Formal, and quarterly Regression Nights. Crown activities and dances draw students from all over campus. Outdoor activities organized by the student government, the College Programs Office, or residential staff range from whale watching on the Monterey Bay to ultimate Frisbee, and from backpacking to stargazing.

The Social Fiction Conference each spring brings students, staff, faculty, and community members together to focus on the intersection of social justice issues with the genres of science fiction, fantasy, anime, and gaming.

The Crown Student Senate (CSS), the elected student government at Crown, holds open weekly meetings to recommend fund allocations for student activities and to discuss issues of concern to students and the college. CSS also sponsors events to enhance the college experience, including the very popular Casino Night.

Crown offers two types of residential facilities: residence halls and apartments. Eight traditional residence halls each house approximately 60 students in single, double, and triple rooms in a coed environment (single-gender bedrooms with unisex bathrooms) or on a few all-female floors. For students particularly interested in living with and learning about a special-interest environment, Crown provides the Gaming House, Outdoor Pursuits and Academic Success Houses, Arts & Humanities House, the Science and Engineering Learning Communities, and continuing student houses.

The college also has apartments for approximately 230 third- and fourth-year students. Like the residence halls, the apartments are built on a small scale. Each three-story building has two or three apartments per floor that house four to six students in a combination of single, double, and triple rooms and include a kitchen, living room, dining

room, bathroom, and outside deck.

Other facilities in the college include the Crown Library study space; a modern computer laboratory housing Mac workstations, which provides students with access to several kinds of systems and an array of applications and instructional software selected to support academic course work; the Fireside Lounge with a piano and a flatscreen television; the Music Practice Room; and the Crown-Merrill Community Room, with a television, pool table, foosball, and ping-pong table, and provides an informal place to study, hold meetings, or just visit with friends. Dining facilities boast continuous dining and Banana Joe's take-out and quick mart.

For general information, call the College Office at (831) 459-2665 or visit crown.ucsc.edu. For residential or college programs information, call the Student Life Office at (831) 459-5689.

Crown Faculty and Staff

Provosts

F. JOEL FERGUSON, Computer Engineering
MANEL CAMPS, Microbiology and Environmental Toxicology

Fellows

ROBERT ADAMS, Economoics, Emeritus
VICTORIA AUERBUCH-STONE, Microbiology and Environmental Toxicology
ERIC ALDRICH, Economics
GIACOMO BERNARDI, Ecology and Evolutionary Biology
SCOTT BRANDT, Computer Science
KENNETH W. BRULAND, Ocean Sciences, Emeritus
JOSEPH F. BUNNETT, Chemistry and Biochemistry, Emeritus
MAUREEN CALLANAN, Psychology
KENNETH L. CAMERON, Earth and Planetary Sciences, Emeritus
SUE A. CARTER, Physics
PAK CHAN, Computer Engineering
NANCY N. CHEN, Anthropology
MICHAEL CLAPHAM, Earth and Planetary Sciences
DONALD CROLL, Ecology and Evolutionary Biology
KRISTEN CROUSE, Crown College
NICHOLAS DAVIDENKO, Psychology
JAMES DAVIS, Computer Science
LUCA DE ALFARO, Computer Science
MARGARET L. DELANEY, Ocean Sciences
CARLOS DOBKIN, Economics
CHONGYING DONG, Mathematics
MICHAEL P. DOOLEY, Economics
WILLIAM DOYLE, Biological Sciences, Emeritus
REBECCA DUBOIS, Computer Science,
ROBERT EDGAR, Molecular, Cell and Developmental Biology, Emeritus
CHRISTOPHER EDWARDS, Ocean Sciences
ÓLÖF EINARSDÓTTIR, Chemistry and Biochemistry
GABRIEL ELKAIM, Computer Engineering
JOHN ELLIS, Literature, Emeritus
MARIA EVANGELATOU, History of Art/Visual Culture
SANDRA M. FABER, Astronomy and Astrophysics
SYLVANNA FALCON, Latin American and Latino Studies
JOHN FAULKNER, Astronomy and Astrophysics, Emeritus
JERRY FELDMAN, Molecular, Cell, and Developmental Biology, Emeritus
ARTHUR FISCHER, Mathematics, Emeritus
TIMOTHY FITZMAURICE, Writing, Emeritus
CORMAC FLANAGAN, Computer Science
A. RUSSELL FLEGAL, Environmental Toxicology
LAUREL R. FOX, Ecology and Evolutionary Biology
MARIA CECILIA FREEMAN, Writing, Emerita
DANIEL FRIEDMAN, Economics

KWOK-CHIU FUNG, Economics
ALISON GALLOWAY, Anthropology
J. J. GARCÍA-LUNA-ACEVES, Computer Engineering
QI GONG, Applied Math and Statistics
GRACE GU, Economics
PURAGRA GUHA THAKURTA, UCO, Lick Observatory
LYNDA GOFF, Ecology and Evolutionary Biology, Emerita
RONALD GRIESON, Economics, Emeritus
MATTHEW GUTHAUS, Computer Engineering
JUDITH A. HABICHT-MAUCHE, Anthropology
DAVID HAUSSLER, Computer Science
LINDSAY HINCK, Biological Sciences
RALPH T. HINEGARDNER, Ecology and Evolutionary Biology, Emeritus
RICHARD P. HUGHEY, Computer Engineering
GARTH D. ILLINGWORTH, Astronomy and Astrophysics
BURT JONES, Astronomy and Astrophysics, Emeritus
DAVID E. KAUN, Economics
ALAN H. KAWAMOTO, Psychology
KATHLEEN KAY, Ecology and Evolutionary Biology
AUSTON KILPATRICK, Ecology and Evolutionary Biology
PAUL L. KOCH, Earth and Planetary Sciences
JONATHAN M. KRUPP, Biology; Coordinator, Microscopy and Imaging Laboratory, Emeritus
NANCY KRUSOE, Writing Program, Emerita
EDWARD LANDESMAN, Mathematics, Emeritus
GLEN LANGDON, Emeritus
JEAN LANGENHEIM, Emeritus
LEO LAPORTE, Earth and Planetary Sciences, Emeritus
TRACY LARRABEE, Computer Engineering
BURNEY LEBOUEF, Ecology and Evolutionary Biology, Emeritus
DEBRA LEWIS, Mathematics
DOUGLAS N. C. LIN, Astronomy and Astrophysics
SURESH LODHA, Computer Science
DARRELL D. E. LONG, Information Systems Management
ROBERT A. LUDWIG, Molecular, Cell, and Developmental Biology
BORETH LY, History of Art and Visual Culture
BRUCE MARGON, Astronomy and Astrophysics; Vice Chancellor, Research
MICHAEL MATEAS, Computer Science
RITA MEHTA, Ecology and Evolutionary Biology
JACOB MICHAELSEN, Economics, Emeritus
ETHAN MILLER, Computer Science
JOSEPH S. MILLER, Astronomy and Astrophysics, Emeritus
RICHARD MONTGOMERY, Mathematics
CASEY MOORE , Earth and Planetary Sciences
JUDIT N. MOSCHKOVICH, Education
SORAYA MURRAY, Film and Digital Media
DEREK MURRAY
PEGGY MUSGRAVE, Economics, Emerita
FRANCIS NIMMO, Earth and Planetary Sciences
HARRY F. NOLLER, Molecular, Cell, and Developmental Biology
MICHAEL NAUENBERG, Physics
LOISA NYGAARD, German Literature
KAREN OTTEMANN, Environmental Toxicology
ANNAPURNA PANDEY, Anthropology
TRILOKI N. PANDEY, Anthropology
GRANT H. POGSON, Ecology and Evolutionary Biology
DONALD C. POTTS, Ecology and Evolutionary Biology
JOEL R. PRIMACK, Physics
JIE QING, Mathematics
TUDOR RATIU, Mathematics, Emeritus
ANNALISA RAVA, Writing Program
HARTMUT F.-W. SADROZINSKI, Physics, Emeritus
CHAD SALTIKOV, Microbiology and Environmental Toxicology

THOMAS W. SCHLEICH, Chemistry and Biochemistry
MARIA SCHONBEK, Mathematics
JUDITH A. SCOTT, Education
ABRAHAM SEIDEN, Physics
HEATHER SHEARER, Writing Program
ELI A. SILVER, Earth and Planetary Sciences
NIRVIKAR SINGH, Economics
MARILOU SISON -MANGUS, Ocean Sciences
LISA C. SLOAN, Earth and Planetary Sciences; Vice Provost/Dean, Graduate Studies, Emerita
DONALD R. SMITH, Environmental Toxicology
SHARON STAMMERJOHN, Ocean Sciences
BENJAMIN STORM, Psychology
DAVID SWANGER, Education, Emeritus
WILLIAM T. SULLIVAN, Molecular, Cell, and Developmental Biology
EUGENE SWITKES, Chemistry and Biochemistry
KIP TÉLLEZ, Education
ROLAND G. THARP, Education and Psychology, Emeritus
DAVID THORN, Writing Program
JOHN F. VESECKY, Electrical Engineering
STEVEN S. VOGT, Astronomy and Astrophysics
CARL E. WALSH, Economics
NOAH WARDRIP-FRUIN, Computer Game Design
MANFRED K. WARMUTH, Computer Science
MARGARET L. WILSON, Psychology
W. TODD WIPKE, Chemistry and Biochemistry, Emeritus
STANFORD E. WOOSLEY, Astronomy and Astrophysics
AHMET YANIK
FITNAT YILDIZ, Environmental Toxicology
A. PETER YOUNG, Physics
JAMES ZACHOS, Earth and Planetary Sciences
JIN Z. ZHANG, Chemistry and Biochemistry

College Administrative Officer

ALEX BELISARIO

Staff

MARIA ACOSTA-SMITH, Senior Academic Preceptor
LOU BOMBARDIER, Academic Adviser
JIMMIE BROWN, Community Safety Officer Supervisor
ALLEN BUSHNELL, Special Projects Coordinator
VALERIE CHASE, Associate College Administrative Officer
MIKE DE SMIDT, Academic Adviser
DEREK DEMARCO, Coordinator for Residential Education
SERENA DIONYSUS, College Programs Coordinator
KEN EREZ, Residential Life and Housing Office Coordinator
CHASTITY MENDEZ, Community Safety Officer
CATHY MURPHY-MILES, Academic Programs and Development Coordinator
CHRIS MCPHERSON, Senior Building Maintenance Worker
JEREMY PARKER, Housing Coordinator
AMY RADOVAN, Assistant to the CAO
SHANE SANCHEZ, Coordinator for Residential Education
CHUCK SCHMIT, Senior Building Maintenance Worker
MOLLY SEGALE, College Assistant
KEITH STOCKER, Groundskeeper
KRISTEN WEAVER, Assistant College Programs Coordinator
JOANIE WEBBER, Assistant Budget Analyst

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Merrill College

Merrill College seeks to expand its students' awareness of their own heritage and of the

diversity of cultures around the world, past and present. Merrill faculty specialize in a number of different areas of study, concentrating especially on social theory, international affairs, and social change, and from a variety of disciplinary perspectives including history, the social sciences, literature, and foreign language study. The college makes a special effort to be a home for students from different cultural backgrounds and for international students; it presents unique opportunities to those who value multicultural perspectives.

Merrill houses the Departments of Politics and Legal Studies, and Latin American and Latino Studies. Merrill also hosts a Peace Corps satellite officer who helps UCSC students interested in working overseas to apply to the Peace Corps after graduation; and KZSC, the campus radio station. It also hosts the Chicano/Latino Research Center; UCSC's Cantú Queer Center; the student-run Pottery Co-op, the only one of its kind at UCSC; and the Ming Ong Computer Center, a modern computer facility with more than 40 state-of-the-art personal computers.

College Theme and Core Course

Cultural Identities and Global Consciousness is the ethos of Merrill College and is reflected in the theme of the college core course. Readings include diverse first-person narratives or works of fiction that focus on historical or political flashpoints, particularly those illuminating relationships between the developed and the developing world. Recent readings have included texts examining Chicano/Latino, Asian, African, Indian, and Islamic experiences. These works bear witness not only to conflicts and crises, but also to individual strengths and communal hopes. Students also read secondary sources related to the texts. Linked lectures, events, and films illuminate the case studies. The works studied expand international awareness by showing individuals and groups dealing with critical issues of nationalism, globalization, war, economic underdevelopment, and social and gender differentials. They frequently identify forms of social activism that respond to and seek to overcome violence and other problems. Students formulate their own analyses in relation to these examples and share their ideas in writing and seminar discussions. The course emphasizes skills central to intellectual life at the university: critical reading, analytical writing, and formulation of ideas for presentation and debate in seminars with peers and teachers are emphasized as students expand their global horizons.

Those admitted as transfer students are exempt from the core course requirement but may take it at their discretion.

Other Courses and Academic Initiatives

Merrill sponsors a variety of two- and five-credit courses on topics that change from year to year. Recently these have included a series of small classes drawing on ideas introduced in the Merrill Core, including seminars on *Americans and Human Rights* and *Topics in Foreign Policy* and experiential learning classes on sustainable building practices and field study. Merrill also offers an upper division class in personal empowerment, and another on the research university for recent transfer students. Additionally, students can enroll in *Classroom Connection*, a service-learning course in which students volunteer in local and regional K-12 schools while also engaging in classroom discussions of readings on current issues in educational theory. Participants make final presentations.

Recognizing the increasingly rigorous requirements for science majors, Merrill—in collaboration with the Academic Excellence Program—coordinates the Science Learning Community to support students majoring in the sciences. Students participating in the program enroll in small discussion sections that encourage a collaborative learning approach.

The Merrill Research Mentorship Program aims to prepare undergraduate students to pursue graduate studies and provides research experience and personal and professional development for Merrill students. Merrill faculty nominate a Merrill student whose interests dovetail with their own areas of research and expertise. Students who participate in the program (juniors and seniors) are employed as research assistants by their faculty mentors and receive up to $800 for the school year.

The Merrill Peer Mentoring Program (MP^2) matches newer Merrill students with more established students to help them acclimate to a new setting and the new demands of University life. MP^2 also provides a modest employment opportunity to peer mentors.

The Merrill College Distinguished Visiting Scholars Program hosts public and class presentations by national and international academics, artists, writers, and activists representing a wide variety of perspectives.

College Community and Facilities

Located on a hilltop, Merrill's newly renovated, award-winning buildings thread upward through the edge of a redwood forest. Glass curtain walls provide views from the A & B Buildings of the reconstructed college center and new restaurant building. The brick patios, gardens, outdoor café, and mission bell tower suggest California's Latino heritage. Merrill offers residence-hall and apartment-style options for students. Four residence halls house approximately 550 students in two high-rise structures and two smaller buildings.

The apartments, which are located a short distance from the central area of the college, house 180 continuing Merrill students. Grouped amid winding pathways and redwood trees, these three-story buildings have two or three apartments per floor. Each apartment houses four to six students in a combination of single, double, and triple rooms, and comes fully equipped with kitchen and bath, large living area, and outside deck. Facilities at the apartment complex include a large community room, plenty of outdoor space, and two laundry rooms.

With the help of the Merrill's Student Life Staff, staff and students work together to plan a diverse array of educational, social, recreational, and cultural events that include film series, art exhibits, intramural sports competitions, dances, musical events, and a yearly outdoor Moat mural painting party. Many of these social and educational activities focus on building a multicultural community. Other facilities at Merrill include the Cultural Center, where large events (including Merrill the Musical and the Glitterball) take place; the Baobab Lounge, which provides study space, a piano, and a television; and Merrill Academic Success (MAS), which provides Merrill students with a quiet place to study as well as close evening access to computers and a printer. Finally, Merrill is the only college that has a student-run pottery co-op. Students can throw, fire, and glaze their pieces in the workshop space, which is open to Merrill students on a first-come, first-served basis. Merrill's two-year renewal project to renovate the residence halls, update community space, and improve pathways and way-finding at the college will conclude in fall 2014.

The physical facilities of Merrill College were provided through a partnership of public funds and gifts from the Charles E. Merrill Trust and the family of Ming Ong, a student in the 1980s. For more information, call (831) 459-2144 or visit the web site: merrill.ucsc.edu.

Merrill Faculty and Staff

Provost

ELIZABETH ABRAMS, Writing Program

Faculty Fellows

ZSUZSANNA ABRAMS, Language Program
JORGE ALADRO FONT, Spanish Literature
MARK D. ANDERSON, Anthropology
FRANK C. ANDREWS, Chemistry and Biochemistry, Emeritus
GABRIELA ARREDONDO, Latin American and Latino Studies
NORIKO ASO, History
BRENDA BARCELÓ, Spanish Language
DILIP K. BASU, History, Emeritus
ROBERT F. BERKHOFER JR., History, Emeritus
CLAUDE F. BERNASCONI, Chemistry and Biochemistry
EVA BERTRAM, Politics
TERRENCE BLACKBURN, Earth & Planetary Sciences
CHELSEA BLACKMORE, Anthropology
JOHN G. BORREGO, Latin American and Latino Studies, Emeritus
MICHAEL K. BROWN, Politics, Emeritus
DAVID BRUNDAGE, History
EDMUND BURKE III, History, Emeritus
JULIANNE BURTON-CARVAJAL, Literature, Emerita
CARLOS CALIERNO, Spanish Language

BENJAMIN CARSON, Music
PEDRO G. CASTILLO, History
BIN CHEN, MCD Biology
ALAN S. CHRISTY, History
RENA V. COCHLIN, Physical Education
CINDY CRUZ, Education
GRACE PEÑA DELGADO, History
GUILLERMO DELGADO-P., Anthropology
JOSHUA M. DEUTSCH, Physics
MARÍA ELENA DIAZ, History
MAY N. DIAZ, Anthropology, Emerita
BRYAN DONALDSON, Language
KENT EATON, Politics
BERNARD L. ELBAUM, Economics
PEGGY ESTRADA, Latin American & Latino Studies
SYLVANNA FALCON, Latin American and Latino Studies
DAVID FELDHEIM, Mammalian Brain Development
ADRÍAN FÉLIX, Latin American & Latino Studies
JONATHAN FOX, Latin American and Latino Studies
DANA FRANK, History
KATHY FOLEY, Art
ROSA LINDA FREGOSO, Latin American and Latino Studies
WILLIAM H. FRIEDLAND, Community Studies and Sociology, Emeritus
HARDY T. FRYE, Sociology, Emeritus
CAROLE GERSTER, Core Course; Film and Digital Media
MARGARET (GRETA) A. GIBSON, Education, Emerita
DIANE P. GIFFORD-GONZÁLEZ, Anthropology
SHANNON GLEESON, Latin American and Latino Studies
WALTER L. GOLDFRANK, Sociology, Emeritus
MARÍA VICTORIA GONZÁLEZ-PAGANI, Spanish Language
FRANCESCA GUERRA, Sociology
M. LISBETH HAAS, History
GAIL B. HERSHATTER, History
KARLTON HESTER, Music
MINGHUI HU, History
JOHN W. ISBISTER, Economics, Emeritus
ROBERT P. JOHNSON, Physics
NORMA KLAHN, Latin American Literature
FLORA LU, Latin American and Latino Studies
PAUL LUBECK, Sociology
PATRICK E. MANTEY, Computer Engineering
MARK MASSOUD, Politics
JOHN MARCUM, Politics, Emeritus
DEAN MATHIOWETZ, Politics
MARIA EUGENIA MATUTE-BIANCHI, Education, Emerita
BARRY MCLAUGHLIN, Psychology, Emeritus
MARIA MORRIS, Spanish Language
OLGA NÁJERA-RAMÍREZ, Anthropology
ELLEN NEWBERRY, Writing
MATTHEW O'HARA, History
SHIGEKO OKAMOTO, Japanese Language
ANNAPURNA PANDEY, Anthropology
ALEX T. PANG, Computer Science
SARAH-HOPE PARMETER, Writing
ELEONORA PASOTTI, Politics
LUCINDA PEASE-ALVAREZ, Education
HECTOR PERLA, Latin American and Latino Studies
JUAN POBLETE, Literature
CLIFTON A. POODRY, Molecular, Cell, and Developmental Biology, Emeritus
CATHERINE SUE RAMÍREZ, Latin American & Latino Studies
BENJAMIN READ, Politics
ALAN R. RICHARDS, Environmental Studies, Emeritus

CECELIA RIVAS, Latin American and Latino Studies
PAMELA A. ROBY, Sociology, Emerita
ALVARO ROMERO-MARCO, Spanish Language
BARBARA ROGOFF, Psychology
FELICITY SCHAEFFER, Feminist Studies
JOHN M. SCHECHTER, Music, Emeritus
STUART A. SCHLEGEL, Anthropology, Emeritus
ROGER SCHOENMAN, Politics
ANA MARIA SEARA, Portuguese Language
VANITA SETH, Politics
BAKTHAN SINGARAM, Chemistry and Biochemistry
GRAEME H. SMITH, Astronomy and Astrophysics
MELANIE SPRINGER, Politics
DAVID G. SWEET, History, Emeritus
MEGAN THOMAS, Politics
GEORGE E. VON DER MUHLL, Politics, Emeritus
DANIEL J. WIRLS, Politics
DONALD A. WITTMAN, Economics
ALICE YANG, History
PATRICIA ZAVELLA, Latin American and Latino Studies
MARTHA C. ZÚÑIGA, Molecular, Cell, and Developmental Biology
EVE ZYZIK, Spanish Language

Honorary Fellows

ZINA JACQUE
CLARK KERR (deceased)
JOHN LAIRD
ALICE LYTLE
CHARLES E. MERRILL JR.
JOHN VASCONCELLOS
YORI WADA
REV. CECIL WILLIAMS
MARDI WORMHOUDT (deceased)

Class Honorary Fellows

ROBERT TAYLOR, 1991, 1992, 1993
LEILANI FARM, 1994
MICHAEL PAUL WONG, 1995
DAVID SILVERA, 1996
ZIESEL SAUNDERS, 1997
VICTOR HERNANDEZ, 1998
MARÍA MATA, 1999, 2003, 2004, 2007, 2008, 2010
WENDY BAXTER, 2000
LARRY TRUJILLO, 2001
GINA DIAZ, 2002
JOHN SCHECHTER, 2005
CURTIS SWAIN, 2006
BETH THOMPSON, 2009, 2011

College Administrative Officer

ALEX BELISARIO

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LOU BOMBARDIER, Academic Adviser
ALLEN BUSHNELL, Special Projects Coordinator
VALERIE CHASE, Associate College Administrative Officer
CONNIE CREEL, Academic Adviser
KEN EREZ, Residential Life and Housing Office Coordinator
SETH HODGE, College Programs Coordinator
MARÍA MATA, Senior Academic Preceptor

MARILYN MCGRATH, Groundskeeper
CHASTITY MENDEZ, Community Safety Officer
KIRA MOSER, College Assistant
JEREMY PARKER, Housing Coordinator
BILL POOL, Senior Building Maintenance Worker
AMY RADOVAN, Assistant to the College Administrative Officer
MARIANNA SANTANA, Faculty Services
CHUCK SCHMIT, Senior Building Maintenance Worker
KELSEY STONE, Coordinator for Residential Education
KRISTEN WEAVER, Assistant College Programs Coordinator
JOANIE WEBBER, Assistant Budget Analyst
SARMA WILLIAMS, Coordinator for Residential Education
ESPERANZA ZAMORA, Assistant to the Provost

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Porter College

Porter College was founded in 1969 as the fifth of UC Santa Cruz's residential colleges and was later renamed in honor of a generous grant from the Porter-Sesnon family. Its mission is to foster achievement in all areas of study. Porter is especially dedicated to achievement in the arts, believing that creative inquiry is an essential part of a rigorous and broad-minded education, a flourishing society, and a happy life.

Academic Emphases

The Porter campus is the administrative home of the Arts Division and the History of Art and Visual Culture Department, but Porter College faculty fellows hail from every academic division on campus and from many non-academic professions. All of them share the philosophy of education that the college's curriculum embodies: first, discover how to learn; then, learn by doing; and finally, let your learning make a difference in the world.

The Porter College curriculum encourages students to explore unusual topics and provocative ideas, to test and revise hypotheses about the meaning of their experiences, to learn from the failures that are an inevitable part of new learning and discovery, and to assume responsibility for the decisions they make in their studies.

Porter 80A and 80B, known as "Porter Core," provide rigorous training in critical reading and writing and study skills. Students meet with instructors in seminars and in small writing groups. Those who are admitted as transfer students are exempt from the Core course requirement but may opt to enroll in Core if resources permit it. Lower-division transfer students who have not completed at least one UC-transferable college English composition course with a minimum grade of C (2.0) or better, prior to enrollment, are permitted to take the Core course to satisfy the C1 requirement.

In addition to Core, Porter offers a variety of smaller interdisciplinary seminars that combine historical and theoretical approaches to the arts, humanities, and sciences with practical experience conducting scholarly research and making creative work.

The College provides fellowship funds each year to talented students pursuing original research and creative projects.

College Community and Facilities

The traditional residence halls and apartments play an important role in bringing the college community together. Students are encouraged to spend their beginning years in residence in the college, where housing is available for 1,300 students. The residence halls are divided into smaller units, with from 30 to 35 students sharing common lounges and other facilities. Theme halls include Film and Digital Media, Math, Engineering, and Sciences. Students also have a choice of quiet/intensive study, same gender, or substance-free halls. The six-person apartments are reserved for upper-division students.

Porter College is also home to the Transfer Community at Porter, a transfer student living/learning community. All on-campus incoming transfer students reside at Porter regardless of their college affiliation. Special programs are designed to help new transfer students adapt to life at UCSC.

In addition to traditional classrooms, Porter has many specialized facilities, such as student art galleries, a study center, and a dining hall that converts to a theater space. The Arts Instructional Computing Laboratories, located at Porter College, consist of two high-end labs oriented toward the arts.

Porter provides constructive opportunities for relaxation and recreation to balance the intellectual demands of a university education. The Porter Activities Office organizes formal and informal events, including open-mic nights, dances, recreational activities, and the mural painting program.

Many students and faculty perform or exhibit their work at Porter. The Sesnon Gallery, the dining commons, the amphitheater, and the faculty gallery host a wide range of artistic, cultural, and academic events each year.

Porter College facilities were constructed through a partnership of public funds and a gift from the Porter-Sesnon family of Santa Cruz. Part of the gift was used to establish an endowment for the college. For more information, call (831) 459-2273 or visit the web site: porter.ucsc.edu.

Porter Faculty and Staff

Provost

SEAN KEILEN, Literature

Fellows

KEN ALLEY, Art
ELLIOT W. ANDERSON, Art
LAWRENCE ANDREWS, Film and Digital Media
MANUEL ARES JR., Molecular, Cell, and Developmental Biology
JEFF ARNETT, Core Course, Emeritus
DORIS B. ASH, Education
NORIKO ASO, History
ALLISON ATHENS, Core Course
CHARLES ATKINSON, Writing, Emeritus
ERIK BACHMAN, Core Course
THOMAS BANKS, Physical & Biological Sciences
BRANDIN S. BARON-NUSBAUM, Theater Arts
AMY C. BEAL, Music
TANDY BEAL, Theater Arts
MARTIN BERGER, History of Art and Visual Culture
ROBERTO A. BOGOMOLNI, Chemistry and Biochemistry
JOYCE BRODSKY, Art, Emerita
GEORGE S. BROWN, Physics, Emeritus
LINDA C. BURMAN-HALL, Music
ELISABETH CAMERON, History of Art and Visual Culture
BENJAMIN L. CARSON, Music
GERALD CASEL, Theater Arts
MICHAEL CHEMERS, Theater Arts
CHRISTOPHER CHEN, Literature
ALAN CHRISTY, History
ROBERT S. COE, Earth and Planetary Sciences
LINDSEY COLLINS, Core Course
DAVID H. COPE, Music
WILLIAM D. COULTER, Music
E. G. CRICHTON, Art
DAVID CUTHBERT, Theater Arts
SHARON DANIEL, Film and Digital Media
SAMIT DASGUPTA, Mathematics
JAMES DAVIS, Engineering
Luca deALFARO, Engineering
CAROLYN S. DEAN, History of Art and Visual Culture
SHERWOOD DUDLEY, Music, Emeritus
KATE EDMUNDS, Theater Arts

HARLAND W. EPPS, Astronomy and Astrophysics
MARIA EVANGELATOU, History of Art and Visual Culture
MARIA V. EZEROVA, Music
LORI FELTON, Core Course
VALERIE FIDDMONT, Lecturer
M. KATHLEEN FOLEY, Theater Arts
DOYLE FOREMAN, Art, Emeritus
JEAN FOX TREE, Psycholinguistics
SUSAN FRIEDMAN, Art
GREGORY FRITSCH, Theater Arts
PATTY GALLAGHER, Theater Arts
FRANK GALUSZKA, Art
ROBERT GIGES, Core Course
JENNIFER A. GONZALEZ, History of Art and Visual Culture
IRENE GUSTAFSON, Film and Digital Media
MELISSA GWYN, Art
SUSAN HARDING, Anthropology
JOHN HAY, History of Art and Visual Culture, Emeritus
IRENE HERRMANN, Music
KARLTON E. HESTER, Music
DEE HIBBERT-JONES, Arts
ELI E. HOLLANDER, Film and Digital Media
JENNIFER HORNE, Film and Digital Media
EDWARD F. HOUGHTON, Music, Emeritus
DONNA HUNTER, History of Art and Visual Culture
NORIA JABLONSKI, Core Course and Writing Program
KIMBERLY JANNARONE, Theater Arts
ARNAV JHALA, Computer Engineering
DAVID EVAN JONES, Music
JONATHAN KAHANA, Film and Digital Media
STACY KAMEHIRO, History of Art and Visual Culture
SEAN KEILEN, Literature
HI KYUNG KIM, Music
L. S. KIM, Film and Digital Media
SRI KURNIAWAN, Computer Engineering
INGRID LARIVIERE, Core Course and Writing Program
KIMBERLY LAU, Literature
THORNE LAY, Earth and Planetary Sciences
JIMIN LEE, Art
ANATOLE LEIKIN, Music
PETER LIMBRICK, Film and Digital Media
NORMAN LOCKS, Art
CHARLES (CHIP) L. LORD, Film and Digital Media, Emeritus
IRENE LUSZTIG, Film and Digital Media
BORETH LY, History of Art and Visual Culture
PAVEL MACHOTKA, Psychology, Emeritus
PATRICE MAGINNIS, Music
ROBERTO MANDUCHI, Engineering
LAURA E. MARTIN, Core Course
MICHAEL MATEAS, Engineering
MARCO MARTINEZ-GALARCE, Core Course
DOMINIC W. MASSARO, Psychology
WILLIAM G. MATHEWS, Astronomy and Astrophysics, Emeritus
JENNIE LIND McDADE, Art, Emerita
CHARLES E. McDOWELL, Computer Science
TANYA MERCHANT, Music
PEYMAN MILANFAR, Engineering
LETA E. MILLER, Music
MARGARET MORSE, Film and Digital Media, Emerita
JOHN MUSACCHIO, Engineering
PAUL NAUERT, Music
DARD NEUMAN, Music

KATE O'RIORDAN, Art
NICOLE A. PAIEMENT, Music
JENNIFER A. PARKER, Art
KENNETH PEDROTTI, Electrical Engineering
MICAH PERKS, Literature
LARRY POLANSKY, Music
RICK PRELINGER, Film and Digital Media
STEFANO PROFUMO, Physical & Biological Sciences
PAUL RANGELL, Art
B. RUBY RICH, Community Studies
ELAINE YOKOYAMA ROOS, Theater Arts, Emerita
NORVID J. ROOS, Theater Arts, Emeritus
BRUCE ROSENBLUM, Physics, Emeritus
WARREN SACK, Film and Digital Media
HOLGAR SCHMIDT, Engineering
HEATHER SHEARER, Writing Program
ALEXANDER SHER, Physics
BARRY SINERVO, Physical & Biological Sciences
SHELLEY STAMP, Film and Digital Media
AUDREY E. STANLEY, Theater Arts, Emerita
BRIAN J. STAUFENBIEL, Music
ELIZABETH STEPHENS, Art
UNDANG SUMARNA, Music
DAVID SWANGER, Education and Creative Writing, Emeritus
JOHN W. TAMKUN, Molecular, Cell, and Developmental Biology
OTHMAR T. TOBISCH, Earth and Planetary Sciences, Emeritus
ANDREY TODOROV, Mathematics
ALLEN VAN GELDER, Computer Science
NATASHA V, Core Course
GUSTAVO VAZQUEZ, Film and Digital Media
MARILYN WALKER, Computer Science
YIMAN WANG, Film and Digital Media
EDWARD WARBURTON, Theater Arts
NOAH WARDRIP-FRUIN, Computer Science
LEWIS WATTS, Art
C. GORDON WELLS, Education
LINDA WERNER, Computer Science
JAMES WHITEHEAD, Computer Science
PAUL WHITWORTH, Theater Arts
QUENTIN C. WILLIAMS, Earth and Planetary Sciences
ROB WILSON, Literature
RONALDO WILSON, Literature
DONALD WITTMAN, Social Sciences
DAVID YAGER, Art
KAREN YAMASHITA, Literature
GARY YOUNG, Literature and Cowell Press

College Administrative Officer

MICHAEL YAMAUCHI-GLEASON

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JAMES BLAINE, College Programs Coordinator
KENNETH BLAS, Senior Building Maintenance Worker
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TIFFANY BURNS, College Assistant/Mailroom Supervisor
MEGAN GNEKOW, Coordinator for Residential Education
DOYLENE CHAN, Counseling Psychologist
KATHY COONEY, Associate College Administrative Officer for Student Life
JOE DePAGE, Housing Coordinator, Counseling Psychologist
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ROBERT GIGES, Academic Preceptor
SEAN MALONE, Academic Advisor
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ARMIN QUIRING, Community Safety Officer Supervisor
SUE ROTH, Assistant to the College Administrative Officer
MARY SIERRA, Budget and Planning Specialist
MATTHEW SLOAN, Senior Building Maintenance Worker
STEVE STRICKLEY, Groundskeeper
ALYSSA YOUNG, Assistant College Programs Coordinator
TBD, Coordinator for Residential Education

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Kresge College

Kresge has a strong academic community that emphasizes creativity, leadership, sustainability, and community. Our motto is Independence, Creativity, Community.

Academic Emphases

Kresge's core course 80, Power and Representation, is a writing class that explores the relationships between individuals and their communities. Our goal is to empower individuals to think beyond easy answers, to express themselves clearly, to feel at home in writing, and to feel powerful in representing themselves on the page. In Power and Representation, we examine the many ways we constitute ourselves (and are constituted) as individuals in relation to communities. First, we study ideas about representation as a theoretical grounding, and then focus on representations of nationality, ethnicity, sexual orientation, gender, and race in critical theory, film, fiction, theater, and nonfiction. Our purpose is to create a dialogue about ourselves and our relationship to our communities as it is, as it might be, and as we might help make it.

In addition to section meetings, on Tuesday nights all students come together to watch core-related films or performers or listen to lectures. All students complete a final creative project that engages with the theme of the course.

Lower-division transfer students who, prior to enrolling, have not completed at least one UC-transferable college English composition course with a minimum grade of C (2.0) or better are permitted to take the core course to satisfy the C1 (composition) requirement. Students who, in the Analytical Writing Placement Exam (AWPE), received a score of five or lower take a two-quarter version of the core class, designed to increase competency in college-level writing

In addition to the core course, Kresge offers a series of courses taught by guest faculty, alumni, and faculty affiliated with the college. These courses offer students the opportunity to study in small groups, focusing on topics related to faculty or alumni research interests, while at the same time enriching the standard curriculum. A new array of classes is offered each year. For example, Kresge has offered journalism, comic writing, documentary film, gardening, and service learning.

Kresge is home to the Writing Center, including the Creative Writing archives, and Writer's House, a living/learning community for students interested in creative writing and journalism, regardless of major.

A new living/learning community was created in Fall 2013. The Ecovillage is for students who want to actively create a new world based on cooperation and sustainable living. Kresge also offers the following opportunities:

- The new Common Ground Center promotes social and environmental change through undergraduate-focused action-education, research, advocacy, and civic engagement.
- Transformative Action and Service Learning classes prepare students to become innovators in real-life community projects.
- The Kresge Garden is the site of our organic gardening and food systems classes, where

students empower themselves by learning how to grow their own food and work together cooperatively.

Residential Life

Kresge was the sixth college to be built on the UCSC campus. The college was founded on the principle of participatory democracy as a means of encouraging a strong sense of community. Architecturally renowned, Kresge offers apartments rather than residence halls.

The Kresge apartments attract students with a sense of independence and community participation. Distinctively designed, the apartments at Kresge proper are configured for five to nine people. Kitchen and living areas look out onto the street, with other rooms facing the surrounding redwood forest. J and K Building's three-person apartments are reserved for continuing upper-division students. These two-bedroom apartments have an efficiency-style kitchen and living area.

The Residential Life and College Programs staff at Kresge work to bring students of similar interests together academically and socially by designing fun and unique programs based on student interest. Programs that focus on celebrating the diversity of the residential community, on multicultural community building, and on enhancing academic success through music events, mural painting, and food-centered events are highlighted.

Community Life

A wide variety of events and activities shape community life at Kresge: lectures, workshops, dances, and concerts are a regular part of student life at the college. The nature and tenor of these events are a reflection of the diverse interests of students and staff, who are committed to providing voice and opportunity for all community members.

Students actively shape the college community through participation in Kresge Parliament, an openly structured student organization responsible for voting the allocation of all college membership fees in support of activities and events. Parliament and Town Meetings also serve as a forum for the discussion of college and campus-wide issues with college staff and faculty. Additionally, students can get involved in the Kresge Multicultural Education Committee (KMEC), Music Co-op, Food Co-op, Photo Co-op, or the Kresge Garden.

Transfer Students

In recognition of the wealth of diversity that transfer students bring to the community—in terms of culture and experience—Kresge is the home of the STARS program (Services for Transfer and Re-entry Students. This is a staffed facility where students can gather to relax, socialize, hold meetings, and obtain campus information and resource support in a central location regardless of college affiliation. The resource center offers workshops, social evenings, and special events tailored to meet the needs of transfer students.

STARS also offers special advising workshops and two- and three-credit courses designed to help transfers in the process of entering the university and moving forward in their careers.

Facilities

At the entrance to the college is the restful Piazzetta, with a beautiful, architecturally designed fountain, and the Kresge Garden, the biggest student-run garden on campus. Leading off from the Piazzetta are STARS, the Commuter Lounge, and a student lounge equipped with television and DVD player. In addition to STARS, as a unique facility on the campus, the Commuter Lounge is a place for off-campus students who want to use a kitchen, shower, or lockers while on campus. Kresge's Photo Lab Co-op is above the Piazzetta and offers 24-hour accessibility to darkroom equipment. Adjacent to the nearby meadow are a racquetball court and an outdoor basketball court. The college includes a study center with soaring ceilings and walls of glass overlooking the forest, which also houses a writing center, a computer lab equipped with PCs for student use, and a student-run food co-op, where organic produce is sold and working memberships are available. At the top of the college are the Town Hall, the Music Co-op, and the Owl's Nest cafe.

For more information, call (831) 459-2071 or visit the web site: kresge.ucsc.edu.

Kresge Faculty and Staff

Provost

KATHY FOLEY, Interim Provost

Members

ELIZABETH ABRAMS, Writing
DEMITRIS, ACHILOPTAS, Computer Science
BETTINA APTHEKER, Feminist Studies and History
ANJALI ARONDEKAR, Feminist Studies
THOMAS BANKS, Physics
KAREN BARAD, Feminist Studies
MURRAY BAUMGARTEN, English and Comparative Literature
MICHAEL BOLTE, Astronomy and Astrophysics
GINA DENT, Feminist Studies
SHELLY E. ERRINGTON, Anthropology
J. PETER EUBEN, Politics, Emeritus
CARLA FRECCERO, Literature
PASCALE GAITET, French Literature and Language
JODY GREENE, English Literature
GEY-HONG GWEON, Physics
EMILY HONIG, Feminist Studies and History
MICHAEL SAUL ISAACSON, Electrical Engineering
EARL JACKSON JR., Japanese Literature
JOHN O. JORDAN, English Literature
DOUGLAS KELLOGG, Molecular, Cell, and Developmental Biology
ELISE KNITTLE, Earth and Planetary Sciences
NOBUHIKO KOBAYASHI, Electrical Engineering
ATHANASIOS KOTTAS, Applied Mathematics and Statistics
SRI KURNIAWAN, Computer Engineering
GREGORY LAUGHLIN, Astronomy and Astrophysics
MICHAEL LOIK, Environmental Studies
NATHANIEL MACKEY, Literature, Emeritus
PIERO MADAO, Astronomy and Astrophysics
ROBERTO MANDUCHI, Computer Engineering
ALMA R. MARTÍNEZ, Theater Arts, Emerita
CAROLYN MARTIN SHAW, Anthropology, Emerita
GEOFFREY MASON, Mathematics
MATTHEW McCARTHY, Ocean Sciences
ROBERT L. MEISTER, Politics
HELENE MOGLEN, Literature and Feminist Studies, Emerita
DERECK MURRAY, Art
MARCIA OCHOA, Community Studies
SCOTT OLIVER, Chemistry and Biochemistry
MICAH PERKS Literature
JUAN POBLETE, Literature
NEOKLIS PLYZOTIS, Computer Science
STEFANO PROFUMO, Physics
JOSE RENAU, Computer Engineering
MICHAEL REXACH, Molecular, Cell, and Developmental Biology
LISA ROFEL, Anthropology
HAMID SADJADPOUR, Electrical Engineering
DANIEL SCHAEFFER-GABRIEL, Feminist Studies
DANNY SCHEIE, Theater Arts
ROBERT SHEPERD, Economics, Emeritus
PAUL N. SKENAZY, American Literature, Emeritus
ROSWELL (ROZ) SPAFFORD, Writing, Emerita
RENEE TAJIMA-PEÑA, Community Studies
WANG-CHIEW TAN, Computer Science
RICHARD TERDIMAN, Literature, Emeritus
ANNA TSING, Anthropology
SLAWEK TULACZYK, Earth & Planetary Sciences
KAREN TEI YAMASHITA, Literature

JOEL YELLIN, Physical & Biological Sciences Division, Emeritus
ALAN ZAHLER, Molecular, Cell, and Developmental Biology
YI ZUO, Molecular, Cell, and Developmental Biology

College Administrative Officer

MICHAEL YAMAUCHI-GLEASON

Staff

PAM ACKERMAN, College Programs Coordinator, College Assistant
JUSTIN BLOODGOOD, Housing Coordinator
KATHY COONEY, Associate College Administrative Officer
ANGIE JIMENEZ, Academic Adviser
KATIE LINDER, Assistant College Programs Coordinator
VERONICA LOPEZ-DURAN, Assistant to the Provost
KALIN McGRAW, Academic Preceptor
IAN MITCHELL, Maintenance Assistant
SARAH MOLLENBRINK, Coordinator for Conduct and Education
CLAUDIA PARRISH, Transfer Center Coordinator
ERIC PETERSON, Senior Building Maintenance Worker Supervisor
KATHARINA PIERINI, Groundskeeper
ARMIN QUIRING, Community Safety Officer Supervisor
SARA RADOFF, Academic Adviser
JULIA RAGEN, Counseling Psychologist
SUE ROTH, Assistant to the College Administrative Officer
MARY SIERRA, Budget Analyst
TBD, Coordinator for Residential Education

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Oakes College

Oakes was founded in 1972 to provide high-quality education to students from diverse cultural and social backgrounds. Students, staff, and faculty associated with the college believe that learning takes place not only in the classroom, but also in residential settings. For that reason, they work hard to create a multicultural community whose members strive to achieve ambitious goals—including equal access to educational opportunity and freedom from oppression—while simultaneously affirming and celebrating their distinctive cultural backgrounds.

Academic Emphases

The Oakes College faculty represents a wealth of expertise from the natural sciences to the humanities, and we are proud to have some of the top scholars in the world among our faculty fellows. Our students major in nearly every discipline at UCSC—from economics and computer science, to theater arts and Latin American and Latino studies—and they are well supported by the depth and breadth of the Oakes College faculty and the extensive knowledge of our advising team. Oakes graduates have gone on to successful careers in fields such as medicine, law, education, medical research, and community service.

The Oakes core course, Communicating Diversity for a Just Society, is required of all first-year students. The course is writing intensive and examines individual and collective responses to issues of culture, gender, sexuality, race, and class. Those who are admitted as transfer students are exempt from the core course requirement but may take the core course at their option pending available space; lower-division transfer students who, prior to enrolling, have not completed at least one UC-transferable college English composition course with a minimum grade of C (2.0) or better are permitted to take the core course to satisfy the C1 requirement.

At Oakes College, we are committed to fostering student engagement and leadership within and beyond the classroom. To this end, we encourage students to develop the knowledge, skills, and cross-cultural understanding necessary to become active citizens and future leaders in their own communities, workplaces, and academic disciplines as well as in the larger U.S. society and the world as a whole. We also provide a range of resources and programs that will enable all students to succeed in their academic endeavors. Such

resources include:

- The Learning Center and the Westside Writing Center at Oakes College provide space for study groups as well as tutoring and advising programs. Special assistance in writing and tutoring in a variety of subjects is offered to Oakes students and EOP students.
- The Oakes Computer Lab provides access to 20 PCs for Oakes students.
- Co-curricular programs like Oakes 4.0, Oakes Core Café, and the residential Science Community at Oakes College all offer living-learning opportunities to enhance student success and to provide students with unique opportunities for interacting with faculty in small group contexts.
- Oakes 77, Exploring Opportunities for Social Justice Field Work, provides students with the opportunity to work with a variety of community service organizations. All Oakes students are encouraged to contribute service to public agencies, schools, and community organizations in the city of Santa Cruz and in economically deprived areas of Santa Cruz and Monterey Counties. Oakes students serve as tutors, teachers, mentors, and community builders. Academic credit is available through the Oakes 77 course.
- Student services at Oakes include academic advising and psychological counseling.

College Community and Facilities

Oakes College, located on the west side of the UCSC campus, commands a sweeping view of Monterey Bay. Students may choose between apartment and residence hall living. The residence halls have a lounge, attractive courtyards, and views of the ocean and the city of Santa Cruz. Students can also share an apartment-style living space, which includes a common living area and small kitchen. All students participate in a University Meal Plan. Full-time coordinators for residential education and neighborhood assistants help residents develop cooperative ways of living together. As one student put it, "Oakes is a community where people of many different backgrounds, interests, and goals form a friendly neighborhood. We share our cultures and adapt to the different lifestyles of our neighbors." The residential program is designed to assist all students in integrating their academic and social needs. The residential staff host activities sponsored through its wellness, academic success, leadership, and social justice and diversity committees.

The college staff seeks to nurture and sustain a community in which mutual respect, understanding, and concern for others are the norm. Within that atmosphere of community expectations, students are also supported and encouraged to find room for their own creative personal expression.

The other facilities at Oakes further support the special programs of the college and provide recreational opportunities for the students. College facilities include the Learning Center, a multipurpose room for lectures, movies, and small theater productions; a college library; a quiet space for individual study, a dining facility shared with College Eight; TV lounges in the residences. Adjacent to the Oakes Café is the Guzman Room, a social and group study space. Oakes is also home to the Underdome, a small outdoor basketball court great for friendly three-on-three competition. Additional recreational facilities located close to the college include tennis courts, a large recreational field, and an indoor basketball court.

Oakes is named after Roscoe and Margaret Oakes in recognition of their generous philanthropy through the San Francisco Foundation.

For further information, call (831) 459-2558 or visit the web site: oakes.ucsc.edu.

Oakes Faculty and Staff

Provost

REGINA DAY LANGHOUT, Psychology

Fellows

PRANAV ANAND, Linguistics
ROGER W. ANDERSON, Chemistry and Biochemistry
LAWRENCE ANDREWS, Film and Digital Media
DAVID H. ANTHONY III, History

GOPAL BALAKRISHNAN, History of Consciousness
DORIAN BELL, Literature
MARTIN BERGER, History of Art ad Visual Culture
PHILLIP BERMAN, Biomolecular Science & Engineering
GEORGE R. BLUMENTHAL, Astronomy and Astrophysics
ROBERT BOLTJE, Mathematics
BARRY BOWMAN, Molecular, Cell, and Developmental Biology
DAVID BRUNDAGE, Community Studies
VICTOR BURGIN, History of Consciousness, Emeritus
PEDRO CASTILLO, History
CHRISTOPHER CHEN, Literature
LOUIS CHUDE-SOKEI, Literature
JAMES T. CLIFFORD, History of Consciousness, Emeritus
CHRISTOPHER CONNERY, Chinese Literature
CHARLES CONROY, Astronomy and Astrophysics
VILASHINI COOPPAN, Literature
MICHAEL H. COWAN, Literature and American Studies
CYNTHIA CRUZ, Education
JON DAEHNKE, Anthropology
ANGELA Y. DAVIS, History of Consciousness, Emerita
TERESA DE LAURETIS, History of Consciousness, Emerita
DAVID E. DORFAN, Physics, Emeritus
REBECCA DUBOIS, Applied Mathematics, Engineering, Biomolecular Engineering, Computer Science
BARBARA L. EPSTEIN, History of Consciousness
ALYSON FLETCHER, Engineering, Computer Engineering, Electrical Engineering, Technology and Information Management
BENJAMIN FRIEDLANDER, Electrical Engineering
MAYANTHI FERNANDO, Anthropology
PASCALE GARAUD, Applied Mathematics and Statistics
LISE GETOOR, Applied Mathematics, Engineering, Biomolecular Engineering, Computer Science
JAMES B. GILL, Earth and Planetary Sciences
SUSAN GILLMAN, American Literature
GARY GLATZMAIER, Earth and Planetary Sciences
DEBORAH GOULD, Sociology
RICHARD EDWARD GREEN, Engineering
KIRSTEN GRUESZ, Literature
DONNA J. HARAWAY, History of Consciousness
JENNIFER HORNE, Arts
MELISSA JURICA, Molecular, Cell and Developmental Biology
JONATHAN KAHANA, Arts
GRETCHEN KALONJI, Electrical Engineering
SHARON KINOSHITA, Literature and Language Studies
DAVID S. KLIGER, Chemistry and Biochemistry
JOEL KUBBY, Electrical Engineering
ANN M. LANE, American Studies, Emerita
REGINA DAY LANGHOUT, Psychology
KIMBERLY LAU, Literature
JEREMY LEE, Molecular, Cell, & Developmental Biology
DIANE K. LEWIS, Anthropology, Emerita
AMY J. LONETREE, History
TODD LOWE, Engineering
JUSTIN MARION, Economics
DAVID S. MARRIOTT, History of Consciousness
PRADIP K. MASCHARAK, Chemistry and Biochemistry
MICHAEL MATEAS, Computer Science
MARC MATERA, History
DEAN MATHIOWETZ, Politics
ANDREW MOORE, Ocean Sciences
DEREK MURRAY, Arts
SORAYA MURRAY, Film

MARCIA OCHOA, Feminist Studies
SCOTT OLIVER, Chemistry and Biochemistry
ERIC PORTER, History and History of Consciousness
NADER POURMAND, Biomolecular Science & Engineering
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CATHERINE RAMIREZ, Latin American and Latino Studies
RENYA RAMIREZ, Anthropology
ENRICO RAMIREZ-RUIZ, Astronomy and Astrophysics
STEVEN RITZ, Physics
A. CHRISTINA RAVELO, Ocean Sciences
BEN READ, Politics
B. RUBY RICH, Community Studies
|STEVEN RITZ, Physics
ABEL RODRIGUEZ, Applied Math and Statistics
MICHAEL ROTKIN, Community Studies
GURIQBAL SAHOTA, Literature
HOLGER SCHMIDT, Electrical Engineering
DANIEL SELDEN, Literature
MARY W. SILVER, Ocean Sciences
BARRY SINERVO, Ecology and Evolutionary Biology
ALAN SPEAROT, Economics
MICHAEL STONE, Chemistry
VICTORIA STONE, Microbiology and Environmental Toxicology
SUSAN STROME, Molecular, Cell, and Developmental Biology
FRANK J. TALAMANTES, Molecular, Cell, and Developmental Biology, Emeritus
HAI TAO, Computer Engineering
MARILYN WALKER, Engineering
HONGYUN WANG, Applied Mathematics and Statistics
NOAH WARDRIP-FRUIN, Computer Science
HAYDEN WHITE, History of Consciousness, Emeritus
DON WILLIAMS, Culture Arts Diversity
ROB WILSON, Literature
RASMUS WINTHER, Philosophy
MATTHEW WOLF-MEYER, Anthropology
JUDY YUNG, American Studies, Emerita
ALAN ZAHLER, Molecular, Cell, and Developmental Biology
JONATHAN ZEHR, Ocean Sciences
ADRIENNE L. ZIHLMAN, Anthropology

Honorary Associates

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BRUCE N. COOPERSTEIN
DAVID DODSON
ALLEN B. FIELDS
DOLORES HUERTA
ELBA R. SÁNCHEZ

College Administrative Officer

SUSAN WELTE

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HOMAYUN ETEMADI, Academic Adviser and Records Coordinator
HEIDI FLORES, Assistant to Provost
HASHIM JIBRI, Coordinator for Residential Education
SANDY LORD-CRAIG, Assistant Budget Analyst
MARIE MORONES, College Assistant
MARI ORTIZ-MCGUIRE, Associate College Administrative Officer
ELSA SILVA, Housing Coordinator

BALDO ZARAGOZA, Facilities Supervisor
Open— Academic Preceptor
Open—Assistant College Programs Coordinator
Open—College Programs Coordinator

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College Eight

College Eight is dedicated to Environment and Society, and the college has a vigorous intellectual life around this theme. The college examines environmental issues from multiple perspectives, through the social and natural sciences, engineering, public policy, and science and technology studies. College Eight offers students a sense of community and opportunities to augment academic work with a wide range of extracurricular activities. These include events such as Earth Week, sustainability internships, and even a minor in Sustainability Studies.

College Eight students major in nearly every discipline offered at UCSC, while sharing a strong commitment to environmental stewardship. We teach our students and graduates to become environmentally aware green citizens, with the capacity to evaluate sustainability policies and strategies and the skills needed for hands-on engagement in the many projects and activities that will be required to ensure the future of the planet and human civilization.

Academic Emphases

College Eight sponsors a number of educational initiatives aimed at furthering its theme and mission. A three-quarter core course, *Nurturing Environmental Citizenship*, is taught by senior faculty from the departments of Politics, Ecology and Evolutionary Biology, Earth and Planetary Sciences, and Electrical Engineering. The fall-quarter course is mandatory for all incoming freshmen, and its goal is to introduce students to environmental issues, past, present, and future, with a special focus on California. The winter-quarter course addresses the principles of environmental science, while the spring quarter course examines how technological innovation and engineering can address environmental challenges. In addition, practicum internships, a three-quarter course on the tools of sustainability work, and the Sustainability Studies minor all enable students to acquire skills necessary for success in the coming green economy and to take on service-learning work with campus and community-based agencies and organizations. Additional college courses include garden internships, filmmaking for Santa Cruz TV (SCTV) and the student journal *Gaia*, student-led classes in sustainability, and a seminar on environment in film.

College Community and Facilities

College Eight is located on a sunny, terraced hillside on the west side of the UCSC campus, offering a spectacular view of Monterey Bay and the coastline as well as the redwood-covered hills. The college is designed to encourage interaction among resident and commuter students, with outdoor spaces for relaxing and informal opportunities to socialize. These include small residence hall patios, grass quadrangles, and a large plaza—the heart of the college—where pedestrian traffic converges. Adjacent to the college are recreational facilities that include the West Field House, tennis courts, basketball and sand volleyball courts, and playing fields. The Theater Arts and Music Centers, McHenry Library, and Porter and Oakes Colleges are a short walk from the college. Other parts of the university are easily accessible on foot or by frequent shuttle buses.

College Eight's facilities include an academic building that accommodates the college and faculty offices, the Sociology Department, associated research centers, classrooms and a computer lab with printers. Approximately 500 students live in the college's community of two-and three-story residence halls, which provide single, double, and triple rooms as well as suites. The residence halls include designated study lounges, laundry facilities, and lobbies that serve as living rooms—favorite places where residents gather to relax, watch television, and catch up on the news of the day. A number of these are themed residences, and the occupants are invited to small focused dinners with faculty and staff. Another 300 students are housed in College Eight's two-, three-, and four-bedroom apartments.

The college's residential staff includes both coordinators for residential education, who are full-time live-in professionals, and undergraduate resident assistants. The residential staff

plans a variety of educational and recreational events, including community barbecues, outdoor movies, and student-initiated events celebrating the diversity of our community. More intimate gatherings include study breaks, coffee talks, and potlucks. The residential staff is available to ease the transition to college life, making the college a comfortable new home for our residents.

The Student Commons building contains the office of College Eight's college programs coordinator, the office of the Student Environmental Center, and a large meeting room for student use. A study center/art gallery is located across the plaza. The College Eight Café offers a quiet, comfortable space and is a favorite haven and gathering place for students, faculty, staff, and other members of the campus community.

In conjunction with the student government and student organizations, the College Eight Student Programs Office plans social, multicultural, and educational events for the college community. Weekly Café Nights—featuring open mics, music, art shows, and guest speakers—accommodate the diverse spectra of cultural and artistic interests of the students. College Night, a quarterly cultural event, provides an opportunity for students to learn about a variety of cultures through entertainment, education, and delicious cuisine. In addition, the Student Programs Office works closely with the Student Environmental Center to bring programs that educate and build long-lasting networks, which aim to address the environmental issues affecting our world today.

Above all, College Eight seeks to create a community of inclusion, in which each person is encouraged to share and explore beliefs, worldviews, values, and ideas in an atmosphere of mutual support and trust.

For more information, contact the college at (831) 459-2361, e-mail 8housing@ucsc.edu or rrrhodes@ucsc.edu, or visit the web site: eight.ucsc.edu.

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JULIE BETTIE, Sociology
HUNTER BIVENS, Literature
CHELSEA BLACKMORE, Anthropology
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BEN CROW, Sociology
ROBERT R. CURRY, Environmental Studies, Emeritus
SAMIT DASGUPTA, Mathematics
JAMES DAVIS, Computer Science
JENNIFER DERR, History
NATHANIEL DEUTSCH, History

RACHEL DEWEY, Physical and Biological Sciences
DAVID DRAPER, Applied Mathematics and Statistics
WILLIAM DUNBAR, Computer Engineering
MELANIE DUPUIS, Sociology
TORSTEN EHRHARDT, Mathematics
SHELLY ERRINGTON, Anthropology
BRYAN H. FARRELL, Environmental Studies, Emeritus
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VIKTOR GINZBURG, Mathematics
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WALTER L. GOLDFRANK, Sociology, Emeritus
DAVID E. GOODMAN, Environmental Studies, Emeritus
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RICHARD (ED) GREEN, Biomolecular Engineering
GARY B. GRIGGS, Earth and Planetary Sciences; Director, Institute of Marine Sciences
CLAIRE GU, Electrical Engineering
DANIEL GUEVERA, Philosophy
JULIE GUTHMAN, Social Sciences
BRENT HADDAD, Environmental Studies
DONNA HARRAWAY, History of Consciousness, Emerita
GRANT HARTZOG, Molecular, Cell and Developmental Biology
DAVID P. HELMBOLD, Computer Science
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ROBERT IRION, Physical and Biological Sciences
KATE JONES, History
SHELDON KAMIENIECKI, Environmental Studies
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DAVID C. KOO, Astronomy and Astrophysics
TRACY LARRABEE, Computer Engineering
DEBORAH K. LETOURNEAU, Environmental Studies
YAT LI, Chemistry and Biochemistry
ROGER LININGTON, Chemistry and Biochemistry
SURESH K. LODHA, Computer Science
MICHAEL LOIK, Environmental Studies
SCOTT LOKEY, Chemistry and Biochemistry
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ANDREW MATHEWS, Anthropology
CLAIRE MAX, Astronomer
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AMY RALSTON, Molecular, Cell and Developmental Biology
ARTHUR RAMIREZ, Dean of Engineering
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JENNIFER REARDON, Sociology
CRAIG REINARMAN, Sociology
B. RUBY RICH, Film and Digital Media
LISA B. ROFEL, Anthropology
DANILYN RUTHERFORD, Anthropology
GURIQBAL SAHOTA, Literature
CHAD SALTIKOV, Microbiology and Environmental Toxicology
BRUNO SANSO, Applied Math and Statistics
FELICITY SCHAEFFER, Feminist Studies
DANIEL SCHEIE, Theater Arts
MARTINE D. F. SCHLAG, Computer Engineering
BRUCE SCHUMM, Physics
BETH SHAPIRO, Ecology and Evolutionary Biology
B. SIRIAM SHASTRY, Physics
CAROL SHENNAN, Environmental Studies
TRISH STODDART, Education
ANDREW SZASZ, Sociology
BRUCE THOMPSON, History
ANNA L. TSING, Anthropology
SLAWEK TULACZYK, Earth and Planetary Sciences
ZDRAVKA TZANZOVA, Environmental Studies
ANUJAN VARMA, Computer Engineering
JOHN VESECKY, Electrical Engineering
SU-HUA WANG, Psychology
MARTIN WEISSMAN, Mathematics
DAVID WELLMAN, Community Studies, Emeritus
CANDACE WEST, Sociology
STEVE WHITTAKER, Psychology
TERRIE M. WILLIAMS, Ecology and Evolutionary Biology
CHRISTOPHER WILMERS, Environmental Studies
JAMES WILSON, Writing
RASMUS WINTHER, Philosophy
THOMAS WU, Economics
ERIKA S. ZAVALETA, Environmental Studies
JONATHAN ZEHR, Ocean Sciences
YI ZHANG, Chemistry and Biochemistry
EVE ZYZIK, Languages

College Administrative Officer

SUSAN WELTE

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College Nine

"At College Nine, we introduce students to our increasingly interconnected world. Students can learn about the impact of economic globalization. We also expect them to come to appreciate the diversity of cultural traditions."

—Campbell Leaper, College Nine Founding Provost

Academic Emphases

College Nine's theme of International and Global Perspectives emphasizes the impact of our increasingly interconnected world. We consider how people around the world affect one another through global economies, politics, and culture. Some specific issues that our academic and co-curricular programs consider are economic and cultural globalization, immigration, ethnic conflicts, genocide, and human rights. Our programs seek to respect both diversity and unity in understanding individuals and societies. Students interested in these issues either as their major focus or as part of their general education are invited to join the College Nine community.

Writing Seminar

In the first-quarter frosh course, Introduction to University Discourse: International and Global Issues, students examine current issues pertinent to the college's intellectual theme. Topics address issues such as globalization, inequities in wealth and poverty across the world, human rights, and regional conflicts.

The seminar emphasizes the development of students' writing skills. Being able to write well is a valuable asset for success in college and in most careers. Students write several reflective and analytical papers during the quarter. Each paper undergoes at least one revision after the student receives constructive feedback from the instructor. Thus, the instructors work closely with each student throughout the quarter.

All students who enter as frosh are required to pass the college writing seminar with a grade of C or better. Those who are admitted as transfer students are exempt from the core course requirement but may take the core course at their option pending available space; lower-division transfer students who, prior to enrolling, have not completed at least one UC-transferable college English composition course with a minimum grade of C (2.0) or better are permitted to take the core course to satisfy the C1 requirement.

Special Academic and Co-curricular Programs

Optional programs are available to involve College Nine students in academic and co-curricular activities beyond the first-quarter course. They are designed to promote students' academic achievement and success by connecting them with faculty mentors and helping them pursue leadership experiences in particular contexts.

Global Action

In this workshop facilitated by peer instructors, students will learn about current

international and global issues through interactive exercises, small group discussions, and faculty presentations. Students will develop an "action plan" to raise awareness about one or more of these concerns and take practical steps to create positive change in the world.

Service Learning: Esprit de Corps (110 and 110B), Praxis, and Alternative Spring Break

Students can extend their learning beyond the classroom by gaining practical experience volunteering for a school or a nonprofit organization in the Santa Cruz community. Examples include assisting in a classroom or at a homeless shelter. College Nine has its own service-learning class, Esprit de Corps (110 and 110B), taught by our service-learning coordinator. Students meet weekly to reflect on their experiences, discuss readings, and listen to speakers from the community. To complete the service experience, students develop a final paper or project related to civic engagement. The class is available all three quarters and is facilitated by students during the winter and spring. Praxis, College Nine's community-service organization, provides another way to serve the Santa Cruz community. Praxis students meet weekly and volunteer on the weekends at a variety of locations. Over the spring break students can participate in an Alternative Spring Break Project and earn credit at the same time. Students join forces with Live Oak community activists by immersing themselves in the issues and solutions of this multifaceted region of Santa Cruz County.

Students as Teachers and Mentors

College Nine students have special opportunities to become course assistants, tutors, and student mentors for course credit. Students gain independent experience as teachers leading their own discussion sections of a College Nine course. They receive close supervision that emphasizes a collaborative approach to developing and enhancing teaching, communication, and leadership skills. The College Nine academic advisers can also direct students to other opportunities for student teaching and peer-mentoring programs on campus. These are excellent opportunities to work closely with a faculty member and to develop one's own skills as a teacher and a leader.

Global Information Internship Program

The Global Information Internship Program (GIIP) places highly motivated students in internships with nongovernmental organizations and community groups. Students in GIIP help these organizations and groups in the use of Internet-based information and communications technologies. Interns acquire leadership and organizational skills through the "learning-by-doing" method. For more information, visit the web site at giip.org/.

Practical Activism: Tools for Local and Global Change

The annual Practical Activism Conference is a daylong, student-led event featuring keynote speakers, ten workshops, various on- and off-campus organizations, performances, and a variety of hands-on activism activities. Students gain valuable leadership and organizing skills through developing and planning this exceptional program, which involves collaboration among faculty, staff, and the local community. Visit activism.ucsc.edu for more information.

Education Abroad

The UC Education Abroad Program places students at a university in another country for one or more quarters. Studying abroad can be a valuable way to expand ones understanding of the world. Given the international focus at College Nine, students are encouraged (but not required) to develop a second language or to study abroad.

Research Opportunities

The faculty at UC Santa Cruz are highly ranked for the quality of their research. College Nine students are encouraged to take advantage of the many excellent opportunities available to work closely with faculty as research apprentices. Students will find many internship, independent study, or senior thesis programs in the departments of most majors. The College Nine academic advisers will help link students with these programs.

College Nine Pathways to Distinction

Another feature of College Nine is that qualified students may graduate with College Nine

Distinction. This recognition is intended to serve as an incentive for students to pursue activities that are especially apt to help them succeed in college and beyond. Two pathways are possible:

- Research and scholarship. In this pathway, students pursue research with faculty by completing three quarters (15 credits) of work on a senior thesis or a research internship. Students may be recognized with College Nine Distinction if they do a thesis or a research internship in their major on a topic related to international or global issues.
- Language and culture. Students who enroll in at least three quarters (15 credits) in either Education Abroad or a foreign language (or a combination) may qualify for College Nine Distinction.

College Community

Founded in Fall 2000, College Nine is one of the newest colleges at UCSC. Consistent with UCSC's founding vision, College Nine creates an integrated living and learning environment through engaging academic and extracurricular programs focusing on the theme of International and Global Perspectives. Students and staff collaborate to develop an array of programs exploring the many aspects of the college's theme. Some of the programs include faculty presentations, guest speakers, debates, films, arts events, and interactive workshops. These programs bring together members of our community to learn, debate, and challenge ourselves about important issues facing us today in an atmosphere of mutual respect and engagement.

College Nights

Several times a quarter, the college community comes together to plan College Night, which is a large-scale community celebration held in the dining commons and open to all College Nine students whether or not they live on campus. These events are planned by students and focus on some element of international and global issues. College Nights include food, entertainment, and educational materials related to the theme. Past College Nights have featured international dance and music, Earth Day, and other topics relevant to the college theme.

Student Government

The College Nine Student Senate serves as the student government for College Nine and represents its students to the college and campus administrations and to the Student Union Assembly (SUA), the campuswide student governance board. The Senate appoints students to campus and college committees, consults with college administration on policy development, and provides monetary support to student organizations.

International Living Center

The International Living Center (ILC) at College Nine offers a unique living environment fostering understanding, cooperation, and friendship among upper-division students from different nations, cultures, and backgrounds. Half of the residents are students from the United States, and the other half are students from various countries around the world. Students reside in the Colleges Nine and Ten Apartments. Based out of the International Living Center, the International Affairs Group (IAG) offers all Colleges Nine and Ten community members the opportunity to engage in lively discussions about important current international issues with one another through guest speakers, film, literature, media and personal experience.

iFloor

The iFloor is a residence hall floor made up of a mix of international first-year students and U.S. first-year students who apply to live in this intentional intercultural community housed within the College Nine. This unique community offers residents opportunities to make meaningful, lifelong friendships and connections that extend beyond borders.

Think Global; Act Local

Think Global; Act Local is College Nine's living-learning community for students who wish to practice the components of service learning. Students living on this floor will have the opportunity to gain knowledge and understanding of important social justice issues

occurring in Santa Cruz and in the world at large. Students participate in local service projects several times per quarter and take the time to reflect individually and as a group upon their actions.

Co-curricular Programs and Opportunities

Getting involved in co-curricular activities is a predictor of college success. Not only do college activities help students make friends, they foster leadership and group cooperation skills. There are many opportunities at College Nine for student involvement. These include the following groups as well as many other programs, activities, and clubs.

Global Leadership Development (GLAD)

GLAD meets weekly throughout the fall quarter and provides a wide range of exercises, guest speakers, and programs designed to foster and develop participants' efficacy as world citizens and leaders of College Nine.

CREATE

CREATE (Cultural Resources to Educate and to Empower) offers a community at College Nine for students of color to find support and empowerment through mentorship and friendship.

Praxis (Student Volunteer Community)

Praxis is an organization geared toward community building and social justice. By participating in Praxis, students gain exposure to a variety of Santa Cruz community agencies and explore what it means to be agents of social change.

Intercultural Community Weekend

This two-day retreat provides international and U.S. students from diverse backgrounds the opportunity to explore various components of intercultural communication. Through a series of structured exercises and small-group discussions, students share perspectives on issues such as multiculturalism, values orientation, and cross-cultural communication. The goal of the workshop is to build community and friendship between international and U.S. students as well as to increase students' understanding of the complexity of communicating across cultures.

Physical Surroundings

College Nine is situated in a redwood grove next to the Social Sciences 1 and 2 Buildings near the heart of campus. One of the campus's Instructional Computing Labs is conveniently located in the Social Sciences 1 Building. A nature preserve serves as College Nine's "backyard." College Nine students have immediate access to hiking, running, and mountain bike trails in the adjacent forest.

Residence halls offer approximately 500 single, double, and triple bedrooms. These fully furnished residence halls include student lounges, recreational spaces, and Internet connections. In addition, there is a state-of-the-art dining hall with an adjoining multipurpose room and recreation lounge for both College Nine and College Ten.

College Nine and College Ten also house approximately 300 upper-division students in apartments, with 190 students in single bedrooms and the balance in double and triple rooms. All apartments have full kitchens, living rooms, bathrooms, and Internet connections. Ground-floor apartments have decks, and most upper apartments have private balconies.

For more information about academic or general college programs, call (831) 459-5034, e-mail jhartman@ucsc.edu or visit the College Nine web site: collegenine.ucsc.edu.

College Nine Faculty and Staff

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NANCY CHEN,* Anthropology
WEIXIN CHENG,* Environmental Studies
MARK CIOC,* History
CATHERINE COOPER, Psychology
BEN CROW,* Sociology
KENT EATON, Politics
BERNARD ELBAUM, Economics
MAYANTHI FERNANDO, Anthropology
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K. C. FUNG,* Economics
MARGARET A. GIBSON,* Education and Anthropology
STEPHEN R. GLIESSMAN,* Environmental Studies
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KENNETH KLETZER,* Economics
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FLORA LU, Latin American and Latino Studies
PAUL M. LUBECK,* Sociology
STEVEN MCKAY, Sociology
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HELEN SHAPIRO, Sociology
JEROME SHAW, Education
NIRVIKAR SINGH,* Economics
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CARTER WILSON,* Community Studies, Emeritus
MATTHEW WOLF-MEYER, Anthropology

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DEANA SLATER

Senior Academic Preceptor

ROBERT TAYLOR

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HAYLEY MEARS, Academic Adviser
EMILIO NAVARRO, Facility Asset Coordinator
KAREN O'HANLON, College Assistant
ERIC PETERSON, Senior Building Maintenance Supervisor
JULIE PHILLIPS, Coordinator for Residential Education
ERIN RAMSDEN, Co-curricular Programs Coordinator
BILL REID, Groundskeeper
CHRIS SALERNO, Reservations and Events Coordinator
REGGIE SHAW, JR, Coordinator for Residential Education
CURTIS SWAIN, Community Safety Officer
SARAH WOODSIDE BURY, Associate College Administrative Officer

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College Ten

"Our goal at College Ten is to foster students' concerns for social justice and their respect for diversity. This appreciation develops through both understanding and practice. Students can study the roots of social problems such as prejudice, ethnic hatreds, poverty, and political oppression. Another form of learning can occur through involvement in community organizations and other agencies. In these ways, we hope our students can contribute to the makings of a better world."

—Campbell Leaper, College Ten Founding Provost

Academic Emphases

College Ten's theme of Social Justice and Community addresses a range of social problems and their impact on all members of society. In particular, the academic and co-curricular programs consider the injustices that many people confront in their lives. Possible community and governmental policies for addressing social, political, and economic inequalities are also examined. In addition, the college provides students with opportunities to make their own positive contributions to social change through community involvement or scholarly research.

The college curriculum explores the causes and consequences of social injustice in several ways. Students examine the roots of prejudice, discrimination, and violence directed toward groups based on their ethnicity, skin color, gender, sexual orientation, religious beliefs, or political views. They also consider the causes and consequences of poverty both within the United States and around the world.

Writing Seminar

In the first-quarter frosh course, Introduction to University Discourse: Social Justice and Community, students examine current issues pertinent to the college's intellectual theme. Students explore issues such as poverty, discrimination, and economic injustice and address ways that communities, governments, and businesses can address inequities in society.

The seminar emphasizes the development of students' writing, reading, and speaking skills. Being able to write well is a valuable asset for success in college and later in most careers. Students write several reflective and analytical papers during the quarter. Each paper undergoes at least one revision after the student receives constructive feedback from the instructor. Thus, the instructors work closely with each student throughout the quarter.

All students who enter as frosh are required to pass the college writing seminar with a grade of C or better. Those who are admitted as transfer students are exempt from the core course requirement but may take the core course at their option pending available space; lower-division transfer students who, prior to enrolling, have not completed at least

one UC-transferable college English composition course with a minimum grade of C (2.0) or better are permitted to take the core course to satisfy the C1 requirement.

Special Academic and Co-curricular Programs

Optional programs are available to involve College Ten students in academic and co-curricular activities beyond the first-quarter core course. They are designed to promote students' academic achievement and success by connecting them with faculty mentors and helping them pursue leadership experiences in particular contexts.

Social Justice Issues Workshop

College Ten students have the option of enrolling in the Social Justice Issues Workshop in winter quarter. This two-credit course meets once per week and can be taken in addition to a regular 15-credit academic load. The workshop offers a small, dynamic learning community in which members explore important issues of personal and cultural identity; social, political, and environmental concerns; and community-mindedness. The class emphasizes small-group experiential learning through structured exercises and group activities, and also includes discussions, film presentations, and guest speakers.

Service Learning: Esprit de Corps (110 and 110B), Praxis, and Alternative Spring Break

Students can extend their learning beyond the classroom by gaining practical experience volunteering for a school or nonprofit in the Santa Cruz community for credit. Examples include assisting in a classroom or at a homeless shelter. College Ten has its own service-learning class, Esprit de Corps (110 and 110B), taught by our service-learning coordinator. Students meet weekly to reflect on their experiences, discuss readings, and listen to speakers from the community. To complete the service experience, students develop a final project related to civic engagement. The class is available all three quarters and is facilitated by students during the winter and spring. Praxis, College Ten's community-service organization, provides another way to serve the Santa Cruz community. Praxis students meet weekly and volunteer on the weekends at a variety of locations. Over the spring break students can participate in an Alternative Spring Break Project and earn credit at the same time. Students join forces with Live Oak community activists by immersing themselves in the issues and solutions of this multifaceted region of Santa Cruz County.

Practical Activism: Tools for Local and Global Change

The annual Practical Activism Conference is a daylong, student-led event featuring keynote speakers, 10 workshops, various on-and off-campus organizations, performances, and a variety of hands-on activism activities. Students gain valuable leadership and organizing skills through developing and planning this exceptional program, which involves collaboration among faculty, staff, and the local community. Visit activism.ucsc.edu for more information.

Students as Teachers and Mentors

College Ten students have special opportunities to become course assistants, tutors, and student mentors for course credit. Students gain independent experience as teachers leading their own discussion sections of a College Ten course. They receive close supervision that emphasizes a collaborative approach to developing and enhancing teaching, communication, and leadership skills. The College Ten academic advisers can also direct students to other opportunities for student teaching and peer-mentoring programs on campus. These are excellent opportunities to work closely with a faculty member and to develop one's own skills as a teacher and a leader.

Research Opportunities

The faculty at UC Santa Cruz are highly ranked for the quality of their research. College Ten students are encouraged to take advantage of the many excellent opportunities available to work closely with faculty as research apprentices. Students will find many internship, independent study, or senior thesis programs in the departments of most majors. The College Ten academic advisers will help link students with these programs.

College Ten Pathways to Distinction

We understand that learning styles and educational commitments are unique and personal.

Therefore, students are recognized with College Ten Distinction upon successful completion of three quarters (15 credits) of experiential course work in Service and Leadership and/or Research and Scholarship focused on social justice and diversity issues. Applicable courses in service-learning and research opportunities with faculty can fulfill the criteria for distinction. This recognition is intended to serve as an incentive for students to pursue activities that are apt to help them succeed in college and beyond.

College Community

Founded in Fall 2002, College Ten is the newest college at UCSC. Consistent with UCSC's founding vision, College Ten creates an integrated living-and-learning environment through engaging academic and extracurricular programs focusing on the theme of Social Justice and Community. Students and staff collaborate to develop an array of programs exploring the many aspects of social justice. Some of the programs include faculty presentations, guest speakers, debates, films, arts events, and interactive workshops. These programs bring together members of our community to learn, debate, and challenge ourselves about important issues facing us today in an atmosphere of mutual respect and engagement.

College Nights

Several times a quarter, students and staff work together to plan College Nights, which are large-scale community celebrations held in the dining commons and open to all College Ten students whether or not they live on campus. College Nights include food, entertainment, and educational materials related to a theme. Past College Night themes have included International Dance and Music, Earth Day, and other topics relevant to the college theme.

Student Government

The College Ten Student Senate serves as the student government for College Ten and represents its students to the college and campus administrations and to the Student Union Assembly (SUA), the campuswide governance board. The Senate appoints students to campus and college committees, consults with college administration on policy development, and provides monetary support to student organizations.

Rumi's Field

Named after a renowned peace-seeking Sufi poet, Rumi's Field offers a space for student who wish to learn, live and interact, using the skills of Nonviolent Communication. Taught and practiced around the globe, Nonviolent Communication (NVC) strengthens one's ability to inspire compassion from others and respond compassionately even under difficult circumstances. This mixed community of College Ten first-year and continuing students will offer the opportunity to engage in dialog and resolve conflict using NVC consciousness as a tool for personal and societal transformation.

Co-curricular Programs and Opportunities

Getting involved in co-curricular activities is a predictor of college success. Not only do college activities help students make friends, they foster leadership and group cooperation skills. There are many opportunities at College Ten for student involvement. These include the following groups as well as many other programs, activities, and clubs.

CREATE

The purpose of CREATE (Cultural Resources to Educate and to Empower) is to facilitate the ongoing discussion of diversity issues at College Ten and in our living communities, learn about and promote multiculturalism, plan activities, and help students and staff have a resource for inclusiveness and training.

ENGAGE

ENGAGE (Explore New Growth and Gain Experience) offers students the opportunity to explore and develop their own beliefs, values, and feelings about current issues and social concerns. Students gain leadership skills through collaborating on a community action project, and develop relationships and experience to become leaders in the College Ten community. ENGAGE meets weekly throughout fall quarter.

Multicultural Community Weekend

This two-day retreat provides students from diverse backgrounds the opportunity to explore aspects of social justice, diversity, and community through a series of exercises and discussions (both structured and informal). Participants explore issues impacting our individual identities (e.g., race, class, gender, sexual orientation, ability, religion), increase their understanding of the complexities of communicating across diverse experiences and backgrounds, build communication skills, and share in celebrating and deconstructing the diversity of our community. The Multicultural Community Weekend is optional; students apply for this opportunity in the fall.

Terry Freitas Café

Located at College Ten, Terry Freitas Café is a favorite gathering place. It is open nightly for social justice performances, music, and social interaction.

Physical Surroundings

College Ten is situated in a redwood grove next to the Social Sciences 1 and 2 Buildings near the heart of campus. One of the campus's Instructional Computing Labs is conveniently located in Social Sciences 1. A nature preserve serves as College Ten's "backyard." College Ten students have immediate access to hiking, running, and mountain bike trails in the adjacent forest. Residence halls offer approximately 500 single, double, and triple bedrooms. These fully furnished residence halls include student lounges, recreational spaces, and Internet connections. In addition, there is a state-of-the-art dining hall with an adjoining game room and student lounge for both Colleges Nine and Ten. Colleges Ten and Nine also house approximately 300 upper-division students in apartments, with 190 students in single bedrooms and the balance in double and triple rooms. All apartments have full kitchens, living rooms, bathrooms, and Internet connections. Ground-floor apartments have decks, and most upper apartments have private balconies.

For more information about academic or general college programs, call (831) 459-5034, e-mail jhartman@ucsc.edu or visit the College Ten web site: collegeten.ucsc.edu.

College Ten Faculty and Staff

Provost

FLORA LU, Division of Social Sciences; Environmental Studies

Fellows
*Charter Fellows**

NAMEERA AKHTAR,* Psychology
BETTINA APTHEKER, Feminist Studies and History
MARGARITA AZMITIA, Psychology
HEATHER BULLOCK,* Psychology
GEORGE C. BUNCH, Education
MAUREEN CALLANAN, Psychology
MARTIN M. CHEMERS,* Psychology, Emeritus
JOHN BROWN CHILDS,* Sociology, Emeritus
FAYE CROSBY,* Psychology
ROBERT FAIRLIE,* Economics
ALISON GALLOWAY, Anthropology
RONALD GLASS, Education
DEBORAH GOULD, Sociology
MIRIAM GREENBERG, Sociology
PHILLIP HAMMACK, Psychology
SHELDON KAMIENIECKI, Environmental Studies
LORI KLETZER, Economics
CAMPBELL LEAPER,* Founding College Provost, Psychology
EDUARDO MOSQUEDA, Education
RODNEY OGAWA, Education
DANIEL PRESS,* Environmental Studies
S. RAVI RAJAN,* Environmental Studies

JENNIFER REARDON, Sociology
CRAIG REINARMAN,* Sociology
ROGER SCHOENMAN, Politics
TRAVIS SEYMOUR, Psychology
DANA TAKAGI,* Sociology
MATTHEW WOLF-MEYER, Anthropology
EILEEN ZURBRIGGEN,* Psychology

College Administrative Officer

DEANA SLATER

Senior Academic Preceptor

ROBERT TAYLOR

Staff

ABBEY ASHER, Service Learning Coordinator
SHELBBY BAMBRICK, Co-curricular Programs Assistant
TIM BARBOUR, Assistant College Programs Coordinator
WENDY BAXTER, Director of Academic and Co-curricular Programs
AMANDA COOK, Coordinator for Residential Education
KYOKO FREEMAN, College Programs Coordinator
MONICA GANDHI, Interim Housing/ Student Life Assistant
JANE HARTMAN, Assistant to the College Administrative Officer
ROBIN KIRKSEY, Financial Analyst
JESSICA LAWRENCE, Assistant to the Provost
ALEXANDER LEE, Academic Adviser
JENNIFER LEE, Housing Coordinator
MAURÍCIO MAGDALENO, Senior Building Maintenance Worker
AMY MANDELL, College Counselor
HAYLEY MEARS, Academic Adviser
KAREN O'HANLON, College Assistant
ERIC PETERSON, Senior Building Maintenance Supervisor
JOSÉ REYES-OLIVAS, Co-curricular Programs Coordinator
CHRIS SALERNO, Reservations and Events Coordinator
MICHELLE SASSE, Groundskeeper
REGGIE SHAW JR., Coordinator for Residential Education
SARAH WOODSIDE BURY, Associate College Administrative Officer

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Courses

The academic programs offered at UC Santa Cruz are described in detail in this section. Curricula, courses, and degrees listed in this catalog are subject to change through normal academic channels. New proposals and changes are initiated by the relevant departments, divisions, or colleges and approved by the appropriate academic dean and by the Committee on Educational Policy or the Graduate Council. The designations F (fall), W (winter), S (spring), or Summer that appear at the end of each course indicate the intentions of the academic units; however, on occasion, the actual scheduling of classes may change.

For changes and additions to courses listed in this catalog, consult the Schedule of Classes and the Class Search published each quarter and available on the web. The Office of the Registrar also provides detailed information on its web site at registrar.ucsc.edu.

Course Credit

Unless otherwise specified in the course description, each course earns 5 quarter credits. Therefore, regardless of course format or scheduling, each course makes approximately equal demands on enrolled students.

All physical education courses are noncredit. Other noncredit courses include certain graduate seminars. Laboratory courses, music courses involving individual lessons or ensemble participation, as well as some special-interest seminars and individual studies courses carry less than 5 credits and are designated accordingly.

The normal UCSC undergraduate program of study is three 5-credit courses per quarter or equivalent. In 12 quarters at UCSC, most students complete 180 credits. With a college's approval, a student may be allowed to vary the course load. See also Part-Time Program.

Course Numbering

Undergraduate courses are classified as lower division or upper division. Lower-division courses (numbered 1-99) are designed for first-year and sophomore students but may be taken by more advanced students. Upper-division courses (numbered 100-199) are designed for junior and senior students but are open to first-year and sophomore students

who have sufficient background and the consent of the instructor in charge.

Graduate courses (numbered 200–299) are either restricted to graduate students or open only to students who can show the instructor that they have completed sufficient upper-division course work basic to the subject matter of the course.

Footnotes

Courses marked with an asterisk (*) will not be offered in the 2014–15 academic year. Courses marked with a dagger (†) will be offered, with the quarter as yet to be determined.

General Education Codes

The general education codes that appear in some course descriptions are explained in the section on general education requirements.

Course Format

Most courses at UCSC are taught as lectures or, when the class is small enough for considerable discussion, as seminars. A large number of courses require enrollment in a secondary discussion section scheduled at a different time from the primary course. Sometimes there is laboratory or fieldwork associated with a course.

Occasionally, a student may wish to do an individual project as part of the work for a course. UCSC instructors are usually quite willing to consider and evaluate such work, time permitting.

Prerequisite Policy

When applicable, prerequisites are listed in this catalog within the course description for each course. There are many courses that meet general education requirements and do not require a prerequisite.

Prerequisites come in many forms—for example, specific courses, placement examinations, or "satisfaction of the Entry Level Writing and Composition requirement" for writing courses. Some course descriptions also specify that students must be declared majors or seniors in order to enroll. Other course descriptions recommend the appropriate background for a course—for example, "ability to use algebra and solve problems."

Questions concerning prerequisites should be directed to the instructor of the course or the respective department office. Students who have not met all prerequisites may be excluded from a course. Alternatively, the instructor or a department adviser may waive the prerequisite based on demonstrated competence or equivalent academic experience.

Class Size

A student's class level plays a large part in how many small classes are available. Introductory classes tend to be large, although they are usually accompanied by required small sections or laboratories. Many small classes have prerequisite courses that enroll large numbers of students. Also, certain large classes fulfill campuswide general education requirements. First-year students experience at least one small seminar in conjunction with the college core course, and they are likely to experience an increasing proportion of small classes as they progress to senior status.

Individual Study

Especially in the upper division, students are encouraged to devise special courses to pursue independently, under the guidance of faculty members. A study plan should be discussed with a faculty member in the general subject area of interest. This faculty member will ultimately be responsible for evaluating the work done. The study plan must also be approved by the course sponsoring agency; it should be noted that not all proposed plans are accepted.

Field Study

Independent, off-campus field study is available through many departments. It is handled in

much the same way as individual study. In addition, there are several established field programs that offer a variety of full- or part-time, off-campus, field placements as part of the regular program of academic study. For more information on these programs, see Field and Exchange Programs in the Undergraduate Academics section.

Apprentice Teaching

An upper-division or graduate student may apply for approval to teach an undergraduate seminar of his or her own design. The seminar is supervised by a faculty member and carries normal academic credit for the students and the apprentice teacher. Interested students should initiate a proposal with a faculty member in the appropriate subject area.

Credit by Petition

Regularly enrolled students may obtain full academic credit for a course by challenging the course. Challenging the course entails passing an examination or completing an appropriate body of work supervised by a regular instructor for the course. The petition for such credit must be approved by the instructor of the course, the chair of the department offering the course (or provost, if it is a course offered by a college), and the provost of the student's college. Some courses are not considered appropriate for credit by petition.

For foreign language students, credit by petition may not be used by students whose language ability greatly exceeds the course level proposed for challenge. Petitions for credit for levels 4 and 5 cannot be filed in the same quarter. Contact the Language Program, 239 Cowell, 459-2054, for more information.

Auditing of Classes

Instructors may permit nonenrolled students to attend their classes when space is available after all students who wish to enroll officially have done so. An instructor is not obligated to devote time to the work of students who are not officially enrolled in the class.

Links to Program Statements by Department

Anthropology
Art
Art History, see History of Art and Visual Culture
Arts Division
Astronomy and Astrophysics
Biochemistry and Molecular Biology
Biological Sciences
- Biology (Bachelor of Science)
- Ecology and Evolutionary Biology
- Molecular, Cell, and Developmental Biology

Chemistry and Biochemistry
Chinese
Classical Studies
Cognitive Science
College Eight
College Nine
College Ten
Community Studies
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Critical Race and Ethnic Studies
Crown College
Digital Art and New Media
Earth and Planetary Sciences
East Asian Studies
Economics
History of Consciousness
Humanities Division
Italian
Italian Studies
Japanese
Jewish Studies
Kresge College
Languages and Applied Linguistics
Language Studies
Latin
Latin American and Latino Studies
Legal Studies
Linguistics
Literature
Marine Sciences
Mathematics
Medieval Studies
Merrill College
Microbiology and Environmental Toxicology (formerly Environmental Toxicology)
Music
Natural Sciences Division, see Physical and Biological Sciences Division
Oakes College
Ocean Sciences
Philosophy
Physical and Biological Sciences Division
Physical Education

Education
Engineering
- Applied Mathematics and Statistics
- Bioengineering
- Bioinformatics
- Computer Engineering
- Computer Science
- Electrical Engineering
- Technology and Information Management

Environmental Studies
Feminist Studies
Film and Digital Media
French
German
German Studies
Greek
Hebrew
History
History of Art and Visual Culture
Physics
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Psychology
Queer and Sexuality Studies
Religious Studies
Russian
Science Communication
Social Documentation
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Spanish and Spanish for Heritage Speakers
Spanish Studies
Stevenson College
Sustainability Studies
Theater Arts
UCDC
Western Civilization
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Yiddish

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Disciplinary Communication General Education Requirements by Department

PDF version of Disciplinary Communication Chart

List of Majors	Course Requirements for Disciplinary Communication General Education Requirement
Anthropology B.A	Anthropology 100, 150, 152, 170, or 270 and one of the following: Anthropology 194A, 194B, 194C, 194D, 194E, 194F, 194G, 194H, 194I, 194K, 194L, 194M, 194N, 194O, 194P, 194Q, 194R, 194S, 194T, 194U, 194V, 194W, 194X, 194Y, 194Z, 196A–B, 196C, 196D, 196E, 196F, 196G, 196H, 196I, 196J, 196K, 196L, 196M, or a senior thesis.
Applied Physics B.S.	Physics 182 and the senior thesis
Art B.A.	One of the following: Art 149A, 149B, 190A
Bioengineering B.S.	Computer Engineering 185
Biochemistry and Molecular Biology B.S.	One of the following: Biochemistry and Molecular Biology 110L, Biology: Molecular, Cell, and Developmental Biology 100L, 105L,105M, 109L, 110L, 115L, 119L, 121L, 186L, 187L, or BME 122
Bioinformatics B.S.	Computer Engineering 185
Biological Sciences B.A.	Biology: Ecology and Evolutionary Biology 107; and Biology: Ecology and Evolutionary Biology 109
Biological Sciences B.A. with Bioeducation Concentration	Biology: Ecology and Evolutionary Biology 107; and course 109
Biological Sciences B.S.	Biology: Ecology and Evolutionary Biology 107 or 108, or 159A; and Biology: Ecology and Evolutionary Biology 109
Business Management Economics B.A.	Economics 104 or 197
Chemistry B.A.	Chemistry and Biochemistry 151L and one of the following: Chemistry and Biochemistry 146A, 146B, or 146C
Chemistry B.S.	Chemistry and Biochemistry 151L and one of the following: Chemistry and Biochemistry 146A, 146B, or 146C

Chemistry B.S. with Biochemistry Concentration	Chemistry and Biochemistry 151L and Biochemistry and Molecular Biology 110
Chemistry B.S. with Environmental Chemistry Concentration	Chemistry and Biochemistry 151L and one of the following: Chemistry and Biochemistry 146A, 146B, or 146C
Classical Studies B.A.	Two courses from the following: Greek Literature 102, 103, 104, and 105; or Latin Literature 102, 103, and 104
Cognitive Science B.S.	Psychology 100 and one of the following: Psychology 119E, 119F, 119P, 139A, 139B, 139C, 139D, 139F, 139G, 139H, 139J, or 139K
Community Studies B.A.	Community Studies 102 and 194
Computer Engineering B.S.	Computer Engineering 185
Computer Science B.A.	Computer Science 115; 132 and 132W; 180 and 180W; 185; 195; or Computer Engineering 185
Computer Science B.S.	Computer Science 115; 132 and 132W; 180 and 180W; 185; 195; or Computer Engineering 185
Computer Science: Computer Game Design B.S.	Computer Science 170, 171, and 172
Critical Race and Ethnic Studies B.A.	Critical Race and Ethnic Studies 190
EarthSciences/ Anthropology Combined Major B.A.	Two of the following: Earth Sciences 100, 101, 102, 104, 109, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195; Anthropology 100, 170, 194B, 194L, or 194Y
Earth Sciences B.S.	Two of the following: Earth Sciences 100, 101, 102, 104, 109, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195
Earth Sciences B.S. with Education Concentration	Education 185L and either Earth Sciences 109 or Earth Sciences 120 and 150
Ecology and Evolution B.S.	Biology: Ecology and Evolutionary Biology 107; and Biology: Ecology and Evolutionary Biology 109
Economics B.A.	Economics 104 or 197
Economics/Mathematics Combined Major B.A.	Economics 104 or 197 or Mathematics 100 and 194 or 195
Electrical Engineering B.S.	Computer Engineering 185
Environmental Studies B.A.	Environmental Studies 100 and 100L and one of the following: Environmental Studies 183B, 190, 195A, 195B, or 196
Environmental Studies/Biology Combined Major B.A.	Environmental Studies 100 and 100L and one of the following: Environmental Studies 183B, 190, 195A, 195B, 196, or Biology: Ecology and Evolutionary Biology 109
Environmental Studies/Earth Sciences Combined Major B.A.	Environmental Studies 100 and 100L and either Environmental Studies 183B, or 190, or 195A, or 195B, or 196, or Earth Sciences 195, or Earth Sciences 188A–B
Environmental	Environmental Studies 100 and 100L and one of the

Studies/Economics Combined Major B.A.	following: Environmental Studies 183B, 190, 195A, 195B, or 196
Feminist Studies B.A.	One of the following: Feminist Studies 194A, 194D, 194E, 194F, 194G, 194H, 194I, 194K, 194M, 194N, 194O, 194P, 194Q, 194T, or 195
Film and Digital Media B.A.	Film and Digital Media 120
German Studies B.A.	History 196G or 196P or 196X or LTMO 190Z
Global Economics B.A.	Economics 104 or 197
History B.A.	One of the following:History 190A, 190B, 190C, 190D, 190E, 190F, 190G, 190H, 190I, 190J, 190K, 190L, 190M, 190N, 190O, 190P, 190Q, 190R, 190S, 190T, 190U, 190V, 190W, 190X, 190Y, 190Z, 194A, 194B, 194D, 194E, 194F, 194O, 194G, 194H, 194M, 194N, 194Q, 194R, 194S, 194U, 194X, 194Y, 195A-B, 196A, 196B, 196C, 196D, 196E, 196F, 196G, 196H, 196I, 196J, 196K, 196M, 196N, 196O, 196P, 196Q, 196R, 196S, 196U, 196V, 196W, 196X, or 196Y, 196Z
History of Art and Visual Culture B.A.	History of Art and Visual Culture 100A
Human Biology B.S.	Biology: Molecular, Cell, and Developmental 130L and BIOL 189 and 189W
Information Systems Management B.S.	Information Systems Management 158
Italian Studies B.A.	History 196C or 196Y; or Italian Literature 191 and one of the following: History 164A, 164B, 183A, 183B; History of Art and Visual Culture 135F, 137B, 137C, 137D, 137E, 153, 154, 190V; Italian Literature 102, 130B, 130C, 130D, 150B, 150C, 160, 164, 165, 170A, 180; Modern Literary Studies 144H, 144I, 149A, 170, Pre- and Early Modern Literature 131, 150, 162, 163, 183, or 190C
Jewish Studies B.A.	One of the following: History 196G, 196M, 196N, 196P, or 196R, or JWST 195A-B, or LTPR 190Y, or LTMO 190Y, or JWST 190A and HISC 190A
Language Studies B.A.	Linguistics 101 and either 111 or 112
Latin American and Latino Studies/Global Economics Combined Major B.A.	Latin American and Latino Studies 100A or 100W, and 100B
Latin American and Latino Studies/Global Economics Combined Major B.A.	Latin American and Latino Studies 100A or 100W, and 100B
Latin American and Latino Studies/Literature Combined Major B.A.	Latin American and Latino Studies 100A or 100W, and 100B
Latin American and Latino Studies/Politics Combined Major B.A.	Latin American and Latino Studies 100A or 100W, and 100B
Latin American and Latino Studies/Sociology	Latin American and Latino Studies 100A or 100W, and 100B

Combined Major B.A.	
Legal Studies B.A.	Legal Studies 196
Linguistics B.A.	Linguistics 101 and 112
Literature B.A.	Literature 101
Marine Biology B.S.	Biology: Ecology and Evolutionary Biology 107 or 108, or 159A; and Biology: Ecology and Evolutionary Biology 109
Mathematics B.A.	Mathematics 100 and either 194 or 195
Molecular, Cell, and Developmental Biology B.S.	One of the following: Biochemistry and Molecular Biology 110L, Biology: Molecular, Cell, and Developmental Biology 100L, 105L, 105M, 109L, 110L, 115L, 119L, 120L, 121L, 186L, 187L; Biomolecular Engineering 122
Music B.A/B.M.	Music 101A and 101C
Neuroscience B.S.	One of the following Biochemistry and Molecular Biology 110L; Biology: Ecology and Evolutionary Biology 141L, 183L and 183W; Biology: Molecular, Cell, and Developmental Biology 100L, 105L, 109L, 110L, 115L, 120L, 121L, or 186L, 187L; Biomolecular Engineering 122
Philosophy B.A.	Two of the following: Philosophy 100A, 100B, 100C
Physics Education B.S.	Physics 182 and the senior thesis
Physics B.S.	Physics 182 and the senior thesis
Physics: Astrophysics B.S.	Physics 182 and the senior thesis
Plant Sciences B.S.	Biology: Ecology and Evolutionary Biology 107 and BIOE 109
Politics B.A.	Three of the following: Politics 105A, 105B, 105C, 105D, 120A, 120B, 120C, 140A, 140C, 140D, 160A, 160B, 160C
Psychology B.A.	Psychology 100 and one of the following: Psychology 119A, 119B, 119D, 119E, 119F, 119H, 119I, 119M,119P, 119S, 119T, 139A, 139B, 139C, 139D, 139F, 139G, 139H, 139J, 139K, 159A, 159D, 159E, 159F, 159H, 159X, 179A, 179B, 179D, or 179G
Sociology B.A.	Sociology 103B
Spanish Studies B.A.	Spanish 114
Theater Arts B.A.	Theater Arts 160 and 185

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  - Community Studies

Program Statements

For program statement listings, see the program statements link for the program or department.

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For faculty listings, see the program statement for individual programs and departments.

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For course descriptions, see the program statements link for the program or department.

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Anthropology

2014-15 General Catalog

361 Social Sciences 1 Building
(831) 459- 3320
http://anthro.ucsc.edu/

Faculty | Course Descriptions

Program Description

Anthropology studies people throughout the world and through time. Because it covers a wide range of topics— physical evolution, material remains of the past, and the world that humans create through their ideas and practices in present-day societies—anthropology is an especially integrative discipline. The anthropology program at UCSC offers courses that reflect the diversity of the field.

- Cultural anthropology explores the movements of people, objects, and ideas in diverse societies, including our own. Cultural anthropology courses examine such topics as race and ethnicity, medicine, science, gender, sexuality, the environment, religion, law, popular culture, and politics.
- Archaeology uses the material evidence of human activities to understand past human lives. Archaeology at UCSC focuses on past people's interactions with one another at the local level and within their wider social and ecological contexts. Faculty research areas include the pre-colonial and early post-colonial history of East Africa and the American Southwest.
- Physical/biological anthropology traces the human journey from its beginnings in Africa over five million years ago. Physical anthropology courses look at fossil evidence, evolutionary theory, human variation, and the behavior of primate relatives in order to analyze biological, social, and cultural changes over time.

UCSC students have the opportunity to do independent library and field research in cultural anthropology, archaeology, and physical anthropology. Laboratory courses in archaeology and physical anthropology offer practical experience in the analysis of biological and cultural materials. In cultural anthropology courses, students learn to carry out anthropological research through interviews, participant observation, surveys, the collection of oral histories, and the interpretation of archives.

Because anthropology is concerned with understanding human interaction, it is a useful major for anyone planning a career that involves working with people, especially those from diverse cultures. Some UCSC anthropology graduates are in social work, many are in teaching, and others pursue careers in law, city planning, politics, medicine, public health, cultural resource management, and journalism. Students intending to specialize in anthropology usually go on to graduate school because professional employment in the field almost always demands an advanced degree.

Most anthropology faculty have their offices in Social Sciences 1 Building. Social Sciences 1

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

also houses the Visual Culture Research Laboratory and laboratories for archaeology and physical anthropology where space is provided for laboratory and individual studies courses and for collections of mammalian skeletal material, casts of fossil hominids, ceramics, stone tools, and other archaeological artifacts.

The Anthropology Society, a campus club, is open to all students interested in anthropology. The Anthropology Colloquium showcases guest speakers and gives faculty and students an opportunity to discuss new approaches to anthropological questions. Students and faculty interested in archaeology also gather informally at the Archaeology/Physical Anthropology Lunch forum to share information on fieldwork and employment opportunities.

Undergraduate Handbook

All undergraduate majors should obtain a copy of the Anthropology Department undergraduate handbook from the department web site. It outlines information on department procedures and requirements, program planning, independent study, faculty interests, and campus resources for anthropology majors.

Admission into the Major

In order to qualify for the major, students must have received a "C" or better in at least one lower-division anthropology course (ANTH 1, 2, or 3) and have either received a "C" or better in a second lower-division anthropology course or be enrolled in a second lower-division anthropology course at the time of declaration.

Requirements of the Major

The Anthropology Department urges students to seek faculty advice early in planning for the major. Faculty hold regular office hours weekly and encourage students to come in to talk about their program or coursework. Peer advisers are also available.

To graduate with an anthropology major, students must take courses 1, 2, and 3 as background for upper-division courses. They must take a minimum of 10 upper-division courses, including at least one course selected from each of these four categories listed below. Note: Not all of these courses are offered each year. Students must also complete the Disciplinary Communication (DC) Requirement.

Anthropological Theory Courses

100 History and Theory of Physical Anthropology

150 Communicating Anthropology

152 Survey of Cultural Anthropological Theory

170/270 History of Archaeological Theory

Sociocultural Anthropology Courses

119 Indigenous Visual Culture

120 Culture in Film

121 Socialism

122 Postsocialism

123 Psychological Anthropology

124 Anthropology of Religion

126 Sexuality and Society in Cross-Cultural Perspective

127 Ethnographies of Capitalism

128 Contemporary American Evangelical Culture

129 Other Globalizations: Cultures and Histories of Interconnection

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
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140 Art, Artist, Artifact

141 Developing Countries

142 Anthropology of Law

143 Performance and Power

144 Anthropology of Poverty and Welfare

145X Special Topics in Socio-Cultural Anthropology

146 Anthropology and the Environment

148 Gender and Global Development

151 Workshop in Ethnography

153 Medicine/Colonialism

154 Multimedia Ethnography

156 The Politics of Memory

157 Modernity and Its Others

158 Feminist Ethnographies

159 Race and Anthropology

160 Reproduction and Population Politics

161 The Anthropology of Food

162 Anthropology of Displaced Persons

163 Kinship

164 Anthropology of Dance

165 Anthropological Folklore

166 States, Bureaucracies, and Other Cosmological Propositions

Ethnographic Area Studies Courses

130A Peoples and Cultures of Africa

130B Brazil

130C Politics and Culture in China

130E Culture and Politics of Island Southeast Asia

130F African Diasporas in the Americas

130G Asian Americans in Ethnography and Film

130H Ethnography of Russia and Eastern Europe

130I Cultures of India

130J Politics and Statemaking in Latin America

130L Ethnographies of Latin America

130M Inside Mexico

130N Native Peoples of North America

130T Anthropological Approaches to Islam

130U Central America

130V Ethnography of Russia

130W Ethnography of Eastern Europe

130X Special Topics in Ethnography

Physical/Biological Anthropology and Archaeology Courses

101 Human Evolution

102A Human Skeletal Biology

103 Forensic Anthropology

103B Forensic Anthropology and Bioarchaeology

104 Human Variation and Adaptation

105 Human Paleopathology

106 Primate Behavior and Ecology

107 Methods and Research in Molecular Anthropology

111 Human Ecology

112 Life Cycles

171 Materials and Methods in Historical Archaeology

172 Archaeological Research Design

173 Origins of Farming

174 Origins of Complex Societies

175A African Archaeology

175B African Archaeology: Development

175C African Diaspora Archaeology

176A North American Archeology

176B Meso-American Archaeology

176C Archaeology and the American Southwest

176D Colonial Encounters in the Americas

177 European Conquest of the Americas

178 Historical Archaeology: A Global Perspective

180 Ceramic Analysis in Archaeology

182A Lithic Technology

184 Zooarchaeology

185 Osteology of Mammals, Birds, and Fish

187 Cultural Heritage in Colonial Contexts

190X Special Topics in Archaeology/Physical Anthropology

Anthropology At-Large Courses

Anthorpology At-Large courses may be used as electives for completing upper-division course requirements. These courses do not count as anthropological theory, sociocultural anthropology, ethnographic area studies, or physical/biological anthropology and archaeology courses.

110A Contemporary Issues

110B Archaeology in the Public Eye

110G Barrio Popular Culture

110H Acoustic Culture

110K Culture though Food

110L Anthropology of Love and Intimacy

110O Postcolonial Britain and France

110P India and Indian Diaspora Through Film

110R Discourses in American Religions and Their Role in Public Life

110T Motherhood in American Culture

110V Anthropology of Violence and Conflict

Exit Requirement

Students can fulfill the senior comprehensive requirement in anthropology either by passing an advanced senior seminar (194-series course, 190ABC, or 196AB), by writing an acceptable independent senior thesis, or by passing an approved graduate-level topical seminar in anthropology.

Senior seminars are small, writing-intensive classes focusing on advanced topics in anthropology. The prerequisite for admission to a senior seminar is successful completion of courses 1, 2, and 3; senior seminars are restricted to senior anthropology majors.

Students considering an independent thesis must arrange for the sponsorship and support of a faculty member before beginning research. An independent senior thesis (not written within a senior seminar) should be based on original research and reflect the student's understanding of fundamental theories and issues in anthropology. The thesis should be comparable in content, style, and length (generally 25–30 pages) to a professional journal article in its subfield.

Students who intend to satisfy the exit requirement by taking a graduate seminar must first get permission from the department. Not all graduate seminars are appropriate for fulfilling this requirement. Students who take a graduate-level course to fulfill the theory requirement may not use this course to satisfy the exit requirement.

All majors, including double majors, must prepare a program of study in consultation with a member of the Anthropology Department. A combined major in anthropology and Earth and planetary sciences, leading to a bachelor of arts (B.A.) degree, is also offered; for that program description, see Earth and Planetary Sciences. Students going on to graduate school should plan course schedules in close consultation with faculty advisers.

Many anthropology majors whose studies emphasize archaeology have benefited from concurrent study in the Cabrillo College Archaeological Technology Certificate Program. This vocational certification program is sponsored entirely by Cabrillo College, but credit for its summer field survey and excavation component may be transferred for credit at UCSC. Although courses in the Archaeological Technology Certificate Program do not count toward the UCSC anthropology major, students who have obtained the certificate in tandem with their bachelor's degree in anthropology have expanded their employment and advanced degree program opportunities. Students interested in exploring this possibility are encouraged to consult with UCSC archaeology faculty and to visit the program's web site at http://www.cabrillo.edu/academics/anthropology/.

194A Anthropology of Dead Persons

194B Chimpanzees: Biology, Behavior and Evolution

194C Feminist Anthropology

194D Tribes/Castes/Women

194E Belief

194F Memory

194G Politics and Secularism

194H Paleoanthropology

194I Consumption and Consumerism

194K Reading Ethnographies

194L Archaeology of the African Diaspora

194M Medical Anthropology

194N Comparison of Cultures

194O Masculinities

194P Space, Place, and Culture

194Q Race, Ethnicity, Nation

194R Religion, Gender, Sexuality

194S The Anthropology of Sound

194T Poverty and Inequality

194U Environmental Anthropology: Nature, Culture, Politics

194V Picturing Cultures

194W The Anthropology of Social Movements

194X Women in Politics: A Third World Perspective

194Y Archeology of Space and Landscape

194Z Emerging Worlds

196C Traveling Cultures

196D Food and Medicine

196E Pastoralists Past and Present

196F The Anthropology of Things: Gift, Sign, Commodity, Tool

196G Advanced Topics in Folkloristics

196H Global History and the Longue Durée

196I Hard Problems

196J Imagining America

196K Settler Colonialism

196L Archaeology of the American Southwest

196M Modernity and Its Others

Two-credit courses do not count toward the 10 upper-division courses required for the major. Only one 5-credit individual studies course (197, 198, or 199) may be counted toward the 10 required upper-division courses. Course 107L does not count toward the 10

upper-division courses required for the major. Theory courses can only be counted toward the theory requirement or an upper-division elective.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. Anthropology's DC requirement aims especially at cultivating high-level skills in critical and ethnographic writing. To satisfy the DC requirement students must: a) complete an Anthropological Theory Course (chosen from ANTH 100, 150, 152, 170, 270) and; b) complete a Senior Seminar or complete an Independent Senior Thesis, following the guidelines of the senior exit requirement. Students who take 270 to fulfill the theory/DC requirement may not use the course to satisfy the senior exit requirement. Please refer to the Undergraduate Handbook for details.

Transfer Students

If possible, transfer students should complete lower-division requirements for the major before coming to UCSC by taking classes equivalent to courses 1, 2, and 3. Department policy also allows students to petition up to 10 quarter credits (equivalent to two UCSC courses) of upper-division transfer credit toward the major requirements. Any courses completed at the community college level are not considered to be upper-division courses. Transfer students should bring an unofficial copy of all pertinent transcripts to the undergraduate adviser in the department office (361 Social Sciences 1 Building) as soon as possible after reaching campus so that prerequisites can be verified and course enrollment can proceed smoothly.

Peer Advisers

The Anthropology Department has instituted a peer adviser program as a supplement to academic advising offered by faculty members. The peer advisers are juniors and seniors who have been trained to help students with questions and general guidance through the anthropology major. Peer advisers hold regularly scheduled office hours in the department office.

Honors

The Anthropology Department awards honors in the major and highest honors in the major based on a ranked departmental grade-point average (GPA) that is calculated using all upper-division courses taken in the major with the exception that only one independent-study course can be used in this calculation. For students who have taken multiple independent-study courses in the department, the independent-study course that has the highest grade is used for the calculation. Approximately 15 percent of the graduating class is considered for honors based on their cumulative (GPA) through the quarter before graduation. The criteria for awarding highest honors in the major are overall superlative performance in the major and general breadth of excellence across the subfields of anthropology. Receiving honors on the senior exit requirement is also considered as a factor in awarding highest honors, but is not always determinative. When applicable, narrative evaluations can be taken into consideration for highest honors.

Minor Requirements

Students earn a minor in anthropology by completing all of the requirements for the major with the following differences:

The number of upper-division courses is reduced from ten to seven. Of these, at least one must be from each of the following categories: 1) sociocultural anthropology, 2) ethnographic area studies, and 3) physical anthropology or archaeology.

Independent study courses cannot be used toward completion of the minor.

No senior seminar or thesis is required.

For more information regarding department policies, please consult the undergraduate adviser at the Anthropology Department office, 361 Social Sciences 1 Building. A handbook on the anthropology program is available on the anthropology web site http://anthro.ucsc.edu/.

Anthropology/Earth Sciences Combined Major Requirements

The Anthropology Department also collaborates with the Earth and Planetary Sciences Department to offer a combined major, which leads to a B.A. in anthropology/Earth sciences.

The anthropology/Earth sciences combined major is designed for students with strong interests in Earth sciences and in the laboratory-based subfields of anthropology. This includes anthropology students who are interested in archaeology or paleoanthropology and desire more intensive training in the natural sciences, and Earth sciences students who are interested in paleobiology or archaeology. The combined major allows students to receive a strong grounding in both disciplines without pursuing a double major or major/minor in the two departments. This program will permit anthropology/Earth sciences majors to enter graduate programs in Earth sciences, archaeology or paleoanthropology with extraordinarily well-developed geological knowledge and skills. Anthropology-based students in the combined major are encouraged to augment the science-rich required curriculum with upper-division courses in cultural anthropology.

Eleven Lower-Division Courses

Anthropology 1 - Introduction to Biological Anthropology

Anthropology 2 - Introduction to Cultural Anthropology

Anthropology 3 - Introduction to Archaeology

Earth Sciences 5/5L or Earth Sciences 10/10L or Earth Sciences 20/20L

Mathematics 11A or 19A

Mathematics 11B or 19B

Five lower-division cognate science courses from the following: Chemistry 1A, Chemistry 1B/M, Chemistry 1C/N, Physics 6A/L, Physics 6B/M, Biology 20A, Biology 20B, Biology 20C

Eight Upper-Division Courses

Earth Sciences 110A/L - Evolution of the Earth

Any three Earth Sciences upper-division electives (must be 5-credit courses)

Any four Anthropology upper-division electives from the physical anthropology or archaeology concentrations (must be 5-credit courses)

One Senior Comprehensive Requirement (choose one of the following)

Anthropology 194 - Any Senior Seminar in Physical Anthropology or Archaeology (by petition)

Earth Sciences 188A-B - Summer Field Internship

Senor Thesis (by petition only)

Any approved Earth science field program (by petition only)

Students must coordinate with both the Earth and Planetary Sciences Department and the Anthropology Department to complete the combined major.

Faculty Adviser in Anthropology: Diane Gifford-Gonzalez, dianegg@ucsc.edu

Faculty Adviser in Earth Sciences: Paul Koch, plkoch@ucsc.edu

Anthropology Undergraduate Adviser: Christina Domitrovic, cdomitro@ucsc.edu

Earth Sciences Undergraduate Advising: epsadvising@ucsc.edu

Graduate Program

The anthropology doctoral program at UCSC consists of two tracks: cultural anthropology and anthropological archaeology. The majority of students are admitted to the cultural anthropology program. Smaller numbers of students are admitted to the anthropological archaeology program. Admission of students who are interested in the physical

anthropology program described below have been suspended indefinitely.

Although applicants are accepted only for the doctor of philosophy (Ph.D.) program, students may obtain a master of arts (M.A.) degree after fulfilling specific requirements during the first two years.

The theme of emerging worlds—culture and power after progress unites the research interests of many faculty in the cultural anthropology graduate program at UCSC. In recent years, anthropology's central concept of culture has been subjected to extraordinary ethnographic and theoretical pressures. Across the social sciences, scholars are responding to emergent scientific and social dilemmas by turning to the concept of culture and the ethnographic method. Such disciplinary turns grow from a challenging new set of social configurations, which affect both scholarly and lay understandings of the present, past, and future: the demise of certainties about progress and modernization and the need to understand newly emergent worlds. Nineteenth- and 20th-century ideas of progress and programs of modernization both created the concept of culture and relegated it to a nostalgic role as backward-looking sentiment. Anthropologists studied "vanishing worlds." In the last 30 years, however, such certainties have been challenged. Grand theories of human behavior that depended on the idea of a universal man have begun to fray around the edges. Heterogeneity and disjuncture have caught the attention of a wide range of social scientists, calling out for ethnographic investigation. In this context, scholarly discussions have turned toward culture, the world-making networks, geographies, innovations, meanings, and assemblages that are carrying us into the future.

Our concentration on "emerging worlds" and on the construction of anthropological knowledge is especially well suited for drawing together diverse scholars and specialists in challenging and enriching conversations. Rather than reproduce the boundaries among the traditional subfields of anthropology, we explore how recombination of these approaches can elucidate specific anthropological problems.

Working with their faculty advisory committee, students in cultural anthropology have considerable freedom to design their own programs of study after completing the two-quarter core course and the ethnographic practice course during the first year. To achieve Ph.D. candidacy, students are expected to pass a first-year and second-year review of their written work, take three additional 5-credit courses in anthropology (excluding independent study courses), maintain satisfactory academic progress, satisfy the ethnographic writing requirement and the foreign language requirement, pass a qualifying exam at the end of the third year, and meet the specific requirements of the Division of Graduate Studies. After advancing to Ph.D. candidacy, students carry out a sustained ethnographic fieldwork project and are expected to complete their dissertation within two years after returning from the field.

Graduate students in cultural anthropology may obtain a designated emphasis on the anthropology Ph.D. diploma indicating that they have specialized in feminist studies or Latin American and Latino studies (LALS) if they meet requirements spelled out by the individual committee composed of anthropology faculty and faculty from the program awarding the notation.

The Ph.D. program in anthropological archaeology is highly selective, focusing on the archaeology of late pre-colonial societies in East and West Africa and North America, especially the Southwest and California. The program also features an emerging concentration on the archaeology of colonial encounters among peoples of Europe, Africa, and the Americas. It is distinctive in insisting that theories of power, production and exchange, human ecology, gender, ethnicity, and technological practice be explored through rigorous laboratory and field research methods.

In the first year, students take two foundational theory courses and pass a review of their work. Within the first two years of study, students complete at least two foundational materials/methods courses or laboratory courses in other departments; two advanced laboratory apprenticeship courses or similar courses in other departments; two foundational courses in geographic/temporal areas or, in physical anthropology, topical areas; two graduate seminars with other anthropology or campus faculty; one quantitative methods course; and two terms of supervised teaching experience.

The third-year requirements are three laboratory apprenticeship courses, the grant writing

seminar, and tutorials to prepare the student for the qualifying exams. All courses outside the department must be approved by the student's adviser. After advancing to Ph.D. candidacy, the student carries out a sustained laboratory or fieldwork project and is expected to complete the dissertation within a year after finishing research.

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Art

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Elena Baskin Visual Arts Studios
Room E-104
(831) 459-2272
visart@ucsc.edu
http://art.ucsc.edu

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Program Description

The Art Department offers an integrated program of study in theory and practice exploring the power of visual communication for personal expression and public interaction. The department provides students with the means to pursue this exploration through courses that provide the practical skills for art production in a variety of media within the contexts of critical thinking and broad-based social perspectives.

The art program at UCSC is composed of courses in drawing, painting, photography, sculpture, print media, intermedia, critical theory, electronic art, public art, and interactive technologies. Baskin visual arts studios provide world-class facilities for art production in these areas. The Art Department is committed to pursuing a continuing dialogue about what constitutes basic preparation in the arts while offering students experience in established practices, new genres, and new technologies.

Students graduating with a major in art may become professional artists or pursue careers in such diverse areas as arts management, museum and gallery practices, communication technologies, public school teaching, media arts, and publishing. Many students who want to teach at the college level continue their education in graduate school.

Declaration of the Art Major—Frosh

Students may apply for admission to the art major after completing two of the following: Art 10D, Art 10E, or Art 10F. While completing this lower-division coursework, it is critical that each student meet with a faculty adviser regarding the student's potential to proceed to the major level.

Declaration of the Art Major—Junior Transfer Students

Junior transfer students are accepted into the art major for fall quarter after passing a portfolio review in early April. Their acceptance is contingent upon their acceptance to UCSC. Acceptance to UCSC does not guarantee admittance to the art program, nor does passing the portfolio review guarantee that UCSC will accept the student to the university. Transfer students must identify themselves as potential art majors when applying to the university in order to receive information on the portfolio review deadlines and the materials required for the review. All junior transfers will be required to take Art 194,

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Forms and Ideas in their junior year at UCSC in lieu of the first-year foundation program requirements. Junior transfer students must pass the portfolio review and be admitted to UCSC to become art majors. If a student is admitted to UCSC and does not pass the Art Department portfolio review, it is imperative that this student pursue another major upon admittance. Students will be notified of the results of the review before they need to submit their Statement of Intent to Register for UCSC.

Requirements of the Art Major

The minimum requirements for art majors who were admitted to UCSC in their frosh year are completion of eight lower-division and eight upper-division courses and satisfaction of the senior comprehensive requirement. Junior transfer students complete five lower-division and eight upper-division courses and their senior comprehensive requirement. A maximum of three courses total from outside the Art Department (including UC Education Abroad Program (EAP) courses) may be substituted for regular art courses with the approval of a major adviser. In courses taken outside the UCSC Art Department, students must have received a grade of B or higher. Students should plan carefully when using this option.

Students plan their course of study in consultation with a faculty adviser.

Lower-Division Requirements

Students complete eight courses as follows:

The Foundation (15 credits required, 10 credits must be from the 10 series)

- 10D, 2D Foundation
- 10E, 3D Foundation
- 10F, 4D Foundation
- and one course from the Art 80 series.

Introduction to Contemporary Art Practice (15 credits required)

Student complete three courses from the following:

- 20G, Introduction to Print Media and Drawing
- 20H, Introduction to Sculpture and Public Art
- 20I, Introduction to Photography and Digital Media
- 20J, Introduction to Drawing and Painting

Critical Theory and Historical Context (10 credits required)
Students complete two courses from History of Art and Visual Culture (HAVC): one in Western art and culture and one in non-Western art and culture.

Note: Students may use Advanced Placement (AP) in Art History in lieu of the Western-emphasis history of art and visual culture requirement.

Upper-Division Requirements

Students complete eight courses as follows:

Studio Work (30 credits required)

- Six upper-division (100+ numbered) studio courses;

Senior Capstone/Comprehensive Requirement (10 credits required)

- 190A, Writing for Artists (meets the Disciplinary Communication requirement for the Art B.A.); and
- Students may satisfy the comprehensive requirement with one of the following options:
  1. Completing Art 190B: Senior Project; or
  2. Completing 5 credits of upper-division studio courses work in the area of focus; and
     a. Presenting an exhibition and, by appointment, meeting with a faculty member for

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
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review and critique of the exhibition; or

b. Submitting a portfolio and, by appointment, meeting with a faculty member for review and critique of the portfolio.

Senior majors should meet with their faculty adviser about this requirement.

A total of 80 credits are required for the Art B.A.; students are advised to plan in advance if they are interested in the program. Some requisite courses may be offered during Summer Session.

The last three quarters of coursework for the major must be completed in residence at UCSC.

Art Major Planner (Incoming Frosh)

The following is a recommended academic plan for students to complete during their first two years as preparation for the art major.

Year	Fall	Winter	Spring
1st (frsh)	ART 80 Series†	ART 10 series**	ART 10 series**
	ART 10 series**		
2nd (soph)	ART 20 Series	ART 20 Series	ART 20 Series
	HAVC*	HAVC*	

†ART 80 courses may be taken in Fall, Winter, or Spring (one required)
*Courses from history of art and visual culture (one with a Western emphasis, one with a non-Western emphasis)
**Art 10 courses may be taken in fall, winter, and/or spring (two required)

Lower-Division Requirements (Junior Transfers)

- Three lower-division studios (equivalent to those found in the above list) should be taken at the community college, college, or university in preparation for the mandatory portfolio review prior to acceptance to the art major. Please remember that three studios is a minimum requirement and may not be enough studio work undertaken to pass the highly competitive nature of the portfolio review.
- Two courses from history of art and visual culture may be taken at the community college, college, or university, if available, or at UCSC (one with a Western emphasis, one with a non-Western emphasis).

Upper-Division Requirements (Junior Transfers)

Students complete eight courses as follows (40 credits required):

- Art 194, Forms and Ideas;
- Five upper-division (100+ numbered) studio courses
- 10 credits of senior capstone/comprehensive requirement;

  Art 190A, Writing for Artists

  Art 190B, Senior Project or upper-division (100+) level art studio course

The last three quarters of coursework for the major must be completed in residence at UCSC.

Disciplinary Communication (DC) Requirement

- Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in art is satisfied by completing Art 190A, Writing for Artists

Comprehensive Requirement

- All art majors satisfy the capstone/comprehensive requirement with Art 190A, Writing for Artists and Art 190B, Senior Project; or
- Students may satisfy the comprehensive requirement with one of the following options:
  1. Completing Art 190B: Senior Project; or
  2. Completing 5 credits of upper-division studio courses work in the area of focus; and
     a. Presenting an exhibition and, by appointment, meeting with a faculty member for review and critique of the exhibition; or
     b. Submitting a portfolio and, by appointment, meeting with a faculty member for review and critique of the portfolio.

Senior majors should meet with their faculty adviser about this requirement.

Study Abroad

The UC Education Abroad Program (EAP) offers students the opportunity for study abroad. Art majors may participate in EAP in their junior year. Art students may not go abroad in their senior year because the last three quarters of coursework must be in residence at UCSC. When considering attending EAP, the student should be mindful that only three courses may be substituted in the art major and each must receive a grade of B or better.

Materials Fee

Art students should be aware of the materials fee required for some studio courses. The fee is billed to the student's account for specific course materials purchased by the Art Department through the university. Fees generally range from $5 to $150 per course. Students may incur additional expense purchasing individual supplies.

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Arts Division

2014-15 General Catalog

Porter College, D Building,
(831) 459-4940
http://arts.ucsc.edu

Program Description

The Arts Division offers both creative and critical studies of art and culture at the undergraduate and graduate level. The division is committed to building a sustainable model for excellence in the arts. Instruction in the arts inspires and develops the capacity for individual and collaborative creative thought, analysis, and action within and beyond the university. Our faculty consists of artists, historians, critics, and theorists working across the arts in a global context.

Undergraduate education in the arts includes bachelor of arts (B.A.) programs in art, film and digital media, history of art and visual culture, music, and theater arts, and a bachelor of music (B.M.) in music. There are also several minors offered in film and digital media, history of art and visual culture, electronic music, jazz, theater arts, and dance.

Established graduate programs include the interdisciplinary digital arts and new media master of fine arts (M.F.A.) program, the social documentation master of arts (M.A.), the music master of arts (M.A.), and the theater arts master of arts (M.A.). Doctoral programs include the music composition doctor of musical arts (D.M.A.), and Ph.D programs in music, visual studies, and film and digital media. A master of fine arts (M.F.A.) program in art (environmental art and social practice) is currently in review.

The Arts Division provides students with access to quality work spaces, including a new digital-arts research facility with two experimental media labs, along with a state-of-the-art music recital hall, practice rooms, electronic music studios, and recording facilities, four theaters for dramatic productions, filmmaking studios and editing suites, surround-sound screening theaters, drama and dance studios, painting and printmaking studios, a foundry, photography and computer laboratories, and specialized lecture and seminar classrooms. McHenry Library houses an extensive collection of books and periodicals on the arts, as well as an analog and digital slide collection, music scores and recordings, and one of the largest collections of films and DVDs in the University of California system. Exhibition space in the arts includes galleries for students and faculty shows. Celebrating its 40th anniversary in 2011-12, the Sesnon Gallery presents curated exhibitions to the university community and the general public. The Institute for the Arts and Sciences, a focus for interdisciplinary exhibitions, conferences, symposia, and seminars, is currently in development.

The Theater Arts Department offers a wide variety of performances in four venues, ranging from faculty-directed productions of classics and musicals on our Mainstage to intimate student created productions in our century-old converted barn. An annual Dean's Lecture Series invites innovative leaders to present on selected topics of interest to the campus

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community. Student work is regularly broadcast on SCTV, and *Eyecandy*, a student-run magazine and blog, publishes student writing on film, television, and digital media. The Music Department hosts an annual festival of contemporary music, April in Santa Cruz, and an opera in the spring quarter of each year, and presents a variety of solo and ensemble concert programs throughout the year. The History of Art and Visual Culture Department hosts a series of speakers and seminars each year on rotating topics that are supported by the Patricia and Rowland Rebele Endowed Chair. The Art Department sponsors regularly scheduled public presentations as well as quarterly open studios and a print and photo sale in the spring. The Digital Arts and New Media M.F.A. program regularly sponsors digital arts events, such as festivals, symposia, visiting speakers, and exhibitions of student work, both on- and off-campus, culminating in an annual exhibition of graduate thesis research.

For more information about specific programs in the arts, please visit catalog listings and web sites for Art, Digital Arts and New Media, Film and Digital Media, History of Art and Visual Culture, Music, and Theater Arts.

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Astronomy and Astrophysics

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Astronomy Department Office
211 Interdisciplinary Sciences Building
(831) 459-2844
http://www.astro.ucsc.edu

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Program Description

The science of astronomy has the universe as its domain. Galaxies, stars, planets, and an ever-increasing variety of phenomena observed from ground- and space-based observatories are among the objects of study. Areas of special interest at UCSC include cosmology, the formation and evolution of planets, stars, and galaxies, high-energy astrophysics, active galaxies, supernovae and nucleosynthesis, extra-solar planets, interstellar medium, intergalactic medium, solar system dynamics, and all aspects of observational optical and infrared astronomy. Astronomers use concepts from and contribute to the development of many other scientific disciplines, including optics, mechanics, relativity, atomic and nuclear physics, applied mathematics, chemistry, geology, and meteorology. The interdisciplinary nature of astronomy, including its historical and philosophical elements, makes its study valuable to those planning careers in a variety of fields.

The Astronomy and Astrophysics Department offers a broad undergraduate curriculum that fulfills the needs of students seeking a general education but also enables students wishing to obtain a minor or major in astrophysics to study the subject in greater depth.

The graduate program is intended for those with a professional interest in the subject. The interests of the faculty embrace a wide range of both theoretical and observational aspects of astronomy. Current research and course offerings include our solar system and other solar systems, stellar structure and evolution, stellar spectroscopy, the interstellar medium, galactic structure, active galaxies and quasars, cosmology, general relativity and gravitational radiation, the origin of the elements, infrared and radio astronomy, advanced astronomical instrumentation, astrobiology, high-energy astrophysics, and X-ray and gamma-ray astronomy.

Graduate students have access to state-of-the-art instrument development and data reduction technology, the UCO/Lick Observatory computer network, and an unusually extensive astronomical library at the Lick Observatory headquarters on campus. Graduate students may conduct supervised research using selected telescopic facilities of the Lick Observatory on Mount Hamilton, 55 miles from Santa Cruz. The 10-meter Keck Telescope in Hawaii, the world's largest, is administered from the UCSC campus and is used for frontier research by UC astronomers.

The Center for Adaptive Optics (CfAO) is also headquartered at UCSC. Education is central to the CfAO's mission, and a key element of this is the support provided by the center to

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graduate students. In addition to research, the center provides interdisciplinary access to a nationwide network of scientists in astronomy and vision science.

Undergraduate Courses

Instruction in astronomy for undergraduates at UCSC is designed to meet the needs of several groups of students.

Courses 1, 2, 3, 4, 5, and 6, providing a general survey of the universe as now understood from historical and modern observations, are offered for those not specializing in a scientific discipline.

Courses 12, 13, 15, 16, and 18, emphasizing basic physical laws and theories as applied to astronomy, taken together provide a survey of modern astronomy for students with some facility in mathematics. Taken separately, these courses provide an in-depth introduction to gravitational interaction, stellar evolution, and extragalactic astrophysics. These courses are designed for students intending to major in a scientific subject, although qualified nonscience majors may enroll. A good high school background in mathematics and physics is required.
Prior or concurrent enrollment in a basic calculus course (Mathematics 11A or 19A) and a basic physics course (Physics 5A/L or 6A/L) is helpful but not required.

Finally, a more thorough quantitative treatment of selected topics in astronomy and astrophysics at the upper-division level is provided by courses 111, 112, 113, 117, and 118. Completion of course work in calculus of several variables (Mathematics 22 or 23A–B) and Physics 5B/M or 6B/M and 101A is required for these advanced courses.

Astrophysics Minor

For undergraduate students having a particular interest in the subject, a minor in astronomy and astrophysics is offered. Most students who minor in astronomy and astrophysics are majors in another science, though majors in other fields are also possible. The minor in astronomy and astrophysics requires that students take the Physics 5 or 6 series (with associated laboratories), Physics 101A or Physics 102, a minimum of two courses from the Astronomy 12–18 series, and a minimum of three courses from the following, Astronomy 111–118, PHYS 129, PHYS 171, ASTR 257. A senior thesis on an astronomy-related topic is also encouraged. Interested students should contact the Physical & Biological Sciences Undergraduate Affairs office for further information.

Astrophysics Major

The UCSC major in astrophysics is administered by the Physics Department and combines a core physics major with advanced electives in astrophysics, an astrophysics laboratory course, and senior thesis work on a topic in astrophysics. It is a rigorous program designed to prepare students for a broad range of technical careers or for entry into graduate or professional programs. A full description of the major can be found in the physics section of this catalog.

Preparation for Graduate Work in Astrophysics

The UCSC graduate program in astronomy and astrophysics is designed for Ph.D. students seeking a professional career in teaching and research. In view of the thorough preparation in mathematics and physics required for graduate study, most entering astronomy graduate students major in physics or astrophysics as undergraduates.

The suggested minimum requirements for admission to graduate standing at UCSC include the following undergraduate courses:

Basic physics. Mechanics, wave motion, sound, light, electricity and magnetism, thermodynamics, atomic physics, and quantum mechanics (Physics 5A, 5B, and 5C).

Basic mathematics. Calculus (Mathematics 19A–B and 23A–B or equivalent) and statistics (Applied Mathematics and Statistics 5).

Intermediate-level physics. Mechanics (Physics 105); electricity, magnetism, and optics (Physics 110A–B); mathematical methods in physics (Physics 116A–B–C); nuclear and

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- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
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- UCDC Program
- Writing Program
- Yiddish

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particle physics (Physics 129); and quantum mechanics (Physics 139A–B).

Intermediate-level mathematics. Linear algebra (Mathematics 21), complex analysis (Mathematics 103), and ordinary and partial differential equations (Mathematics 106 and 107).

Graduate Program

Graduate instruction is built upon a two-year cycle of 11 one-quarter courses in astronomy and physics that are required of all students.

Seven courses are specifically required:

Astronomy 202, Radiative Processes

Astronomy 204, Astrophysical Flows

Astronomy 205, Introduction to Astronomical Research and Teaching

Astronomy 212, Dynamical Astronomy

Astronomy 220A, Stellar Structure and Evolution

Astronomy 230, Diffuse Matter in Space

Astronomy 233, Physical Cosmology

and four additional courses are chosen from the list of electives given below. In addition, students must fulfill the following requirements:

Students must meet at least quarterly with an assigned adviser.

Each student must also be a teaching assistant for at least one quarter.

By the time of the annual Board Review, which occurs in July at the end of their second academic year, students must:

- Complete one quarter of independent study with a faculty member and give a department talk on that work.
- Pass a preliminary examination based on course material, relevant physics, and general astronomical knowledge.
- Submit one lead-author paper to a refereed journal that is based on research conducted at UCSC. By the time of the Board Review, second-year students are expected to either (1) have submitted a paper for publication to a refereed journal; or (2) submit to the Board Review a complete first draft of such a paper and a detailed plan for completion. If the student pursues option (2), he or she is expected to submit the paper for publication by the first day of the fall quarter, and provide the electronic submission acknowledgement for the paper to the chair of the graduate advising committee. If the student does not complete this requirement, he or she will meet with his or her adviser, the graduate advising committee chair, and the department chair before the first faculty meeting of the fall quarter, in order to discuss the status of the paper. The faculty at that meeting will then make a recommendation whether the student should be granted an extension to the next Board Review, and the full faculty will then vote on whether to grant an extension.

By the end of the third year, students must complete a qualifying examination that presents and defends a proposed thesis topic.

After passing the board review based on the above-mentioned requirements and the qualifying examination, students pursue independent research leading to the doctoral dissertation. Upon completion of the Ph.D. dissertation, students must pass an oral dissertation defense. A completed draft of the thesis must be submitted to the dissertation committee at least two weeks before the date of the defense, and the defense itself must occur at least two weeks before the campus deadline for thesis submissions in that quarter. Exceptions to this policy will be granted only under exceptional circumstances and must be approved by the department chair, associate chair, and the department graduate advising committee.

The department has established five years as the normative time to degree. Normative times is the elapsed calendar time, in years, that, under normal circumstances, will be needed to complete all requirements for the Ph.D. A one-year extension may be granted if funding is available. Funding support will not, in general, be provided beyond six years. Exceptions for extension beyond six years will be granted only for exceptional extenuating circumstances, and will be decided upon by the department chair, associate chair, and the department graduate advising committee.

Electives (four required) may be drawn from this list:

Astronomy 207, Future Directions/Future Missions

Astronomy 214, Special Topics in Cosmology

Astronomy 220B, Star Formation

Astronomy 220C, Advanced Stages of Stellar Evolution and Nucleosysthesis

Astronomy 222, Planetary Formation and Evolution

Astronomy 223, Planetary Physics

Astronomy 225, High-Energy Astrophysics

Astronomy 231, Diffuse Gas In and Between Galaxies

Astronomy 235, Numerical Techniques

Astronomy 237, Accretion Processes

Astronomy 240A, Galactic and Extragalactic Stellar Systems

Astronomy 240B, High Redshift Galaxies

Astronomy 257, Modern Astronomical Techniques

Astronomy 260, Instrumentation for Astronomy

Astronomy 289, Adaptive Optics and Its Applications

Physics/Astronomy 224, Particle Astrophysics and Cosmology

Physics/Astronomy 226, General Relativity

Earth Sciences 265, Order of Magnitude Estimation

Earth Sciences 275, Magnetohydrodynamics

Applied Mathematics and Statistics 206, Bayesian Statistics

Applied Mathematics and Statistics 212A, Applied Mathematical Methods I

Applied Mathematics and Statistics 214, Applied Dynamical Systems

Applied Mathematics and Statistics 217, Introduction to Fluid Dynamics

Physics 210, Classical Mechanics

Physics 215, Introduction to Non-Relativistic Quantum Mechanics

Physics 216, Advanced Topics in Non-Relativistic Quantum Mechanics

Physics 217, Quantum Field Theory I

Physics 218, Quantum Field Theory II

Physics 227, Advanced Fluid Dynamics

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Biochemistry and Molecular Biology

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Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Baskin Engineering Building
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

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Program Description

Research at the macromolecular, molecular, and atomic levels is revolutionizing our understanding of the fundamental processes of life. Students interested in joining this search are best prepared by undertaking coursework in biology, chemistry, physics, mathematics, and computer science. The undergraduate major in Biochemistry and Molecular Biology (BMB) is offered by faculty who are actively engaged in research on biological systems.

Students who declare the BMB major earn a bachelor of science (B.S.) degree. The BMB major constitutes an integrated curriculum of basic instruction in biology, chemistry, mathematics, and physics, followed by the opportunity to pursue advanced study in specialized areas of interest. In modern, well-equipped laboratories, distinguished faculty are engaged in frontline research at UCSC. The Department of Chemistry and the Department of Biochemistry and Molecular, Cell, and Developmental Biology each host a very active seminar series in which internationally recognized scientists present their current research findings. Advanced BMB undergraduates are encouraged to attend.

The BMB program features close faculty-student interaction, stimulating learning environments, and opportunities for independent research and study. Students majoring in BMB are encouraged to become involved in research under the guidance of a faculty sponsor. Many students participating in this aspect of the program have made important contributions to the scientific literature.

Given the wide scope and interdisciplinary nature of this program, a considerable degree of flexibility has been incorporated into the major. All prospective majors should see the BMB academic adviser in the Undergraduate Affairs Office as early as possible. Junior transfer students or others with questions should consult the Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/. A double major of BMB with the biological sciences majors or chemistry is not permitted. No minor is offered.

Declaration of the Biochemistry and Molecular Biology Major

Biochemistry and Molecular Biology Qualification Policy

To qualify to declare the Biochemistry and Molecular Biology major, students must achieve a

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
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- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
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cumulative GPA of 2.50 or greater in the following courses, or their equivalents:

Chemistry 1B, General Chemistry
Chemistry 1C, General Chemistry
Chemistry 108A, Organic Chemistry
Biology (BIOL) 20A, Cell and Molecular Biology

and in one of the following calculus courses:

Applied Mathematics and Statistics 15A, Case-study Calculus I
Mathematics 11A, Calculus with Applications
Mathematics 19A, Calculus for Science, Engineering, and Mathematics

Students with two or more grades of NP, D, or F in the policy courses are not qualified to declare.

When calculating GPA to determine qualification:

- All courses must be taken for a letter grade, see Letter Grade Policy.
- Students with non-grades (I, IP, DG, Z, AC, NC, etc.) in any of the policy courses will not be eligible to declare until a grade has been assigned.

Students who are informed that they are not eligible to declare the major may appeal by submitting a letter to the Biochemistry and Molecular Biology program chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the Biochemistry and Molecular Biology program chair will notify the student, the Office of the Registrar and the student's affiliated college of the decision. For more information about the appeal process, see the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/.

Letter Grade Policy

For all students entering UCSC in fall 2001 and later, all courses used to satisfy any of the major requirements must be taken for a letter grade.

Program Planning Notes

Students who do not begin the lower-division requirements during their first year and who do not complete the organic chemistry requirements by the end of their second year will have difficulty completing the program within four years. Students who transfer to UCSC prior to completing their introductory requirements will have difficulty completing the program within the allotted time. The BMB academic adviser works closely with students interested in pursuing the major to ensure that they begin the program immediately and follow the appropriate steps toward completion.

It is strongly recommended that students avail themselves of the opportunities to obtain firsthand research experience through either independent study or senior thesis research. A tutorial course or a senior thesis research course may not be substituted for the required laboratory elective.

A number of graduate courses in Biochemistry and Molecular Biology are offered by the molecular, cell, and developmental biology (MCDB), and chemistry and biochemistry departments. Advanced undergraduates possessing the necessary prerequisites may take one or more of these courses with the consent of the instructor; however, graduate courses may not be substituted for any of the elective courses required for the degree.

Requirements for the B.S. Degree

Lower-Division Requirements

General Chemistry: Chemistry 1A, 1B/M, and 1C/N

Calculus: Mathematics 11A-B and 22; or Mathematics 19A-B and 22; or Applied Mathematics and Statistics 15A-B, and Mathematics 22

Statistics: Applied Mathematics and Statistics 5 or 7/L

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
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Introductory Biology: Biology (BIOL) 20A and Biology (BIOE) 20B

Physics: Physics 5A/L, 5B/M, and 5C/N; or 6A/L, 6B/M, and 6C/N

Upper-Division Requirements

Organic Chemistry: Chemistry 108A/L, 108B/M

Biochemistry: Biochemistry and Molecular Biology (BIOC) 100A, 100B, and 100C and BIOL 101L (formerly 100K)

Genetics: Biology (BIOL) 105

Cell Biology: Biology (BIOL) 110

Molecular Biology: Biology (BIOL) 115

Physical Chemistry: Chemistry 163A and 163B

One of the following laboratory courses:

Biochemistry and Molecular Biology (BIOC) 110L, Advanced Biochemistry Laboratory

Biology (BIOL) 100L, Advanced Biochemistry Laboratory

Biology (BIOL) 105L, Eukaryotic Genetics Laboratory

Biology (BIOL) 105M, Microbial Genetics Laboratory

Biology (BIOL) 109L, Yeast Molecular Genetics Laboratory

Biology (BIOL) 110L, Cell Biology Laboratory

Biology (BIOL) 115L, Eukaryotic Molecular Biology Laboratory

Biology (BIOL) 121L, Environmental Phage Biology Laboratory

Biology (BIOL) 186L, Undergraduate Research in MCD Biology

Biology (BIOL) 187L, Molecular Biotechnology Laboratory

Biomolecular Engineering (BME) 122, Environmental Virus Bioinformatics Laboratory

Microbiology and Environmental Toxicology (METX) 119L, Microbiology Laboratory

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in Biochemistry and Molecular Biology is satisfied by completing one of the following courses: BIOC 110L, BIOL 100L, 105L, 105M, 109L, 110L, 115L, 121L, 186L, 187L, or BME 122, or METX 119L. The DC requirement must be satisfied at UCSC and may not be transferred from another institution.

Biochemistry and Molecular Biology Planner

http://undergrad.pbsci.ucsc.edu/programs/bioc/biocbs.html

Comprehensive Requirement

Students must satisfy the comprehensive requirement by receiving a passing letter grade in any of the independent research laboratory listed in the previous section. In addition, students are encouraged to complete a senior thesis or a senior essay (see Chemistry and Biochemistry for more information).

Materials Fee

Biochemistry and Molecular Biology students should be aware of the materials fee required for some laboratory courses. The fee is billed to the student's account for specific laboratory materials purchased through the university. Fees generally range from $15 to $75 per course. Students may incur additional expenses purchasing individual supplies.

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Biology (Bachelor of Science)

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Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Baskin Engineering Building
(831) 459-4143
undergrad.pbsci.ucsc.edu

Program Description

Biology has entered into an exciting new era in which phenomena that once seemed insoluble mysteries—such as embryonic development, the functions of the brain, and the dynamics of ecosystems—are now yielding their secrets as the technology to study them becomes more and more sophisticated. From molecular biology, with its potential to revolutionize medicine and agriculture, to ecology, with its lessons for the sustainable management of the environment, biologists are fully engaged in meeting the challenges of the future, helping to improve the quality of human life and to preserve habitats and biodiversity. Thus, it is no surprise that biology is at the heart of many of today's most pressing intellectual and social concerns.

The Departments of Ecology and Evolutionary Biology (EEB) and Molecular, Cell, and Developmental Biology (MCDB) offer a broad spectrum of courses that reflect the exciting new developments and directions in the field of biology. An outstanding group of faculty, each with a vigorous, internationally recognized research program, is available to teach courses in their specialties as well as core courses for the major. Areas of research strength within the departments include RNA molecular biology, molecular and cellular aspects of genetics and development, neurobiology, microbial biochemistry, plant biology, animal behavior, physiology, evolution, ecology, and marine biology. Many students take advantage of the numerous opportunities for undergraduate research, allowing students to interact one on one with faculty and other researchers in a laboratory or field setting.

Students may plan a program that leads to a bachelor of arts (B.A.), including a bioeducation concentration, or bachelor of science (B.S.) degree. Advanced undergraduates, with the guidance of faculty mentors, have access to extensive departmental laboratory facilities for independent research. Fieldwork draws on a remarkable variety of terrestrial habitats, as well as ready access to Monterey Bay and the open Pacific. Hospitals, convalescent and physical therapy centers, veterinary clinics, and other enterprises in the vicinity of the campus provide the opportunity to pursue field projects and internships comparable to on-the-job training. This array of opportunities for directed independent study enables biology majors to enhance their upper-division programs to reflect and strengthen their own interests and goals in the sciences.

Prerequisites

The introductory biology sequence is prerequisite to virtually all upper-division biology courses. BIOL 20A has a prerequisite of Chemistry 1A and 1B. Therefore, it is essential for

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students considering a major in biology to start chemistry as soon as possible. Students who have not taken Chemistry 1A or 1B but are prepared to begin biology may begin the introductory sequence with BIOE 20C. The entire introductory biology sequence should be taken the first and second year, concurrently with or following the general chemistry sequence.

An online Mathematics Placement Examination is offered at various periods prior to enrollment for each quarter. Biological science majors are expected to take this examination. For more information see the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu.

Transfer Students

Applications from transfer students in the biological sciences are encouraged. Students who transfer without having completed the required and recommended coursework may have difficulty enrolling in courses and may require more than two years to complete a degree. Prior to transfer, students should satisfy major qualification requirements or their UCSC equivalents: Chem 1B, General Chemistry; Chem 1C, General Chemistry; BioL 20A, Cell & Molecular Biology; BioE20B, Development and Physiology. Junior-level transfer students are also strongly encouraged to complete courses equivalent to MATH 11A, MATH 11B and AMS 5 or AMS 7/L prior to transfer. Intended human biology majors are strongly encouraged to complete the Spanish language requirement prior to transfer. Prospective transfer students should review the transfer information at http://assist.org or contact the Undergraduate Affairs office for further information.

Academic Advising

Academic advising is available at the Physical and Biological Sciences Undergraduate Affairs office. Students should take full advantage of this opportunity and should keep in frequent touch with the office to stay informed about late announcements of courses, changes in scheduling, and opportunities for special study.

The undergraduate web site (http://undergrad.pbsci.ucsc.edu) serves as the program handbook containing advice and information pertinent to students' most frequently voiced questions. Each student in the major should review the information posted on the web site; for further assistance, contact an academic adviser.

Biology B.S. Qualification Policy

To qualify for the Biology B.S. majors, students must pass and achieve a cumulative GPA of 2.30 or greater in each of the following courses or their equivalents.

Chemistry and Biochemistry 1B, General Chemistry
Chemistry and Biochemistry 1C, General Chemistry
Biology: Molecular, Cell, and Developmental Biology (BIOL) 20A, Cell and Molecular Biology
Biology: Ecology and Evolutionary Biology (BIOE) 20B, Development and Physiology

Students with two or more grades of NP, D, or F in the policy courses are not qualified to declare.

When calculating grades to determine cumulative GPA in policy courses:

- All courses must be taken for a letter grade, see Letter Grade Policy.
- Students with AP credit for Biology: Molecular, Cell, and Developmental Biology (BIOL) 20A and Biology: Ecology and Evolutionary Biology (BIOE) 20B, may base their cumulative GPA on three grades: a single A for AP Biology and their grades in Chemistry and Biochemistry 1B and 1C.
- Students with non-grades (I, IP, DG, etc.) in any of the policy courses will not be eligible to declare until a grade has been assigned.
- Every student who satisfies the major admission requirements and who petitions to declare the major by the campus major declaration deadline (i.e., before enrolling in their third year or the equivalent) will be admitted to the major. Students enrolled in their final qualification policy course at the major declaration deadline may submit the petition, but will not be declared until satisfactory grades and qualifying GPA have been posted.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
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Students who satisfy the major admission requirements but who petition to declare the major after the campus major declaration deadline will be considered on a case-by-case basis for admission to the major; admission is not guaranteed.

- Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the MCD Biology Faculty Advisor within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision."

For more information about the appeal process see the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/mcdb/qualifying/appeal-process.html.

Declaring a Biology B.S. Major

Students may submit a petition to declare after completing the qualification policy courses noted above. Students enrolled in their final policy course may submit the petition to declare, but will not be declared until grades have been posted. For instructions on petitioning to declare go the Physical and Biological Sciences Undergraduate Affairs web site: undergrad.pbsci.ucsc.edu/.

Students may not pursue multiple majors combining a Biology major (B.A., B.S., bioeducation concentration, or minor) with any other biological sciences major (Ecology and Evolution; Marine Biology; Plant Sciences; Environmental Studies/Biology combined major; Molecular, Cell and Developmental Biology; Neuroscience; Human Biology; and Biochemistry and Molecular Biology).

Biology B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Organic Chemistry: Chemistry 108A/L and 108B
Calculus: Mathematics 11A-B or 19A-B or Applied Math and Statistics 15A-B
Statistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L, and 6B or 6C

Advanced Requirements

Students must complete one upper-division biology course that includes regular laboratory or fieldwork. (In addition to BIOL 101L, a lab or field course must be completed).

Six core courses and one lab course:

Biochemistry: BIOL 100/K
Molecular Biology BIOL 101*
Molecular Biology Laboratory: BIOL 101L
Genetics: BIOL 105
Cell Biology: BIOL 110
Ecology: BIOE 107
Evolution: BIOE 109

*Instead of Biochemistry (BIOL 100) and Molecular Biology (BIOL 101), students may complete the series in Biochemistry and Molecular Biology 100A, 100B, 100C. (Upon completion of the series, Biochemistry and Molecular Biology 100C may be used to satisfy one lecture elective.)

Students must complete three additional upper-division biology electives chosen from Biological Sciences-EEB courses (BIOE) or Biological Sciences-MCDB courses (BIOL).

BIOL 111A, Immunology
BIOL 113, Mammalian Endocrinology
BIOL 115, Eukaryotic Molecular Biology
BIOL 125, Introduction to Neuroscience
BIOL 130/L, Human Physiology and Laboratory (laboratory optional)
BIOE 108, Marine Ecology

BIOE 131/L, Animal Physiology and Laboratory (laboratory optional)
BIOE 133/L, Exercise Physiology and Laboratory

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement for the biology bachelor of science degree is satisfied by completing courses BIOE 107, Ecology, or BIOE 108, Marine Ecology, and BIOE 109, Evolution, or BIOE 159A, Marine Ecology Field Quarter.

Biology B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/mcdb/mcdbbs/mcdbbs-frosh-plans.html
For transfer students: http://undergrad.pbsci.ucsc.edu/mcdb/mcdbbs/mcdbbs-transfer-plans.html

Comprehensive Requirement

All majors in the biological sciences require a comprehensive requirement. This requirement can be satisfied in one of the following ways:

- by passing course 190, Senior Seminar;
- by receiving a passing grade in an internship, independent research laboratory, or field course:

BIOE 114L, Field Methods in Herpetological Research
BIOE 141L, Behavioral Ecology Field Course
BIOE 145L, Field Methods in Plant Ecology
BIOE 150L, Ecological Field Methods
BIOE 151, Ecology and Conservation in Practice
BIOE 158L, Marine Ecology Laboratory
BIOE 159, Marine Ecology Field Quarter
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 183, Undergraduate Research in EEB
BIOL 100L, Advanced Biochemistry Laboratory
BIOL 105L, Eukaryotic Genetics Laboratory
BIOL 105M, Microbial Genetics Laboratory
BIOL 109L, Yeast Molecular Genetics Laboratory
BIOL 110L, Cell Biology Laboratory
BIOL 111L, Immunology Laboratory
BIOL 115L, Eukaryotic Molecular Biology Laboratory
BIOL 120L, Developmental Biology Laboratory
BIOL 121L, Environmental Phage Biology Laboratory
BIOL 178L, Protocols in Stem Cell Biology
BIOL 186L, Undergraduate Research in MCD Biology
BIOL 186R, Undergraduate Research in MCD Biology
BIOL 187L, Molecular Biotechnology Laboratory
BIOL 189, Health Sciences Internship
Biochemistry and Molecular Biology 110L, Advanced Biochemistry Laboratory
Biomolecular Engineering 122, Environmental Virus Bioinformatics Laboratory
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

- by completing a senior thesis;
- by achieving a graduate record examination (GRE) score at or above the 50th percentile on the biology subject test or the biochemistry, cell, and molecular biology subject test. Reports of GRE scores must be submitted to the biological sciences advising office before the last day of the graduating quarter;
- by obtaining a medical college admission test (MCAT) score at or above the 50th percentile on the biological sciences section. Reports of MCAT scores must be submitted to the biological sciences advising office before the last day of the graduating quarter.

Honors

Honors in biology majors are awarded to graduating students whose academic performance demonstrates excellence at a grade point average (GPA) of 3.5 or above. Highest honors are awarded to those students whose performance demonstrates the highest level of excellence and results in a GPA of 3.8 or above.

Letter Grade Policy

For all students entering UCSC in fall 2001 and later, all courses used to satisfy any of the biological sciences majors must be taken for a letter grade.

Course Substitution/Transfer Credit Policy

At least half of the upper-division courses (numbered 100-190) required for each major must be taken through the biological sciences program at UCSC, not as transfer credits from another department or institution. Transfer students are advised to contact the Physical and Biological Sciences Undergraduate Affairs office before enrolling in numerous upper-division courses at other institutions. For more information on transferring courses to UCSC, please consult the undergraduate web site at http://undergrad.pbsci.ucsc.edu.

A maximum of one upper-division course requirement may be met with a research-based independent study or graduate-level UCSC biology course or a course offered by another UCSC department.

Education Abroad Opportunities

The UC Education Abroad Program (EAP) offers qualified students unique opportunities to broaden their educational horizons. Both the Ecology and Evolutionary Biology and the Molecular, Cell and Developmental Biology departments encourage interested students to participate. Many programs are in English-speaking countries or use English for advanced courses. Many programs offer small classes, extensive laboratories, and/or field research experience.

Students interested in study abroad need to get an early start on their basic science requirements, including chemistry, mathematics, and introductory biology and must declare their major prior to applying to go abroad. Visit the EAP office as soon as possible to begin planning; you must seek advice about your EAP plan for major courses at UCSC from the biological sciences undergraduate adviser and/or faculty adviser and receive their approval for your plans.

Medical and Professional School Admission

Medical and professional school admissions requirements vary; students should verify that their coursework will satisfy the admissions requirements of the programs to which they plan to apply.

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Ecology and Evolutionary Biology

2014-15 General Catalog

Ecology and Evolutionary Biology Department
A308 Earth and Marine Sciences
(831) 459-5358
http://www.eeb.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

EEB Faculty | EEB Course Descriptions

Undergraduate Program Description

The Department of Ecology and Evolutionary Biology (EEB) is devoted to the study of ecological and evolutionary processes in marine, terrestrial, and freshwater environments. The past 30 years have seen several revolutions in our understanding of how the biological world works. Advances in both analytical and genetic methods have given us a far more sophisticated understanding of the complexities of ecological and evolutionary processes in the natural world. Biologists at UCSC have played and will continue to play an important part in these advances, and the campus programs offer unique educational opportunities in biology that feature small class sizes, field studies, and extensive faculty-student interactions.

Class offerings, as well as research opportunities, focus on the varied natural environments in the Monterey Bay region, throughout the western US, and in more distant locations such as Africa, Europe, Mexico, Tahiti, Australia, and the Far East. This emphasis on field studies is a unique focus of our variety of undergraduate majors. Within this context they address not only basic ecological and evolutionary processes, but also the application of this knowledge to improve conservation strategies and environmental quality and sustainability.

An outstanding group of faculty, each with a vigorous, internationally recognized research program, is available to teach courses in their specialties as well as core courses for the major. Areas of research strength within the department include plant biology, animal behavior, physiology, evolution, ecology, and marine biology. UCSC is unique in the UC system in providing exceptional opportunities for undergraduate research, allowing students to interact one-on-one with faculty and other researchers in a laboratory or field setting.

Students may plan a program that leads to one of several bachelor of arts (B.A.) and bachelor of science (B.S.) degrees. Students may choose from the following major options:

Biology B.A.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Biology B.A. (Bioeducation concentration)
Ecology and Evolution B.S.
Marine Biology B.S.
Plant Sciences B.S.
Environmental Studies/Biology combined major B.A. (administered by the Environmental Studies Department).

Advanced undergraduates, with the guidance of faculty mentors, have access to extensive departmental laboratories, including state-of-the-art genetics and physiology facilities, for independent research. Fieldwork draws on a remarkable variety of terrestrial habitats, as well as ready access to Monterey Bay and the open Pacific. Terrestrial studies are supported by the UCSC reserve on campus, an arboretum, greenhouse facility, and vehicles to transport students to field sites off campus. Freshwater studies have access to a number of coastal tributaries and laboratory facilities at Long Marine Laboratory. Marine studies are supported by the Long Marine Laboratory with running seawater facilities, a boating program, and an AAUS accredited SCUBA diving program for underwater classes and research. Año Nuevo Island, north of Santa Cruz, is the site of extensive behavioral studies of marine mammals. In addition to coursework, there is an array of opportunities for directed independent study that enables biological science majors to enhance their upper-division programs to reflect and strengthen their own interests and goals in the sciences.

Prerequisites

The introductory biology sequence is prerequisite to virtually all upper-division biology courses. BIOL 20A has a prerequisite of Chemistry 1A and 1B. Therefore, it is essential for students considering a major in the biological sciences to start chemistry as soon as possible. Students who have not taken Chemistry 1A or 1B but are prepared to begin biology may begin the introductory sequence with BIOE 20C. The entire introductory biology sequence should be taken the first and second year, concurrently with or following the general chemistry sequence.

An online Mathematics Placement Examination is offered at various periods prior to enrollment for each quarter. Biological science majors are expected to take this examination. For more information see the Mathematics Placement Exam web site at http://undergrad.pbsci.ucsc.edu/enrollment/math-placement/index.html.

Transfer Students

EEB encourages applications from transfer students in the biological sciences. In fall 2012 the department established a Qualification Policy that limits access to the program to those students who have completed a subset of foundational coursework. Transfer students are held to similar criteria for accessing the major.

To be considered for admission to UCSC as one of the EEB majors, transfer students must pass equivalents of the following courses with a C (2.0) or better in these preparatory courses:

- BIOL 20A, Cell and Molecular Biology (offered by the Molecular, Cell, and Developmental Biology Department)
- One of the following courses offered by the Ecology and Evolutionary Biology Department:
  - BIOE 20C, Ecology and Evolution
  - BIOE 20B, Development and Physiology
- CHEM 1A, General Chemistry (offered by the Chemistry Department)
- CHEM 1B, General Chemistry (offered by the Chemistry Department)
- One of the following calculus courses (except biology B.A. majors) offered by the Mathematics Department
  - MATH 11A, Calculus with Applications
  - MATH 19A, Calculus for Science, Engineering, and Mathematics

For more information on qualifying for the major as a transfer applicant, visit:

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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http://undergrad.pbsci.ucsc.edu/eeb/transfer-students/transfer-admissions.html.

In addition to the required coursework, students should complete a full year of calculus, general chemistry, and introductory biology. Students who transfer without having completed the prerequisite coursework may have difficulty enrolling in courses and may require more than two years to complete their EEB-sponsored degree.

Prospective transfer students should review the transfer preparation guidelines at: http://undergrad.pbsci.ucsc.edu/eeb/transfer-students/transfer-prep.html.

Academic Advising

Academic advising is available at the Physical and Biological Sciences Undergraduate Affairs office. Students should take full advantage of this opportunity and should keep in frequent touch with the office to stay informed about late announcements of courses, changes in scheduling, and opportunities for special study.

The undergraduate web site (http://undergrad.pbsci.ucsc.edu/eeb/index.html) serves as the program handbook containing advice and information pertinent to students' most frequently voiced questions. Each student in the major should review the information posted on the web site; for further assistance, contact an academic advisor.

Ecology and Evolutionary Biology Qualification Policy

To qualify for any of the majors sponsored by the department of Ecology and Evolutionary Biology, except the combined major with Environmental Studies, students must complete the following courses, or their equivalents, with a grade of C or better:

CHEM 1A, General Chemistry (offered by the Chemistry Department)
CHEM 1B, General Chemistry (offered by the Chemistry Department)
BIOL 20A, Cell and Molecular Biology (offered by the Molecular, Cell, and Developmental Biology Department)

One of the following courses offered by the Ecology and Evolutionary Biology Department:

- BIOE 20C, Ecology and Evolution,
- BIOE 20B, Development and Physiology

One of the following calculus courses (except biology B.A. majors) offered by the Mathematics Department

MATH 11A, Calculus with Applications
MATH 19A, Calculus for Science, Engineering, and Mathematics

Determining qualification:

Students who complete all the qualification courses with a grade of C or better are allowed to declare a major.

Students who have received one grade of NP, D, or F in one of the qualification courses will only be allowed to declare after successfully completing the same or an equivalent course with a grade of C or better.

Students with two or more grades of NP, D, or F in the qualification courses are not allowed to declare.

Students with AP credit for any of the qualification course(s) are allowed to declare after successfully completing the remaining qualification courses.

Students with non-grades in any of the qualification courses will not be allowed to declare until a grade of C or better has been assigned.

Students who are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days of the denial of the declaration. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision. For more information about the appeal process see the Physical and Biological Sciences Undergraduate Affairs website at: http://undergrad.pbsci.ucsc.edu/eeb/qualifying/appeal-process.html.

Declaring a Major

Students may submit a petition to declare after completing the qualification policy courses. Students who are enrolled in their final qualification policy course may submit the petition, but will not be declared until grades have been posted. For instructions on petitioning to declare go the Physical and Biological Sciences Undergraduate Affairs web site at: http://undergrad.pbsci.ucsc.edu/eeb/qualifying/petition-to-declare.html.

Double Major in the Biological Sciences

Students interested in pursuing multiple majors within the biological sciences may not declare any combination of Biology (B.A., B.S., bioeducation concentration, or minor), Ecology and Evolution, Marine Biology, Plant Sciences, or Environmental Studies/Biology combined major.

General Biology Bachelor of Arts Major

The general biology Bachelor of Arts major permits flexibility, but demands careful attention to a student's own interests and plans. Each student should select courses on the basis of up-to-date information in consultation with a biology faculty adviser whose interests reflect the student's interests.

General Biology B.A. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A and 1B
Calculus: Mathematics 11A
Statistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L

Advanced Requirements

A total of eight upper-division biology courses, as follows:

Three core courses:

Genetics: BIOL 105
Evolution: BIOE 109
Ecology: BIOE 107

One of the following anatomy or physiology courses:

BIOE 131/L, Animal Physiology/Laboratory
BIOE 133/L, Exercise Physiology/Laboratory
BIOE 134/L, Comparative Vertebrate Physiology/Laboratory
BIOE 135/L, Plant Physiology/Laboratory
BIOL 130/L, Human Physiology/Laboratory
BIOL 135/L, Human Anatomy/Laboratory

Electives

Four additional electives chosen from the following:

BIOE 108, Marine Ecology
BIOE 112/L, Ornithology/Laboratory
BIOE 114/L, Herpetology/Laboratory
BIOE 117/L, Systematic Botany/Laboratory
BIOE 118, Ethnobotany
BIOE 120/L, Marine Botany/Laboratory
BIOE 122/L, Invertebrate Zoology/Laboratory
BIOE 124/L, Mammology/Laboratory
BIOE 127/L, Ichthyology/Laboratory
BIOE 128L, Large Marine Vertebrates Field Course
BIOE 129/L, Biology of Marine Mammals/Laboratory

BIOE 131/L, Animal Physiology/Laboratory
BIOE 133/L, Exercise Physiology/Laboratory
BIOE 134/L, Comparative Vertebrate Physiology/Laboratory
BIOE 135/L, Plant Physiology/Laboratory
BIOE 137/L, Molecular Ecology/Laboratory
BIOE 140, Behavioral Ecology
BIOE 141L, Behavioral Ecology Field Course
BIOE 145, Plant Ecology
BIOE 145L, Field Methods in Plant Ecology
BIOE 147, Community Ecology
BIOE 148, Quantitative Ecology
BIOE 149, Disease Ecology
BIOE 150, Ecological Field Methods
BIOE 150L, Ecological Field Methods Laboratory
BIOE 151ABCD, Ecology and Conservation in Practice
BIOE 155, Freshwater Ecology
BIOE 155L, Freshwater Ecology Laboratory
BIOE 158L, Marine Ecology Laboratory
BIOE 159ABCD, Marine Ecology Field Quarter
BIOE 161, Kelp Forest Ecology
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 163/L, Ecology of Reefs, Mangroves, and Seagrasses/Laboratory
BIOE 165, Marine Conservation Biology
BIOE 172/L, Population Genetics/Laboratory
BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 110, Cell Biology
BIOL 111A, Immunology
BIOL 113, Endocrinology
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development
BIOL 125, Introduction to Neuroscience
Chemistry 108A, Organic Chemistry
Chemistry 108B, Organic Chemistry
Microbiology and Environmental Toxicology 119, Microbiology
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement for the biology bachelor of arts degree is satisfied by completing courses BIOE 107, Ecology, and BIOE 109, Evolution.

General Biology B.A. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/biology/biolba/biolba-frosh-plans.html
For transfer students: http://undergrad.pbsci.ucsc.edu/biology/biolba/biolba-transfer-plans.html

General Biology, Bioeducation Concentration, B.A.

The General Biology, Bioeducation Concentration, B.A. major is designed to meet the needs of students who plan careers as K-12 science teachers. It provides students with a rigorous education in biology through science breadth courses to prepare them for the state credentialing examinations (CSET) in biology/life sciences, and courses covering education theory and practical teaching experience through internships in local schools.

General Biology, Bioeducation Concentration, B.A. Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Organic Chemistry: Chemistry 108A/L and 108B

Calculus: Mathematics 11A–B or 19A–B
Statistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L, and 6B or 6C
Education: Education 50C
Earth Sciences: Earth Sciences 20/L (optional*)
Astronomy: Astronomy 2 (optional*)

*These courses are recommended for students interested in pursuing a credential to teach general science.

Advanced Requirements

A total of 10 upper-division biology and education courses, and associated laboratories, as follows:

BIOL 100, Biochemistry
BIOL 105, Genetics
BIOE 107, Ecology
BIOE 109, Evolution
Education 185C, Introduction to Teaching Science
Education 185L, Introduction to Teaching: CalTeach 3

Students must fulfill the major distribution requirement, which includes one course from each of the following groups:

CELL/DEVELOPMENTAL BIOLOGY:

BIOL 110, Cell Biology
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Developmental Biology
Microbiology and Environmental Toxicology 119, Microbiology

PHYSIOLOGY:

BIOE 131, Animal Physiology
BIOE 135, Plant Physiology
BIOL 113, Endocrinology
BIOL 130, Human Physiology

BIOLOGY LABORATORY:

One 5-credit, upper-division biology laboratory course, or

BIOE 131L, Animal Physiology Laboratory
BIOE 135L, Plant Physiology Laboratory
BIOL 130L, Human Physiology Laboratory

(BIOL 135L cannot be used to satisfy the laboratory requirement in the bioeducation concentration.)

Ecology and Evolution Major

The ecology and evolution major provides students with interdisciplinary skills necessary for understanding and solving complex problems in ecology, evolution, behavior, and physiology. While some of these disciplines focus on molecular or chemical mechanisms, they all address questions on larger spatial and temporal scales that can be applied to important environmental problems, including genetic and ecological aspects of conservation biology and biodiversity.

Students majoring in ecology and evolution will receive a B.S. degree based on an integrated series of courses providing breadth in fundamental areas of biology and allied sciences that enhance understanding of evolutionary and ecological processes. The capstone of this curriculum is a suite of field courses providing students unique opportunities to learn and conduct research in a host of ecological systems. Students are encouraged to take field courses in their areas of specialization. Other opportunities include participation in research projects with faculty sponsors and the intensive Education Abroad Programs (EAP) in Costa Rica (tropical biology) and Australia (marine sciences).

Ecology and Evolution B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Calculus: Mathematics 11A-B or 19A-B
Biostatistics: Applied Mathematics and Statistics 7/L
Physics: Physics 6A/L, and 6B or 6C

Advanced Requirements

A total of eleven upper-division courses; two must include laboratory or fieldwork.

Three upper-division core courses:

Genetics: BIOL 105
Ecology: BIOE 107
Evolution: BIOE 109

One of the following physiology courses:

BIOE 131/L, Animal Physiology/Laboratory
BIOE 135/L, Plant Physiology/Laboratory

One of the following organism courses:

BIOE 112/L, Ornithology/Ornithology Field Studies
BIOE 114/L, Herpetology/Field Methods in Herpetological Research
BIOE 117/L, Systematic Botany of Flowering Plants/Laboratory
BIOE 120/L, Marine Botany/Laboratory
BIOE 122/L, Invertebrate Zoology/Laboratory
BIOE 124/L, Mammology/Laboratory
BIOE 127/L, Ichthyology/Laboratory
BIOE 129/L, Biology of Marine Mammals/Laboratory
Microbiology and Environmental Toxicology 119/L, Microbiology/Laboratory

Elective list for Ecology and Evolution Major

Three topical electives chosen from the following:

BIOE 108, Marine Ecology
BIOE 112/L, Ornithology/Laboratory
BIOE 114/L, Herpetology/Laboratory
BIOE 117/L, Systematic Botany/Laboratory
BIOE 118, Ethnobotany
BIOE 120/L, Marine Botany/Laboratory
BIOE 122/L, Invertebrate Zoology/Laboratory
BIOE 124/L, Mammology/Laboratory
BIOE 127/L, Ichthyology/Laboratory
BIOE 128L, Large Marine Vertebrates Field Course
BIOE 129/L, Biology of Marine Mammals/Laboratory
BIOE 131/L, Animal Physiology/Laboratory
BIOE 133/L, Exercise Physiology/Laboratory
BIOE 134/L, Comparative Vertebrate Physiology/Laboratory
BIOE 135/L, Plant Physiology/Laboratory
BIOE 137/L, Molecular Ecology/Laboratory
BIOE 140, Behavioral Ecology
BIOE 141L, Behavioral Ecology Field Course
BIOE 145, Plant Ecology
BIOE 145L, Field Methods in Plant Ecology
BIOE 147, Community Ecology
BIOE 148, Quantitative Ecology
BIOE 149, Disease Ecology
BIOE 150, Ecological Field Methods
BIOE 150L, Ecological Field Methods Laboratory
BIOE 151ABCD, Ecology and Conservation in Practice
BIOE 155, Freshwater Ecology
BIOE 155L, Freshwater Ecology Laboratory

BIOE 158L, Marine Ecology Laboratory
BIOE 159ABCD, Marine Ecology Field Quarter
BIOE 161, Kelp Forest Ecology
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 163/L, Ecology of Reefs, Mangroves, and Seagrasses/Laboratory
BIOE 165, Marine Conservation Biology
BIOE 172/L, Population Genetics/Laboratory
BIOE 188, Introduction to Science Writing
BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 110, Cell Biology
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development
Microbiology and Environmental Toxicology 119, Microbiology
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory
Ocean Sciences 118, Marine Microbial Ecology

Three general electives chosen from the following:

BIOLOGICAL SCIENCES-EEB

any upper-division BIOE course

BIOLOGICAL SCIENCES-MCDB

BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development

CHEMISTRY

Chemistry 108A, Organic Chemistry
Chemistry 108B, Organic Chemistry

EARTH SCIENCES

Earth Sciences 100/L, Vertebrate Paleontology
Earth Sciences 101/L, Invertebrate Paleobiology/Laboratory
Earth Sciences 102, Marine Geology
Earth Sciences 105, Coastal Geology

ECONOMICS

Economics 166A, Game Theory and Applications I
Economics 166B, Game Theory and Applications II

ENVIRONMENTAL STUDIES (ENROLLMENT BY PERMISSION OF INSTRUCTOR)

Environmental Studies 104A, Introduction to Environmental Field Methods
Environmental Studies 108/L, General Entomology/Laboratory
Environmental Studies 115A/L, GIS and Environmental Applications/Exercises in GIS
Environmental Studies 120, Conservation Biology
Environmental Studies 122, Tropical Ecology and Conservation
Environmental Studies 123, Animal Ecology and Conservation
Environmental Studies 129, Integrated Pest Management
Environmental Studies 130A/L, Agroecology and Sustainable Agriculture/Laboratory
Environmental Studies 130B, Principles of Sustainable Agriculture
Environmental Studies 131/L, Insect Ecology/Laboratory
Environmental Studies 160, Restoration Ecology
Environmental Studies 161A/L, Soils and Plant Nutrition/Laboratory
Environmental Studies 162, Plant Physiological Ecology
Environmental Studies 163/L, Plant Disease Ecology/Laboratory
Environmental Studies 167, Freshwater and Wetland Ecology
Environmental Studies 168, Biochemistry and the Global Environment

MICROBIOLOGY AND ENVIRONMENTAL TOXICOLOGY

Microbiology and Environmental Toxicology 119, Microbiology
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

OCEAN SCIENCES

Ocean Sciences 118, Marine Microbial Ecology
Ocean Sciences 130, Biological Oceanography

PSYCHOLOGY

Psychology 123, Behavioral Neuroscience

One of the following may also be used as an upper-division general elective:

BIOLOGICAL SCIENCES-EEB

Any 5 credits of undergraduate research (BIOE 183W, 183L, 193, 193F, or 195, or 198)

ENVIRONMENTAL STUDIES

Environmental Studies 183, Environmental Studies Internship

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in ecology and evolution is satisfied by completing courses BIOE 107, Ecology, and BIOE 109, Evolution.

Ecology and Evolution B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/eeb/ecevbs/ecev-frosh-plans.html
For transfer students: http://undergrad.pbsci.ucsc.edu/eeb/ecevbs/ecev-transfer-plans.html

Marine Biology Major

UCSC is situated within five miles of Monterey Bay and its great diversity of coastal marine ecosystems; nature reserves; and state, federal, and private marine research institutions and resource management agencies. These resources, combined with on-campus computing and analytical facilities and the Long Marine Laboratory, make UCSC an exceptional campus for the study of marine biology and its application to coastal conservation and management. Descriptions of nearby environments, institutions, and facilities are available through the Ecology and Evolutionary Biology Department web site at http://www.eeb.ucsc.edu/.

The marine biology major is designed to introduce students to marine organisms and the biological and physical processes that affect these organisms, their populations, and their coastal and oceanic ecosystems. The emphasis is on basic principles that help in understanding the processes that shape life in marine environments. The marine biology major is a demanding program that offers a B.S. degree and requires several more courses than the general biology B.A. major.

Marine Biology B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Calculus: Mathematics 11A-B or 19A-B
Biostatistics: Applied Mathematics and Statistics 7/L
Physics: Physics 6A/L, and 6B or 6C

Advanced Requirements

A total of 11 upper-division courses; two must include laboratory or fieldwork.

Two core courses:

Genetics: BIOL 105
Evolution: BIOE 109

One ecology course:

BIOE 107, Ecology
BIOE 108, Marine Ecology

One marine-environment course:

Ocean Sciences 101, Marine Environment
Ocean Sciences 130, Biological Oceanography

One marine course:

BIOE 120/L, Marine Botany/Laboratory
BIOE 122/L, Invertebrate Zoology/Laboratory
BIOE 127/L, Ichthyology/Laboratory
BIOE 129/L, Biology of Marine Mammals/Laboratory

Elective list for Marine Biology Major

Three topical electives chosen from the following:

BIOE 108, Marine Ecology
BIOE 120/L, Marine Botany/Laboratory
BIOE 122/L, Invertebrate Zoology/Laboratory
BIOE 127/L, Ichthyology/Laboratory
BIOE 128L, Large Marine Vertebrates Field Course
BIOE 129/L, Biology of Marine Mammals/Laboratory
BIOE 155, Freshwater Ecology
BIOE 155L, Freshwater Ecology Laboratory
BIOE 158L, Marine Ecology Laboratory
BIOE 159ABCD, Marine Ecology Field Quarter
BIOE 161, Kelp Forest Ecology
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 163/L, Ecology of Reefs, Mangroves, and Seagrasses/Laboratory
BIOE 165, Marine Conservation Biology
BIOE 188, Introduction to Science Writing
EART 102, Marine Geology
EART 105, Coastal Geology
EART 122, Paleoceanography
Ocean Sciences 118, Marine Microbial Ecology
Ocean Sciences 130, Biological Oceanography

Three general electives chosen from the following:

BIOLOGICAL SCIENCES-EEB

Any upper-division BIOE course

BIOLOGICAL SCIENCES-MCDB

BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development

CHEMISTRY

Chemistry 108A, Organic Chemistry
Chemistry 108B, Organic Chemistry

EARTH SCIENCES

Earth Sciences 100/L, Vertebrate Paleontology
Earth Sciences 101/L, Invertebrate Paleobiology/Laboratory
Earth Sciences 102, Marine Geology
Earth Sciences 105, Coastal Geology

ECONOMICS

Economics 166A, Game Theory and Applications I
Economics 166B, Game Theory and Applications II

ENVIRONMENTAL STUDIES (ENROLLMENT BY PERMISSION OF INSTRUCTOR)

Environmental Studies 104A, Introduction to Environmental Field Methods
Environmental Studies 108/L, General Entomology/Laboratory
Environmental Studies 115A/L, GIS and Environmental Applications/Exercises in GIS
Environmental Studies 120, Conservation Biology

Environmental Studies 122, Tropical Ecology and Conservation
Environmental Studies 123, Animal Ecology and Conservation
Environmental Studies 129, Integrated Pest Management
Environmental Studies 130A/L, Agroecology and Sustainable Agriculture/Laboratory
Environmental Studies 130B, Principles of Sustainable Agriculture
Environmental Studies 131/L, Insect Ecology/Laboratory
Environmental Studies 160, Restoration Ecology
Environmental Studies 161A/L, Soils and Plant Nutrition/Laboratory
Environmental Studies 162, Plant Physiological Ecology
Environmental Studies 163/L, Plant Disease Ecology/Laboratory
Environmental Studies 167, Freshwater and Wetland Ecology
Environmental Studies 168, Biochemistry and the Global Environment

MICROBIOLOGY AND ENVIRONMENTAL TOXICOLOGY

Microbiology and Environmental Toxicology 119, Microbiology
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

OCEAN SCIENCES

Ocean Sciences 118, Marine Microbial Ecology
Ocean Sciences 130, Biological Oceanography

PSYCHOLOGY

Psychology 123, Behavioral Neuroscience

One of the following may also be used as an upper-division general elective:

BIOLOGICAL SCIENCES-EEB

Any 5 credits of undergraduate research (BIOE 183W, 183L, 193, 193F, or 195, or 198)

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in marine biology is satisfied by completing courses BIOE 107 Ecology, or BIOE 108 Marine Ecology, or BIOE 159A Marine Ecology Field Quarter: Marine Ecology with Laboratory, and BIOE 109 Evolution.

Marine Biology B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/eeb/mabibs/mabibs-frosh-plans.html
For transfer students: http://undergrad.pbsci.ucsc.edu/eeb/mabibs/mabibs-transfer-plans.html

Plant Sciences Major

UCSC has a strong program in the plant sciences (sometimes called botany). A fine natural environment, the campus Arboretum, the facilities under the Center for Agroecology and Sustainable Food Systems (especially the Farm and Garden), and an excellent greenhouse collection all enhance the resources that support UCSC's botanical programs.

The plant sciences major is designed for students with an interest in plant biology and its associated curricular fields such as plant ecology, plant physiology, plant pathology, plant molecular biology, soils, and applied plant sciences. After completion of the core courses, students can proceed in one of several directions depending on their interest. For example, a more in-depth study of physiology and molecular biology courses can serve as preparation for work in the biotechnology field or for graduate school; further studies in plant ecology, tropical ecology, or restoration ecology can lead to careers such as resource ecologist or naturalist or to the pursuit of related fields in graduate school; upper-division training in agroecology can lead to careers in agriculture or food systems. There are many opportunities for internships both on the UCSC campus and in the community at large.

Plant Sciences B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Calculus: Mathematics 11A-B or 19A-B

Biostatistics: Applied Mathematics and Statistics 7/L
Physics: Physics 6A/L, and 6B or 6C

Advanced Requirements

A total of 11 upper-division courses; two of which must include laboratory or fieldwork.

Three core courses:

Genetics: BIOL 105
Ecology: BIOE 107
Evolution: BIOE 109

One plant physiology course from the following:

BIOE 135/L, Plant Physiology/Laboratory
Environmental Studies 162, Plant Physiological Ecology

One botany course from the following:

BIOE 117/L, Systematic Botany/Laboratory
BIOE 120/L, Marine Botany/Laboratory

Elective list for Plant Sciences Major

Three topical electives chosen from the following:

BIOLOGICAL SCIENCES-EEB

BIOE 117/L, Systematic Botany/Laboratory
BIOE 118, EthnobotanyBIOE 120/L, Marine Botany/Laboratory
BIOE 135/L, Plant Physiology/Laboratory
BIOE 137/L, Molecular Ecology/Laboratory
BIOE 145, Plant Ecology
BIOE 145L, Field Methods in Plant Ecology
BIOE 148, Quantitative Ecology
BIOE 149, Disease Ecology
BIOE 151ABCD, Ecology and Conservation in Practice
BIOE 188, Introduction to Science Writing

BIOLOGICAL SCIENCES-MCDB

BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 110, Cell Biology
BIOL 115, Eukaryotic Molecular Biology

ENVIRONMENTAL STUDIES (ENROLLMENT BY PERMISSION OF INSTRUCTOR)

Environmental Studies 104A, Introduction to Environmental Field Methods
Environmental Studies 129, Integrated Pest Management
Environmental Studies 130A/L, Agroecology and Sustainable Agriculture/Laboratory
Environmental Studies 130B, Principles of Sustainable Agriculture
Environmental Studies 131/L, Insect Ecology/Laboratory
Environmental Studies 160, Restoration Ecology
Environmental Studies 161A/L, Soils and Plant Nutrition/Laboratory
Environmental Studies 162, Plant Physiological Ecology
Environmental Studies 163/L, Plant Disease Ecology/Laboratory

Three general electives chosen from the following:

BIOLOGICAL SCIENCES-EEB

Any upper-division BIOE course

BIOLOGICAL SCIENCES-MCDB

BIOL 100, Biochemistry
BIOL 101/L, Molecular Biology/Laboratory
BIOL 110, Cell Biology
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development

CHEMISTRY

Chemistry 108A, Organic Chemistry
Chemistry 108B, Organic Chemistry

EARTH SCIENCES

Earth Sciences 100/L, Vertebrate Paleontology
Earth Sciences 101/L, Invertebrate Paleobiology/Laboratory
Earth Sciences 102, Marine Geology
Earth Sciences 105, Coastal Geology

ECONOMICS

Economics 166A, Game Theory and Applications I
Economics 166B, Game Theory and Applications II

ENVIRONMENTAL STUDIES (ENROLLMENT BY PERMISSION OF INSTRUCTOR)

Environmental Studies 104A, Introduction to Environmental Field Methods
Environmental Studies 108/L, General Entomology/Laboratory
Environmental Studies 115A/L, GIS and Environmental Applications/Exercises in GIS
Environmental Studies 120, Conservation Biology
Environmental Studies 122, Tropical Ecology and Conservation
Environmental Studies 123, Animal Ecology and Conservation
Environmental Studies 129, Integrated Pest Management
Environmental Studies 130A/L, Agroecology and Sustainable Agriculture/Laboratory
Environmental Studies 130B, Principles of Sustainable Agriculture
Environmental Studies 131/L, Insect Ecology/Laboratory
Environmental Studies 160, Restoration Ecology
Environmental Studies 161A/L, Soils and Plant Nutrition/Laboratory
Environmental Studies 162, Plant Physiological Ecology
Environmental Studies 163/L, Plant Disease Ecology/Laboratory
Environmental Studies 167, Freshwater and Wetland Ecology
Environmental Studies 168, Biochemistry and the Global Environment

MICROBIOLOGY AND ENVIRONMENTAL TOXICOLOGY

Microbiology and Environmental Toxicology 119, Microbiology
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

OCEAN SCIENCES

Ocean Sciences 118, Marine Microbial Ecology
Ocean Sciences 130, Biological Oceanography

PSYCHOLOGY

Psychology 123, Behavioral Neuroscience

One of the following may also be used as an upper-division general elective:

BIOLOGICAL SCIENCES-EEB

Any 5 credits of undergraduate research (BIOE 183W, 183L, 193, 193F, or 195, or 198)

ENVIRONMENTAL STUDIES

Environmental Studies 183, Environmental Studies Internship

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in plant sciences is satisfied by completing courses BIOE 107, Ecology, and BIOE 109, Evolution.

Plant Sciences B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/eeb/plntbs/plntbs-frosh-plans.html
For transfer students: http://undergrad.pbsci.ucsc.edu/eeb/plntbs/plntbs-transfer-plans.html

Comprehensive Requirement

All majors in the biological sciences require a comprehensive requirement. This requirement can be satisfied in one of the following ways:

by passing course 190, Senior Seminar;

by receiving a passing grade in an internship, independent research laboratory, or field course:

BIOE 114L, Field Methods in Herpetological Research
BIOE 128L, Large Marine Vertebrates Field Course
BIOE 141L, Behavioral Ecology Field Course
BIOE 145L, Field Methods in Plant Ecology
BIOE 150L, Ecological Field Methods
BIOE 151, Ecology and Conservation in Practice
BIOE 155L, Freshwater Ecology Laboratory
BIOE 158L, Marine Ecology Laboratory
BIOE 159, Marine Ecology Field Quarter
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 183, Undergraduate Research in EEB
BIOE 188, Introduction to Science Writing

BIOL 100L, Advanced Biochemistry Laboratory
BIOL 105L, Eukaryotic Genetics Laboratory
BIOL 105M, Microbial Genetics Laboratory
BIOL 109L, Yeast Molecular Genetics Laboratory
BIOL 110L, Cell Biology Laboratory
BIOL 111L, Immunology Laboratory
BIOL 115L, Eukaryotic Molecular Biology Laboratory
BIOL 120L, Developmental Biology Laboratory
BIOL 121L, Environmental Phage Biology Laboratory
BIOL 178L, Protocols in Stem Cell Biology
BIOL 186L, Undergraduate Research in MCD Biology
BIOL 186R, Undergraduate Research in MCD Biology
BIOL 187L, Molecular Biotechnology Laboratory
BIOL 189, Health Sciences Internship
Biochemistry and Molecular Biology 110L, Advanced Biochemistry Laboratory
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

by completing a senior thesis;

by achieving a graduate record examination (GRE) score at or above the 50th percentile on the biology subject test or the biochemistry, cell, and molecular biology subject test. Reports of GRE scores must be submitted to the biological sciences advising office before the last day of the graduating quarter;

by obtaining an medical college admission test (MCAT) score at or above the 50th percentile on the biological sciences section. Reports of MCAT scores must be submitted to the biological sciences advising office before the last day of the graduating quarter.

Honors

Honors in the biological sciences majors are awarded to graduating students whose academic performance demonstrates excellence at a grade point average (GPA) of 3.5 or above. Highest honors are awarded to those students whose performance demonstrates the highest level of excellence and results in a GPA of 3.8 or above.

Letter Grade Policy

For all students entering UCSC in fall 2001 and later, all courses used to satisfy any of the majors must be taken for a letter grade.

Course Substitution/Transfer Credit Policy

At least half of the upper-division courses (numbered 100–190) required for each major must be taken through the biological sciences program at UCSC, not as transfer credits from another department or institution. Transfer students are advised to contact the Physical and Biological Sciences Undergraduate Affairs office before enrolling in numerous upper-division courses at other institutions. For more information on transferring courses

to UCSC, please consult the undergraduate web site at: http://undergrad.pbsci.ucsc.edu/biology/transfer-students/index.html.

A maximum of one upper-division course requirement may be met with a research-based independent study or graduate-level UCSC biology course or a course offered by another UCSC department.

Education Abroad Opportunities

The UC Education Abroad Program (EAP) offers qualified students unique opportunities to broaden their educational horizons. The EEB department encourages interested students to participate. Many programs are in English-speaking countries or use English for advanced courses. Many programs offer small classes, extensive laboratories, and/or field research experience.

There are excellent programs in Costa Rica, Australia, New Zealand, the United Kingdom, Denmark, and Germany, among others. The Costa Rica Tropical Biology Program is of note to students interested in tropical biology and ecology. Held spring and fall quarters at the Monteverde research station, this program gives students experience with hands-on field research, offers a homestay program, and carries credit for two upper-division biology courses. The University of Queensland (Australia) offers an intensive, full-semester marine science program, which includes stays at research stations on the Great Barrier Reef and in sheltered mangrove and seagrass habitats near Brisbane.

Students interested in study abroad need to get an early start on their basic science requirements, including chemistry, mathematics, and introductory biology and must declare their major prior to applying to go abroad. Visit the EAP office as soon as possible to begin planning; you must seek advice about your EAP plan for major courses at UCSC from the biological sciences undergraduate adviser and/or faculty advisor and receive their approval for your plans.

Graduate Program Description

The Ecology and Evolutionary Biology (EEB, courses BIOE) Graduate Program at UCSC reflects the remarkable local and global diversity of species and environments studied by the EEB faculty and students. The vision of the EEB graduate program is to provide a nurturing, creative, and intellectual environment conducive to the development of world-class scientists. The small size of the EEB graduate program encourages close working relations between students and faculty in an informal atmosphere advantageous to rapid learning and professional growth. Interdisciplinary collaborations with oceanographers, geologists, mathematicians, environmental and conservation biologists, toxicologists, and others enable students to explore the conceptual connections between related fields as they acquire mastery in their areas of specialization.

The graduate program in Ecology and Evolutionary Biology (EEB) at UC Santa Cruz is one of the premier EEB programs in the country. EEB-UCSC graduate students regularly win prestigious awards for their presentations at international meetings and publish their work in the best journals of their fields. In addition to taking advantage of local field sites and state-of-the-art departmental laboratories, more than two-thirds of the EEB faculty also participate in field studies throughout the world, especially in Africa, Latin America, Antarctica, and around the Pacific Rim.

A special strength of the EEB program is the integration of terrestrial and aquatic perspectives across all research tracks. The course requirements and examinations emphasize both breadth and depth.

Research in EEB comprises four core tracks

Ecology

Evolutionary biology

Physiology

Behavior

Degree Requirements

Ph.D. Requirements

COURSES:

BIOE 200A, Scientific Skills
BIOE 200B, Advanced Organismal Biology
BIOE 279, Evolutionary Ecology
BIOE 293, Readings in Ecology and Evolution (orequivalent)
BIOE 294, Ecology, Evolutionary Biology Seminar (taken each quarter when in residence)
BIOE 295, Advanced Ecology and Evolutionary Biology Seminar (may substitute for BIOE 293)

Each Ph.D. student should expect to complete at least two quarters as a teaching assistant during their graduate career.

During fall of the second year, students take a comprehensive examination. This is a two-part examination, written and oral, the goal of which is to examine the student's breadth and depth of knowledge of evolution, ecology, physiology, behavior, organismal, and general biology.

Later in the second or third year, the student submits a dissertation research proposal to the proposal committee and must defend it in an oral examination, followed by a seminar on his/her proposed research. The student advances to candidacy only after having completed all coursework, the comprehensive examination, the proposal defense, and the proposal seminar.

No sooner than 30 days after submitting the dissertation to a dissertation reading committee, the student defends the dissertation to the committee, followed by a public seminar. At least one chapter of the dissertation must be submitted to a refereed journal for publication before receipt of the Ph.D.

Master of Arts (M.A.) Requirements

COURSES:

BIOE 200A, Scientific Skills
BIOE 200B, Advanced Organismal Biology
BIOE 279, Evolutionary Ecology
BIOE 293, Readings in Ecology and Evolution (or equivalent): two quarters
BIOE 294, Ecology and Evolutionary Biology Seminar (taken every quarter)

Thirty days after submitting the master's thesis to a thesis reading committee, the student defends the thesis to the committee, followed by a public seminar.

Requirements for the Ecology and Evolutionary Biology Designated Emphasis

To receive a parenthetical notation in Ecology and Evolutionary Biology (hereafter EEB), graduate students must complete the following requirements, in addition to the degree requirements for the doctorate in their home department:

1. Take the following EEB core courses (required for all EEB graduate students):

BIOE 279 Evolutionary Ecology (5 credits), BIOE 200A Scientific Skills (5 credits), BIOE 200B Advanced Organismal Biology (5 credits)

2. Attend EEB department seminars (enroll in BIOE 294, 2 credits) for one quarter

3. Attend a lab group seminar course (enroll in BIOE 281, 2/5 credits) for one quarter

4. Take at least two courses from any other graduate or appropriate upper-division courses in biology, for example:

BIOE 293 Readings in Ecology and Evolution (2 credits) BIOE 295 Special Advanced Topics in Ecology and Evolution (2 credits) BIOE 272 Exercise Physiology (5 credits) BIOE 233 Exercise Physiology (5 credits) BIOE 148 Quantitative Ecology for Conservation (5 credits) BIOE 252 Community Ecology (5 credits) BIOE 208 Marine Ecology (5 credits) BIOE 245 Plant Ecology (5 credits) BIOE 274 Evolutionary Game Theory (5 credits) BIOE 286 Experimental Design

and Data Analysis (5 credits)

5. In all, students will be expected to complete at least 20 credits of EEB coursework. Courses taken to fulfill graduate requirements within the home department will not count toward the Designated Emphasis requirements.

6. Have a designated graduate adviser from among the faculty of the EEB department, who commits to serve on the qualifying exam committee and on the Ph.D. dissertation reading committee.

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Molecular, Cell, and Developmental Biology

2014-15 General Catalog

Molecular, Cell, and Developmental Biology Department
225 Sinsheimer Laboratories
(831) 459-2385
http://www.mcd.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

MCDB Faculty | MCDB Course Descriptions

Undergraduate Program Description

This is an extraordinary time to be involved in biomedical research. New technologies are rapidly changing our understanding of the molecular and cellular basis of life, with dramatic implications for how we treat human disease. Members of the Department of Molecular, Cell and Developmental Biology, along with affiliated faculty in the departments of Biomolecular Engineering, Chemistry and Biochemistry, Microbiology and Environmental Toxicology, and Physics, are participating in an extraordinary revolution in biomedical science. A broad spectrum of cutting-edge research tools are being employed to tackle problems in key areas that include: the structural and functional role of RNA in regulation of gene expression; chromatin biology and epigenetic control of genes; the cell biology of the cytoskeleton and the cell cycle; decisions controlling embryogenesis and organ development; and developmental neurobiology. The insights generated by this basic research enable new strategies for treatments of aging disorders, birth defects, neurological diseases, cancer and other human ailments. The department offers a spectrum of courses that reflect the exciting new developments and directions in these fields, and trains students to participate in these exciting fields.

Students may plan a program that leads to one of several bachelor of science (B.S.) degrees. Students may choose from the following major options:

Human biology B.S.
Molecular, cell, and developmental biology B.S.
Neuroscience B.S.

Advanced undergraduates, with the guidance of faculty mentors, have access to extensive departmental laboratory facilities for independent research. Many students take advantage of the numerous opportunities with local physicians, health care providers and biotech companies to gain experience in a real world setting. This array of opportunities for directed independent study enables biological science majors to enhance their upper-division programs to reflect and strengthen their own interests and goals.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Prerequisites

Due to the demanding nature of the majors, students must begin their science coursework as early as possible. CHEM 1A, 1B and 1C, and BIOL 20A and BIOE 20B must be taken during the first and second years in order for students to qualify for admission to MCD biology-sponsored majors (see below). Students are strongly encouraged to take AMS 5 or AMS 7/L and at least one quarter of calculus during their first two years.

An online Mathematics Placement Examination is offered at various periods prior to enrollment for each quarter. Biological science majors are expected to take this examination. For more information see the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu.

Students intending to major in human biology should take the Spanish placement examination, offered by the language program, to determine with which course they should begin the Spanish sequence. They should also complete the laboratory course 20L.

Transfer Students

Applications from transfer students in the biological sciences are encouraged. Students who transfer without having completed the required and recommended coursework may have difficulty enrolling in courses and may require more than two years to complete a degree. Prior to transfer, students should satisfy major qualification requirements or their UCSC equivalents: CHEM 1B, General Chemistry; CHEM 1C, General Chemistry; BIOL 20A, Cell and Molecular Biology; BIOE 20B, Development and Physiology. Junior-level transfer students are also strongly encouraged to complete courses equivalent to MATH 11A, MATH 11B and AMS 5 or AMS 7/L prior to transfer. Intended human biology majors are strongly encouraged to complete the Spanish language requirement prior to transfer. Prospective transfer students should review the transfer information at http://assist.org or contact the Undergraduate Affairs office for further information.

Academic Advising

Academic advising is available at the Physical and Biological Sciences Undergraduate Affairs office. Students should take full advantage of this opportunity and should keep in frequent touch with the office to stay informed about late announcements of courses, changes in scheduling, and opportunities for special study. For additional advice and information please see the undergraduate web site.

Major Requirements Qualifications Policy

The Department of Molecular Cell and Developmental Biology has a qualification policy that applies to the molecular, cell and developmental biology B.S.; human biology B.S. and neuroscience B.S. majors.

To qualify for any of the majors, students must pass and achieve a cumulative GPA of 2.30 or greater in the following courses or their equivalents:

Chemistry and Biochemistry 1B, General Chemistry
Chemistry and Biochemistry 1C, General Chemistry
Biology: Molecular, Cell, and Developmental Biology (BIOL) 20A, Cell and Molecular Biology
Biology: Ecology and Evolutionary Biology (BIOE) 20B, Development and Physiology

Students who want to declare the Human Biology B.S. are strongly encouraged to complete BIOL 20L prior to declaring.

Students with two or more grades of NP, D, or F in the policy courses are not qualified to declare.

When calculating grades to determine cumulative GPA in policy courses:

- All courses must be taken for a letter grade, see Letter Grade Policy.
- Students with AP credit for Biology: Molecular, Cell, and Developmental Biology (BIOL) 20A and Biology: Ecology and Evolutionary Biology (BIOE) 20B, may base their cumulative GPA on three grades: a single A for AP Biology and their grades in Chemistry and

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

Course Descriptions

Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

Search the Catalog

Biochemistry 1B and 1C.

- Students with non-grades (I, IP, DG, etc.) in any of the policy courses will not be eligible to declare until a grade has been assigned.
- Every student who satisfies the major admission requirements and who petitions to declare the major by the campus major declaration deadline (i.e. before enrolling in their 3rd year or the equivalent) will be admitted to the major. Students enrolled in their final qualification policy course at the major declaration deadline may submit the petition, but will not be declared until satisfactory grades and qualifying GPA have been posted. Students who satisfy the major admission requirements, but who petition to declare the major after the campus major declaration deadline will be considered on a case-by-case basis for admission to the major; admission is not guaranteed.

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the Molecular Cell and Developmental Biology Faculty Adviser within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision. For more information about the appeal process see the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/mcdb/qualifying/appeal-process.html.

Double Major in the Biological Sciences

Students interested in pursuing multiple majors within the biological sciences may not declare any combination of biology (B.A., B.S., bioeducation concentration, or minor), molecular, cell and developmental biology, neuroscience, and biochemistry and molecular biology.

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Human Biology Major

The B.S. major in human biology is designed for students interested in careers in medicine or biomedical research. Medical and professional school admissions requirements vary; students should verify that their coursework will satisfy the admissions requirements of the programs to which they plan to apply. Students are required to take introductory biology and lab (BIOL 20L), genetics, biochemistry, cell biology, human physiology with lab and one additional course directly relevant to human health. Students in this program must also fulfill Spanish language and health care internship requirements.

Human Biology B.S. Major Requirements*

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B, and BIOL 20L
General Chemistry: Chemistry 1A, 1B/M and 1C/N
Organic Chemistry: Chemistry 108A/L and 108B/M (Note: 109 is also recommended for pre-med students)
Calculus: Mathematics 11A-B or 19A-B or Applied Math and Statistics 15A-B;
Statistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L, and 6C/N (Note: some medical schools require one full year of Physics/Lab)

Advanced Requirements

Five core courses:

Biochemistry with laboratory: BIOL 100 or BIOC 100A, 100B, 100C
Molecular Biology: BIOL 101
Genetics: BIOL 105
Cell Biology: BIOL 110
Human Physiology with Laboratory: BIOL 130/L

One of the following electives:

BIOL 111A, Immunology I

BIOL 111B, Immunology II
BIOL 113, Mammalian Endocrinology
BIOL 114, Cancer Cell Biology
BIOL 115, Eukaryotic Molecular Biology
BIOL 120, Development
BIOL 125, Neuroscience
BIOL 126, Advanced Neural Development
BIOL 127, Neurodegenerative Disease
BIOL 135/L, Anatomy of the Human Body/Laboratory
BIOL 140, Biophysics
BIOL 178, Stem Cell Biology
BIOL 179, Biotechnology and Drug Development
BIOL 182, Genomics
Microbiology and Environmental Toxicology 119, Microbiology

Internship Requirement: BIOL 189 and 189W, Health Sciences Internship. The student must participate in a community health care service activity approved by the health sciences internship coordinator. Credit may be earned over multiple quarters.

Language Requirement: Spanish 1–4 or the equivalent and one quarter of Spanish for health-care workers (Spanish 5M).

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in human biology is satisfied by completing courses BIOL 130L, Human Physiology Laboratory, and BIOL 189, Health Sciences Internship and BIOL 189W, Disciplinary Communication: Human Biology.

Human Biology B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/mcdb/hbiobs/hbiobs-frosh-plans.html

For transfer students: http://undergrad.pbsci.ucsc.edu/mcdb/hbiobs/hbiobs-transfer-plans.html

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Molecular, Cell, and Developmental Biology Major

The molecular, cell, and developmental (MCD) biology major is designed for students interested in medical or other professional graduate programs and those preparing for careers in biotechnology industries. This major is more structured than the general biology major and requires that students pay careful attention to the prerequisites required for upper-division biology courses.

Molecular, Cell, and Developmental Biology B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B, and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Organic Chemistry: Chemistry 108A/L and 108B
Calculus: Mathematics 11A–B or 19A–B or Applied Math and Statistics 15A–B
Biostatistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L and 6B or 6C

Advanced Requirements

Five core courses:

Biochemistry*: BIOL 100; or the series Biochemistry and Molecular Biology 100A, 100B, 100C. (Upon completion of the series, Biochemistry and Molecular Biology 100C may be used to satisfy one lecture elective.)
Molecular Biology*: BIOL 101

*Instead of Biochemistry (BIOL 100) and Molecular Biology (BIOL 101), students may complete the series in Biochemistry and Molecular Biology 100A, 100B, 100C. (Upon completion of the series, Biochemistry and Molecular Biology 100C may be used to satisfy one lecture elective.)
Molecular Biology Labatory: BIOL 101L
Genetics: BIOL 105
Cell Biology: BIOL 110

Three of the following electives:

(Only one of which may be a 3-credit course: BIOL 116 or BIOL 117)

Biochemistry and Molecular Biology 100C, Biochemistry
BIOL 111A, Immunology
BIOL 111B, Immunology II
BIOL 113, Mammalian Endocrinology
BIOL 114, Cancer Cell Biology
BIOL 115, Eukaryotic Molecular Biology
BIOL 116, Advanced Topics in Cell Biology
BIOL 117, Neglected Tropical Diseases
BIOL 118, Biology of Disease
BIOL 120, Development
BIOL 125, Neuroscience
BIOL 126, Advanced Neural Development
BIOL 127, Neurodegenerative Disease
BIOL 130/L, Human Physiology/Laboratory
BIOL 140, Biophysics
BIOL 178, Stem Cell Biology
BIOL 178L, Protocols in Stem Cell Biology
BIOL 179, Biotechnology and Drug Development
BIOL 180/L, Research Programming for Biologists and Biochemists/Laboratory
BIOL 181, Computational Biology Tools
BIOL 182, Genomics
BIOE 109, Evolution
BIOE 135/L, Plant Physiology/Laboratory
Microbiology and Environmental Toxicology 119, Microbiology

One of the following laboratory courses:

BIOL 100L, Advanced Biochemistry Laboratory
BIOL 105L, Eukaryotic Genetics Laboratory
BIOL 105M, Microbial Genetics Laboratory
BIOL 109L Yeast Genetics Laboratory
BIOL 110L, Cell Biology Laboratory
BIOL 115L, Eukaryotic Molecular Biology Laboratory
BIOL 120L, Development Laboratory
BIOL 121L, Environmental Phage Biology Laboratory
BIOL 186L, Undergraduate Research in MCD
Biochemistry and Molecular Biology 110L, Advanced Biochemistry Laboratory
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in molecular, cell, and developmental biology is satisfied by completing one of the following courses: Biochemistry and Molecular Biology 110L; BIOL 100L, 105L, 105M, 109L, 110L, 115L, 120L, 121L, 186L, 187L; Biomolecular Engineering 122; or Microbiology and Environmental Toxicology 119L.

Molecular, Cell, and Developmental Biology B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/mcdb/mcdbbs/mcdbbs-frosh-plans.html

For transfer students: http://undergrad.pbsci.ucsc.edu/mcdb/mcdbbs/mcdbbs-transfer-plans.html

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Neuroscience Major

Neuroscience, the study of the nervous system and behavior of animals, is a frontier area in biology, touching psychology on the one hand and computer science on the other. The neuroscience major provides students with rigorous preparation for graduate studies and research in the field of neuroscience. Rigorous course work is supplemented by opportunities for hands-on research.

Neuroscience B.S. Major Requirements

Introductory Requirements

Introductory Biology: BIOL 20A, BIOE 20B and 20C
General Chemistry: Chemistry 1A, 1B and 1C/N
Organic Chemistry: Chemistry 108A/L and 108B
Calculus: Mathematics 11A-B or 19A-B or Applied Math and Statistics 15A-B
Biostatistics: Applied Mathematics and Statistics 5 or 7/L
Physics: Physics 6A/L and 6C

Advanced Requirements

Seven core courses:

Biochemistry: BIOL 100
Molecular Biology: BIOL 101
Molecular Biology Laboratory: BIOL 101L
Genetics: BIOL 105
Cell Biology: BIOL 110
Neuroscience: BIOL 125
Advanced Neuroscience: BIOL 126

Two of the following electives:

BIOE 131/L, Animal Physiology/Laboratory
BIOE 140, Behavioral Ecology
BIOL 111A, Immunology I
BIOL 111B, Immunology II
BIOL 113, Mammalian Endocrinology
BIOL 115, Eukaryotic Molecular Biology
BIOL 118, Biology of Disease
BIOL 120, Development
BIOL 127, Neurodegenerative Disease
BIOL 130/L, Human Physiology/Laboratory
BIOL 140, Biophysics
BIOL 178L, Protocols in Stem Cell Laboratory
BIOL 179, Biotechnology and Drug Development
BIOL 180/L, Research Programming for Biologists and Biochemists/Laboratory
BIOL 181, Computational Biology Tools
BIOL 182, Genomics
Psychology 121, Perception
Psychology 123, Behavioral Neuroscience

One of the following laboratory electives:

BIOE 141L, Behavioral Ecology Field Course
BIOE 183L/W, Undergraduate Research in EEB and Writing
BIOL 100L, Advanced Biochemistry Laboratory
BIOL 105L, Eukaryotic Genetics Laboratory
BIOL 109L Yeast Genetics Laboratory
BIOL 110L, Cell Biology Laboratory
BIOL 115L, Eukaryotic Molecular Genetics Laboratory

BIOL 120L, Development Laboratory
BIOL 121L, Environmental Phage Biology Laboratory
BIOL 186L, Undergraduate Research in MCD
BIOL 187L, Molecular Biotechnology Laboratory
Biomolecular Engineering 122, Environmental Virus Bioinformatics Laboratory

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in neuroscience is satisfied by completing one of the following: BIOE 141L, 183L; BIOL 100L, 105L, 109L, 110L, 115L, 120L, 121L, 186L, 187L; or BIOE 183L and 183W; or Biomolecular Engineering 122.

Neuroscience B.S. Sample Planners

For freshmen: http://undergrad.pbsci.ucsc.edu/mcdb/nbiobs/nbiobs-frosh-plans.html

For transfer students: http://undergrad.pbsci.ucsc.edu/mcdb/nbiobs/nbiobs-transfer-plans.html

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Comprehensive Requirement

All majors require a comprehensive requirement. This requirement can be satisfied in one of the following ways:

- by passing course 190, Senior Seminar;
- by receiving a passing grade in an internship, independent research laboratory, or field course:

BIOE 114L, Field Methods in Herpetological Research
BIOE 141L, Behavioral Ecology Field Course
BIOE 145L, Field Methods in Plant Ecology
BIOE 150L, Ecological Field Methods
BIOE 151, Ecology and Conservation in Practice
BIOE 155L, Freshwater Ecology Laboratory
BIOE 158L, Marine Ecology Laboratory
BIOE 159, Marine Ecology Field Quarter
BIOE 161L, Kelp Forest Ecology Laboratory
BIOE 183, Undergraduate Research in EEB
BIOL 100L, Advanced Biochemistry Laboratory
BIOL 105L, Eukaryotic Genetics Laboratory
BIOL 105M, Microbial Genetics Laboratory
BIOL 109L Yeast Genetics Laboratory
BIOL 110L, Cell Biology Laboratory
BIOL 111L, Immunology Laboratory
BIOL 115L, Eukaryotic Molecular Biology Laboratory
BIOL 120L, Developmental Biology Laboratory
BIOL 121L, Environmental Phage Biology Laboratory
BIOL 178L, Protocols in Stem Cell Biology
BIOL 186L, Undergraduate Research in MCD Biology
BIOL 186R, Undergraduate Research in MCD Biology
BIOL 187L, Molecular Biotechnology Laboratory
BIOL 189, Health Sciences Internship
Biochemistry and Molecular Biology 110L, Advanced Biochemistry Laboratory
Biomolecular Engineering 122, Environmental Virus Bioinformatics Laboratory
Microbiology and Environmental Toxicology 119L, Microbiology Laboratory

- by completing a senior thesis;
- by achieving a graduate record examination (GRE) score at or above the 50th percentile on the biology subject test or the biochemistry, cell, and molecular biology subject test. Reports of GRE scores must be submitted to the biological sciences adviser before the last day of the graduating quarter;

- by obtaining an medical college admission test (MCAT) score at or above the 50th percentile on the biological sciences section. Reports of MCAT scores must be submitted to the biological sciences adviser before the last day of the graduating quarter.

Honors

Honors in the majors are awarded to graduating students whose academic performance demonstrates excellence at a grade point average (GPA) of 3.5 or above. Highest honors are awarded to those students whose performance demonstrates the highest level of excellence and results in a GPA of 3.8 or above.

Letter Grade Policy

For all students entering UCSC in fall 2001 and later, all courses used to satisfy any of the majors must be taken for a letter grade.

Medical and Professional School Admission

Medical and professional school admissions requirements vary; students should verify that their coursework will satisfy the admissions requirements of the programs to which they plan to apply.

Course Substitution/Transfer Credit Policy

At least half of the upper-division courses (numbered 100-190) required for each major must be taken through the biological sciences program at UCSC, not as transfer credits from another department or institution. Transfer students are advised to contact the Physical and Biological Sciences Undergraduate Affairs office before enrolling in numerous upper-division courses at other institutions. For more information on transferring courses to UCSC, please consult the undergraduate web site.

Students who wish to receive credit toward the major for different courses taken either at UCSC or at another institution should contact the Physical and Biological Sciences Undergraduate Affairs office.

Education Abroad Opportunities

The UC Education Abroad Program (EAP) offers qualified students unique opportunities to broaden their educational horizons. The MCDB Department encourages interested students to participate. Many programs are in English-speaking countries or use English for advanced courses. Many programs offer small classes, extensive laboratories, and/or field research experience.

Students interested in study abroad need to get an early start on their basic science requirements, including chemistry, mathematics, and introductory biology and must declare their major prior to applying to go abroad. Visit the EAP office as soon as possible to begin planning; you must seek advice about your EAP plan for major courses at UCSC from the biological sciences undergraduate adviser and/or faculty adviser and receive their approval for your plans.

Graduate Program Description

The program in molecular, cell, and developmental (MCD) biology (courses BIOL) leads to either the doctor of philosophy (Ph.D.) or the master of arts (M.A.) and is designed to prepare students for careers in research, teaching, and biotechnology. Current research in MCD biology focuses on such topics as the structure and function of RNA, gene expression, chromatin structure, epigenetics, signaling, cell division, development, nerve cell function, and stem cell biology. A unique focus of the department is the Center for the Molecular Biology of RNA.

Degree Requirements

Ph.D. and master's students complete the graduate core courses, BIOL 200A, 200B, and 200C, and 200D in the first year. Additional undergraduate courses required to strengthen the student's background may be assigned by the advisory committee during the initial

advising meeting. Typically, these courses are Biochemistry 100A and BIOL 115. Students are required to participate in laboratory research meetings and departmental seminar series every quarter.

First-year Ph.D. students complete three 6-week laboratory rotations. Students choose their rotation laboratories in consultation with the Graduate Advisory Committee. The laboratory rotations give students a chance to learn about the diverse fields and methods of inquiry and to interact with members of the department. At the end of each rotation, students present a short talk to the department on their rotation project. At the end of winter quarter, students consult with rotation faculty to identify a permanent thesis laboratory.

Second-year Ph.D. students are required to submit two proposals—one on their proposed thesis work and a second on an unrelated MCDB research topic. The Ph.D. qualifying examination, taken in spring quarter of the second year, is an oral examination before a committee comprised of three internal reviewers and one external reviewer.

Once the qualifying examination is passed, a student, with her/his faculty adviser, selects a thesis committee to consult with in the development of the student's thesis. This committee monitors the student's progress and ultimately approves the final draft of the student's dissertation. The student must meet with the thesis committee at least once a year after passing the qualifying examination.

A student is advanced to candidacy following presentation of their research to the department in a seminar. This presentation takes place no later than spring of the third year.

Graduate students must take two approved advanced graduate electives. Students who enter the Ph.D. program with a master's degree but without doing rotations must complete an additional two approved graduate elective courses.

Ph.D. Requirements

Complete the graduate core course

Complete the Practice of Science course

Complete an oral qualifying examination

Complete an advancement to candidacy seminar

Complete two advanced, graduate elective courses

Meet yearly with a thesis committee after the qualifying examination

Complete two quarters of service as a teaching assistant

Complete thesis research resulting in a dissertation of individual work

Present the thesis defense in a departmental seminar

M.A. Requirements

Students apply to the master's degree program through the same portal as for the Ph.D. degree program. However, since master's students do not do research rotations, they must identify a research adviser at the outset of the training period.

Completion of the graduate core courses

Completion of the Practice of Science course

Write a master's thesis based on original research

Presentation of thesis defense in a departmental seminar

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Chemistry and Biochemistry

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Chemistry and Biochemistry Department
230 Physical Sciences Building
(831) 459-4125
http://chemistry.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs
142 Jack Baskin Engineering Building
(831) 459-4143
http://undergrad/pbsci.ucsc.edu/index.html

Faculty | Course Descriptions

Program Description

Chemistry is central to modern science and, ultimately, most phenomena in biology, medicine, geology, and the environmental sciences can be described in terms of the chemical and physical behavior of atoms and molecules. Because of the wide appeal and utility of chemistry, UCSC offers many lower-division courses, differing in emphasis and style, to meet diverse needs. Students should also note the numerous upper-division course offerings and select those most suitable to their academic interests. The curriculum in chemistry exposes the student to the principal areas of modern chemistry, including organic, inorganic, physical, analytical, and biochemistry. The curriculum is designed to meet the needs of students who plan to end their formal education with a bachelor of arts (B.A.) or bachelor of science (B.S.) degree, as well as those who wish to go on for an advanced degree. The UCSC chemistry B.A. or B.S. graduate is well prepared to pursue a career in chemistry or an allied field.

Research in chemistry at UCSC is closely interwoven with graduate and undergraduate education. The chemistry and biochemistry research program is active at the graduate level, and faculty also encourage undergraduates to become involved in research. Research is done for academic credit in Chemistry 195A-B-C, Senior Research; or in Chemistry 199, Tutorial. There are also opportunities for interdisciplinary research combining chemistry with a wide range of sciences, for example, physics, geology, oceanography, biology, computer science, microbiology and environmental toxicology. At UCSC, it is not uncommon for students to see their own original work published in research journals.

Chemistry and biochemistry faculty and approximately 90 graduate students and 30 postdoctoral fellows are housed in the Physical Sciences Building near the Science Library. Standard and specialized spectrophotometric equipment, a number of instruments devoted to structural studies, instrumentation for specialized analytical purposes, and computer facilities used in studies of structure and reactivity are all available. The Science Library has an excellent collection of current journals, in print and electronic form, and reference works, as well as earlier volumes of all the major journals. Additional source material can

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

be readily and rapidly obtained on interlibrary loan.

A degree in chemistry opens the door to a wide variety of academic careers. Some UCSC graduates are working as researchers in industry in areas such as electronic materials, biotechnology, medicinal chemistry, or laser technology. Others have entered government service as research chemists in the Food and Drug Administration, the Environmental Protection Agency, or law enforcement crime laboratories. Fields such as patent law, commercial development, and scientific writing are open to graduates. Many chemistry majors go on to university graduate programs across the nation to prepare for careers in research, teaching, or a combination of the two. The degree in chemistry also provides a strong disciplinary background in preparation for a career in the important and much needed area of science teaching in high school. A major in chemistry is also an excellent beginning for one of the many opportunities in the health sciences.

The UCSC Chemistry and Biochemistry Department offers both B.S. and B.A. degree programs. The B.S. degree should be the choice if a student is interested in getting a job in industry immediately after receiving his or her college degree. The B.S. program also provides a good background for graduate work in chemistry. The B.A. program has fewer requirements and should be considered by students who wish to take more science courses outside of chemistry to enter an interdisciplinary area. Examples might be chemical oceanography, geochemistry, chemical physics, environmental chemistry, and health sciences. The B.A. might also be a good choice for students who wish to become high school teachers. However, for either degree, the courses stress the fundamentals of chemistry and allow students to pursue independent research.

A minor in chemistry is also offered for those who wish to have a strong complementary program in chemistry while majoring in another course of study.

Declaration of the Major

Chemistry Qualification Policy

The Department of Chemistry & Biochemistry has a qualification policy that applies to the following majors:

Chemistry BS

Chemistry BS with Biochemistry concentration

Chemistry BS with Environmental Chemistry concentration

Chemistry BA

To qualify to declare any of the above majors, students must achieve a cumulative grade point average (GPA) of 2.50 or greater in the following courses, or their equivalents:

CHEM 1A, General Chemistry

CHEM 1B, General Chemistry

CHEM 1C, General Chemistry

MATH 22, Introduction to Calculus of Several Variables

And one of the following calculus sequences:

MATH 11A and 11B, Calculus with Applications

MATH 19A and 19B, Calculus for Science, Engineering, and Mathematics

AMS 15A and 15B, Case-study Calculus I and II

When determining qualification to declare the major:

- All courses must be taken for a letter grade.
- For policy courses that have been satisfied with AP credit based on an AP examination score of 5 (for Chemistry 1A), and an AP Calculus BC examination score of 4 or 5 (for Mathematics 11A or 19A), students may substitute a grade of A for each course when calculating their cumulative GPA.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Nondiscrimination Statement

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- Students with non-grades (I, IP, DG, Z, AC, NC, etc.) in any of the policy courses will not be eligible to declare until a grade has been assigned.
- Students with two or more grades of NP, D, or F in the policy courses are not eligible to declare.

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the students, the college, and the Office of the Registrar of the decision. For more information about the appeal process see the Physical & Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/.

Requirements for the Chemistry B.A. Degree

The requirements for the bachelor of arts in chemistry have been kept to a minimum so that students may tailor their program to their own purposes, for example, to pursue a double major, to study areas of the humanities or social sciences, to complete major requirements late in their college career, or to concentrate on a study in a specific branch of chemistry. The minimum requirements (including prerequisites) constitute 54 percent of a student's total undergraduate program; consequently, there is ample time to explore and discover other interests within the university. To plan wisely, students are advised to refer to each course description for a detailed listing of prerequisites. Students who decide they want a professional career in chemistry are advised to meet with the chemistry undergraduate faculty adviser.

Lower-Division Requirements

General Chemistry: Chemistry 1A, 1B/M, and 1C/N

Calculus: Mathematics 11A, 11B, and 22; or Mathematics 19A, 19B, and 22; or Applied Mathematics and Statistics 15A, 15B, and Mathematics 22

Physics: Physics 5A/L, 5B/M, and 5C/N; or Physics 6A/L, 6B/M, and 6C/N

Upper-Division Requirements

Organic Chemistry: Chemistry 108A/L, 108B/M

Inorganic Chemistry: Chemistry 151A/L

Physical Chemistry: Chemistry 163A, 163B, and 164

One of the following laboratory courses:

Chemistry 110L (must be taken with Chemistry 110)

Chemistry 146A, Advanced Laboratory in Organic Chemistry

Chemistry 146B, Advanced Laboratory in Inorganic Chemistry

Chemistry 146C, Advanced Laboratory in Physical Chemistry

Students currently conducting senior thesis research are required to choose an advanced laboratory in the Chemistry 146-series that is outside their research area.

Elective(s)

At least two from the following :

Chemistry 103, Biochemistry

Chemistry 109, Organic Intermediate Chemistry

Chemistry 110/L, Intermediate Organic Chemistry with Emphasis on Synthesis and Analytical Methods/Intermediate Organic Chemistry Laboratory

Chemistry 143, Organic Chemical Structure and Reactions

Chemistry 151B, Chemistry of Main Element Groups

Chemistry 156C, Advanced Topics in Inorganic Chemistry

Chemistry 163C, Kinetic Theory and Reaction Kinetics, Statistical Mechanics, Spectroscopic Applications

Chemistry 169, Chemistry and Biology of Drug Design and Discovery

Biochemistry and Molecular Biology 100A, Biochemistry

Biochemistry and Molecular Biology 100B, Biochemistry

Biochemistry and Molecular Biology 100C, Biochemistry

Microbiology and Environmental Toxicology 101, Sources and Fates of Pollutants

Microbiology and Environmental Toxicology 102, Cellular and Organismal Toxicology

Ocean Sciences 120, Aquatic Chemistry: Principles and Applications

Ocean Sciences 220, Chemical Oceanography

Physics 116A, Mathematical Methods in Physics

Physics 116B, Mathematical Methods in Physics

Physics 180, Biophysics

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement for the bachelor of arts degree in chemistry is satisfied by completing Chemistry 151L, Inorganic Chemistry Laboratory, and either Chemistry 146A, 146B, or 146C.

Chemistry Major B.A. Planner

http://undergrad.pbsci.ucsc.edu/chemistry/chemba/index.html

Requirements for the Chemistry B.S. Degree

The bachelor of science major program is designed for students who intend to pursue a professional career in chemistry. It is rigorous and broadly based, appropriate for that purpose. The course requirements for the B.S. major are as follows; please refer to each course description for a detailed listing of prerequisites.

Lower-Division Requirements

General Chemistry: Chemistry 1A, 1B/M, and 1C/N

Calculus: Mathematics 11A, 11B, and 22; or Mathematics 19A, 19B, and 22; or Applied Mathematics and Statistics 15A, 15B, and Mathematics 22

Advanced Mathematics: Applied Mathematics and Statistics 10, or Mathematics 21, or Mathematics 24

Physics: Physics 5A/L, 5B/M, and 5C/N; or Physics 6A/L, 6B/M, and 6C/N

Upper-Division Requirements

Organic Chemistry: Chemistry 108A/L, 108B/M, and 110/L

Inorganic Chemistry: Chemistry 151A/L

Biochemistry: Chemistry 103

Physical Chemistry: Chemistry 163A, 163B, 163C, and 164

One of the following laboratory courses:

Chemistry 146A, Advanced Laboratory in Organic Chemistry

Chemistry 146B, Advanced Laboratory in Inorganic Chemistry

Chemistry 146C, Advanced Laboratory in Physical Chemistry

Students currently conducting senior thesis research are required to choose an advanced laboratory in the Chemistry 146-series that is outside their research area.

Elective(s)

At least two from the following list:

Chemistry 122, Principles of Instrument Analysis*

Chemistry 143, Organic Chemical Structure and Reactions

Chemistry 151B, Chemistry of the Main Element Groups

Chemistry 156C, Advanced Topics in Inorganic Chemistry

Chemistry 169, Chemistryand Biology of Drug Design and Discovery

Biochemistry and Molecular Biology 100A, Biochemistry

Biochemistry and Molecular Biology 100B, Biochemistry

Biochemistry and Molecular Biology 100C, Biochemistry

Microbiology and Environmental Toxicology 101, Sources and Fates of Pollutants

Microbiology and Environmental Toxicology 102, Cellular and Organismal Toxicology

Ocean Sciences 120, Aquatic Chemistry: Principles and Applications

Ocean Sciences 220, Chemical Oceanography

Physics 116A, Mathematical Methods in Physics

Physics 116B, Mathematical Methods in Physics

Physics 180, Biophysics

*To receive certification from the American Chemical Society, you must complete Chemistry 122; see additional information below.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement for the bachelor of science degree in chemistry is satisfied by completing Chemistry 151L, Inorganic Chemistry Laboratory, and either Chemistry 146A, 146B, or 146C.

Chemistry Major B.S. Planner

http://undergrad.pbsci.ucsc.edu/chemistry/chembs/chembs-frosh-plans.html

Chemistry B.S. Degree with Biochemistry Concentration

The biochemistry concentration is designed for students who intend to pursue a career in biochemistry or in a related field such as biotechnology, and it provides an exceptionally rigorous chemistry emphasis..

Lower-Division Requirements

General Chemistry: Chemistry 1A, 1B/M, 1C/N

Calculus: Mathematics 11A, 11B, and 22; or Mathematics 19A, 19B, and 22; or Applied Mathematics and Statistics 15A, 15B and Mathematics 22

Advanced Mathematics: Applied Mathematics and Statistics 10, or Mathematics 21, or Mathematics 24

Introductory Biology: Molecular, Cellular and Developmental Biology (BIOL) 20A, and Ecology and Evolutionary Biology (BIOE) 20B

Physics: Physics 5A/L, 5B/M, and 5C/N; or Physics 6A/L, 6B/M, and 6C/N

Upper-Division Requirements

Organic Chemistry: Chemistry 108A/L, 108B/M, and 110/L

Inorganic Chemistry: Chemistry 151A/L

Biochemistry: Biochemistry and Molecular Biology 100A-B-C and 110L

Physical Chemistry: Chemistry 163A, 163B, and 163C

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in chemistry with a biochemistry concentration is satisfied by completing Chemistry 151L, Inorganic Chemistry Laboratory, and Biochemistry and Molecular Biology 110L, Advanced Biochemistry Laboratory.

Chemistry Major B.S. with Biochemistry Concentration Planner

http://undergrad.pbsci.ucsc.edu/chemistry/chem-concentrations/chembs-bioc/index.html

Biochemistry and Molecular Biology B.S.

See the biochemistry and molecular biology program description and major requirements.

Chemistry B.S. Degree with Environmental Chemistry Concentration

A concentration within the biology, chemistry and biochemistry, and Earth sciences disciplines, collectively identified as the environmental sciences program, is offered. Students will develop a core competence suitable for pursuing graduate work in the environmental chemistry area or in graduate environmental sciences programs.

Lower-Division Requirements

General Chemistry: Chemistry 1A, 1B/M, and 1C/N

Introductory Biology: Molecular, Cell, and Developmental Biology (BIOL) 20A, and Ecology and Evolutionary Biology (BIOE) 20B

Geology: Earth Sciences 20/L, 10/L, or 5/L

Environmental Policy and Economics: Environmental Studies 25

Calculus: Mathematics 11A, 11B and 22; or 19A, 19B and 22; or Applied Mathematics and Statistics 15A, 15B and Mathematics 22

Physics: Physics 5A/L, 5B/M, and 5C/N; or Physics 6A/L, 6B/M, and 6C/N

Upper-Division Requirements

Environmental Toxicology: Microbiology and Environmental Toxicology 101 or 102

Biochemistry: Chemistry 103

Organic Chemistry: Chemistry 108A/L, 108B/M and 110

Instrumental Analysis: Chemistry 122

Inorganic Chemistry: Chemistry 151A/L

Physical Chemistry: Chemistry 163A, 163B, and 164

Earth Sciences: Earth Sciences 110B/M

Ocean Sciences: Ocean Sciences 120 or 220 (Ocean Sciences 220 must be taken for a letter grade)

One of the following laboratory courses:

Chemistry 146A, Advanced Laboratory in Organic Chemistry

Chemistry 146B, Advanced Laboratory in Inorganic Chemistry

Chemistry 146C, Advanced Laboratory in Physical Chemistry

Students currently conducting senior thesis research are required to choose an advanced laboratory in the Chemistry 146-series that is outside their research area.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in chemistry with an environmental chemistry concentration is satisfied by completing Chemistry 151L, Inorganic Chemistry Laboratory, and either Chemistry 146A, 146B, or 146C.

Chemistry Major B.S. with Environmental Chemistry Planner

http://undergrad.pbsci.ucsc.edu/chemistry/chem-concentrations/chembs-envr/index.html

Requirements for the Minor

The course requirements for the minor, including electives, are the same as for the B.A. degree, with the exclusion of Chemistry 146A, 146B, 146C, 151A/151L, and 164. The minor has no senior comprehensive requirement.

Chemistry Minor Planner

http://undergrad.pbsci.ucsc.edu/chemistry/chem-minor.html

Comprehensive Requirement

The comprehensive requirement is a part of all UCSC degrees. In the Department of Chemistry and Biochemistry, there are two options for satisfying this requirement:

Senior thesis: A senior research project based on original experimental or theoretical research (Chemistry 195A-B-C). At the conclusion of the project, the student submits a satisfactory formal research paper to the faculty sponsor. Students arrange for a faculty sponsor by consulting with a relevant faculty member within the chemistry and biochemistry or the biochemistry and molecular biology major programs. In some cases, faculty outside these major programs (for example, in biology, ocean sciences, microbiology and environmental toxicology, or Earth sciences) may be an appropriate sponsor. Students who select a sponsor outside the chemistry or the biochemistry and molecular biology major programs should have the title and description of the proposed thesis reviewed by the Chemistry and Biochemistry Department undergraduate faculty adviser. Students, usually working in the laboratory of the faculty sponsor, acquire experimental and/or theoretical research experience and skills in the laboratory as well as instruction in the writing of a research paper. Students are expected to make satisfactory academic progress and be in good academic standing while they take Chemistry 195 courses. Students who achieve excellence in both research and thesis may be awarded honors in the thesis upon graduation.

Senior essay: An essay based on literature research (Chemistry 199). After agreeing in advance on an appropriate topic of interest and a format, the student submits a satisfactory essay on the topic. Students arrange for a faculty sponsor by consulting with a relevant faculty member within the chemistry and biochemistry major program. In some cases, faculty outside these major programs (for example, in biology, ocean sciences, microbiology and environmental toxicology, or Earth sciences) may be an appropriate sponsor. Students who select a sponsor outside the chemistry and biochemistry major program should have the title and description of the proposed essay reviewed by the Chemistry and Biochemistry Department undergraduate faculty adviser. Students acquire experience and skills in scientific literature research as well as in the writing of a research paper.

Advising

The chemistry and biochemistry adviser provides counsel to undergraduate majors. Students are encouraged to declare their major at an early date so that advising and planning can commence. For assistance with advising, please refer to the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/.

Prerequisites

Prior to enrollment in the general chemistry sequence, CHEM 1ABC, students are encouraged to take the Chemistry Assessment Exam. For information about the assessment, visit the Physical and Biological Sciences Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/.

Materials Fee

Chemistry students should be aware of the materials fee required for some courses. The fee is billed to the student's account for specific laboratory materials purchased by the Chemistry and Biochemistry Department through the university. Fees generally range from $15 to $50 per course. Students may incur additional expense purchasing individual supplies.

High School Preparation

Prospective chemistry majors are encouraged to get a solid foundation in high school mathematics; familiarity with algebra, logarithms, trigonometry, and analytic geometry is particularly recommended. Students who take chemistry at UCSC begin with Chemistry 1A or 1B, both of which require a strong background in high school chemistry. Students without a high school chemistry background may begin with Chemistry 1P, Essentials of Chemistry. Starting with Chemistry 1P does not impede progress in the major. To assess your level of preparation in chemistry, please see the Chemistry Self-Assessment examination on the Undergraduate Affairs web site at http://undergrad.pbsci.ucsc.edu/.

Transfer Students

The Chemistry and Biochemistry Department welcomes applications from community college students who are prepared to enter as junior-level chemistry majors. Students intending to transfer must complete one full year of general chemistry and calculus prior to transfer; and would be well served by also completing a year of calculus-based physics. Students preparing to transfer from a California Community College should reference http://assist.org before enrolling in courses at a community college. Prospective transfer students should consult the Physical and Biological Sciences Undergraduate Affairs web site for more information on preparing to transfer into the chemistry major at http://undergrad.pbsci.ucsc.edu/chemistry/transfer-students/index.html.

Program for Students of the Health Sciences

Students intending to enter medical, dental, or another health science professional school can satisfy entrance requirements with a major program in chemistry supplemented with further courses, especially in biology, as specified by the admissions requirements of the school where they intend to apply. Students are urged to contact the Career Center for assistance with the application process.

American Chemical Society Certification

The American Chemical Society (ACS) recognizes certain undergraduate programs, including those of UCSC, to be of such quality as to entitle graduates to become ACS members immediately upon graduation. Graduates must be individually certified to the ACS by the Chemistry and Biochemistry Department chair if they have satisfactorily completed an approved program of study. ACS certification standards are rigorous; a graduate who has met them carries a distinction that is well recognized in the profession. Broadly speaking, ACS certification requirements are satisfied by completing a B.S. major in chemistry (not including the biochemistry concentration) at UCSC, including Chemistry 122 as an elective. A year of study in a major modern foreign language (preferably German) is recommended. More information is available from the Chemistry and Biochemistry undergraduate adviser.

Honors in the Major

Honors in the Chemistry major requires a 3.5 or higher GPA in all chemistry courses;

highest honors requires a 3.8 or higher GPA in all chemistry courses for the major. Students may also receive honors for a senior research thesis.

Letter Grade Policy

For all students entering UCSC in fall 2014 and later, all courses used to satisfy any of the majors must be taken for a letter grade

Graduate Programs

The Chemistry and Biochemistry Department offers three graduate degrees: the doctor of philosophy (Ph.D.), a thesis master of science (M.S.), and a coursework M.S. The Ph.D. and thesis M.S. programs are designed to help students develop into independent scholars while pursuing the excitement of scientific research in a personal, supportive environment. Both the Ph.D. and the research M.S. programs prepare students for careers in academia, industry, government laboratories, and other settings requiring an advanced education in chemistry and related disciplines. The coursework M.S. does not require research and is suited to teachers and others wishing to update or broaden their chemical expertise. Approximately 90 graduate students are currently enrolled in the graduate program.

Within the Ph.D. program students have the flexibility to design a course of study focused on personal research interests, and at the same time are expected to maintain the high intellectual standards associated with the doctoral degree. Research options include biochemistry, physical chemistry, biophysical chemistry, inorganic chemistry, bioinorganic chemistry, materials, organic chemistry, and bio-organic chemistry. Collaborative research efforts are encouraged, both intra- and inter-departmentally. The interdisciplinary Center for Biomolecular Science and Engineering emphasizes bioinformatics, nanotechnology, and computational approaches to chemistry. Biochemists join geneticists, computer scientists, and biologists in the Center for the Molecular Biology of RNA. Productive interactions have developed between the Chemistry and Biochemistry Department, the Department of Microbiology and Environmental Toxicology, the Department of Molecular, Cell and Developmental Biology, and the School of Engineering. Several Chemistry and Biochemistry faculty members also participate in the new graduate Program in Biomedical Sciences and Engineering.

Before beginning coursework, Ph.D. students take attainment examinations to confirm their level of preparation in four areas: organic, inorganic, physical, and biochemistry. First-year students take Chemistry 292 and 296, and select a research adviser and research committee by the end of winter quarter. In the first two years, students enroll in core courses and electives related to their specialization. Core courses are Chemistry 200A, B, and C for biochemistry and biophysical chemistry; Chemistry 151B, 234 and 256A, B, or C for inorganic and bioinorganic chemistry; Chemistry 242A, 242B, 242C for organic chemistry; and Chemistry 261, 262, and 263 for physical chemistry. Organic studies students must pass four cumulative examinations based on assigned reading in current research journals. The Ph.D. candidate's research committee meets formally with the student to evaluate research progress at least once a year. Students are expected to finish all Ph.D. requirements in five to six years.

M.S. students and Ph.D. students who have not advanced to candidacy enroll in a weekly seminar (Chemistry 291A, B, C, or D). Speakers from UCSC, other universities, and research labs expose students to advances at the frontiers of chemical research, offering the opportunity for personal contact with leading scientists.

Teaching assistantships provide both financial support and the opportunity to put into practice the required pedagogical training offered in Chemistry 296 (presentation techniques, discussion strategies, laboratory teaching skills, laboratory safety procedures, and time management). Doctoral students are also supported as graduate-student researchers.

Ph.D. Requirements

- Pass three out of four attainment examinations and meet any deficiencies as directed by spring of the first year.
- Take Chemistry 292 and 296 in fall of the first year.

- Take Chemistry 291, Research Seminar, every quarter until advanced to candidacy.
- Organic studies students must pass four out of 12 "cumulative examinations" based on reading lists of current published organic research.
- Select an adviser and nominate members of the research committee by the end of the winter quarter of the first year.
- Present a second-year seminar on a topic of current interest in published research outside the candidate's own research area.
- Serve as a teaching assistant (TA) during at least three quarters in the first two years, before attempting the Ph.D. oral qualifying examination.
- Pass five lecture courses (25 credits): at least four at the graduate (200) level, and at least four in chemistry and biochemistry (with departmental approval, up to two courses may be at upper-division undergraduate level).
- In fall of the third year, pass the Ph.D. oral qualifying examination before an examining committee consisting of three research committee members plus one outside member approved by the graduate dean. The Ph.D. candidate presents (a) a summary of current research results and possible future direction, and (b) an original research proposal on a chemistry or biochemistry topic either related or unrelated to the candidate's current thesis research.
- Nominate members of the Dissertation Reading Committee (DRC).
- After advancing to candidacy, submit a research prospectus (outline of dissertation chapters) and meet with the DRC to review research progress annually.
- Submit an updated research prospectus (outline of dissertation chapters) to the DRC in the winter of the fifth year.
- Submit written dissertation based on original research.
- Present dissertation seminar.

The average time to degree is five and one-quarter years. Ph.D. candidates are expected to complete research and write the dissertation within nine quarters after advancing to candidacy following a successful Ph.D. oral qualifying examination. Financial support is not available after 18 quarters in the graduate program.

For both Ph.D. and M.S. students, the standard course load is three courses per quarter, or a total of 15 credits per quarter.

M.S. Requirements: Research Thesis Path

- Pass three out of four attainment examinations in the first year.
- Take Chemistry 292.
- Take Chemistry 296 if working as teaching assistant (TA) at any time.
- Take Chemistry 291 each quarter.
- Select an adviser and nominate members of the research committee in the first year.
- Pass at least five Chemistry and Biochemistry lecture courses, of which at least three must be graduate (200) level.
- Conduct original laboratory research.
- Capstone requirement: write a thesis based on original research.

M.S. Requirements: Coursework Path

- Pass three out of four attainment examinations in the first year.
- Take Chemistry 296 if enrolled as teaching assistant (TA) at any time.
- Take Chemistry 291 each quarter.

Pass seven chemistry lecture courses (at least four at the graduate (200) level) from three of the four sub-disciplines: organic, inorganic, physical chemistry, and biochemistry.

- Capstone requirement: present a seminar on a topic of current interest in published research.

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Chinese

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in learning Chinese may enroll in language courses from beginning to advanced levels and should do so early in their careers at UCSC. Only those with no prior experience with the language may enroll in Chinese 1, which is only offered fall quarter. Heritage learners and those with prior instruction are required to take a placement exam. The Chinese 4H-5H sequence is designed to accommodate most heritage learners of Chinese. Students interested in combining their language study with their major focus may choose from a major or minor in language studies or linguistics, a minor in East Asian studies through the History Department, an individual major in East Asian studies through their college, or a global economics major.

The sequence of lower-division courses 1-6 is aimed at enabling students to gain proficiency in aural comprehension, speaking, reading, and writing skills. Instruction takes place mostly in Chinese from the second half of the first quarter. Upper-level courses include Chinese 103, Language and Society in Taiwan and the PRC; Chinese 104, Readings in Chinese Literature; Chinese 105, Readings in Chinese History; Chinese 107, Introduction to Classical Chinese Prose; and Chinese 108, Introduction to Classical Poetry.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

Students may apply to study intensive Chinese language at universities—in Taipei, Hong Kong, or Beijing—for periods ranging from a summer up to a full year through the Office of International Education (OIE). Courses taken abroad can, with approval of an adviser, be applied to major requirements. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu. For information on credit applied to a major, please contact the appropriate department.

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Classical Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://classicalstudies.ucsc.edu/

Faculty

Program Description

"Classics" is a traditional designation for the study of the literature, history, and culture of ancient Greece and Rome. Classical studies at UCSC combines features of traditional programs, such as solid grounding in ancient Greek and/or Latin, with innovative, interdisciplinary approaches (literary theory, gender studies, performance, and film).

Classical studies is an interdisciplinary field. While the core of the program is focused on courses in the ancient Greek and Latin languages it also includes courses in history, history of art and visual culture, linguistics, literature, philosophy, politics, religious studies, and theater arts. Students are encouraged to study the literary and material artifacts of Greece and Rome within the larger context of ancient Mediterranean and Near Eastern cultures.

The classical studies program offers an opportunity to work in small classes with a dedicated teaching faculty and excellent fellow students. Classical studies is an excellent preparation for further study in a wide variety of graduate and professional programs including comparative literature, English, philosophy, law, and publishing.

The basic requirements for the classical studies major allow a variety of emphases and concentrations. For example, students with an interest in contemporary philosophy and political theory might want to concentrate in Greek, taking upper-division courses in Greek, history, philosophy, and politics. Students with an interest in European literature might want to concentrate in Latin, taking upper-division courses in Latin, history, and literature in translation. Students planning on pursuing a classics degree at the Ph.D. level should concentrate most of their coursework in the Greek and Latin languages themselves.

Classical studies is administered by the Department of History. For additional information on curriculum and advising, go to http://classicalstudies.ucsc.edu.

Requirements for the Major

A prerequisite for the classical studies major is the lower-division sequence in elementary Greek or Latin language (Greek 1 and 2 or Latin 1 and 2). A minimum of 40 upper-division units must be completed within the classical studies major course requirements. The major requires a total of 10 courses plus a senior comprehensive examination and must include the following:

- one lower-division survey of ancient history or literature in translation;

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

- three upper-division courses in Greek or Latin literature;
- six additional approved upper-division courses (which may include additional courses in Greek or Latin literature);
- enrollment in a 2-credit comprehensive examination preparatory course, History 199F, is required in the same quarter that the senior comprehensive examination will be given. The preparatory course will be taken with the chair of the student's examination committee.

Comprehensive Requirement. Classical studies majors are required to pass a senior comprehensive examination. Each student shall identify a minimum of two classical studies faculty members to serve on the examination committee, one of which shall be designated as the committee chair. Please consult the classical website for a more detailed description of this requirement at http://classicalstudies.ucsc.edu

Disciplinary Communication (DC) Requirement. Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in classical studies is satisfied by completing two upper-division courses in Greek literature or Latin literature from the following list: Greek Literature 102, 103, 104, and 105; or Latin Literature 102, 103, and 104.

Honors in the Classical Studies Major. All students who announce candidacy during the academic year are reviewed for honors or highest honors in the major. The classical studies faculty advisers determine honors based upon courses applied toward the classical studies major. Performance in courses taken elsewhere and being transferred toward the major will be considered when applicable. The minimum standard applied is excellence in most courses for honors, and excellence in all courses for highest honors. Summer, fall, and winter graduates will be reviewed at the end of each of their respective quarters. Spring graduates will be reviewed as of the spring announcement of candidacy deadline.

Requirements for the Minor

A minor in classical studies requires the lower-division sequence in elementary Greek or Latin language (Greek 1 and 2 or Latin 1 and 2) and Greek or Latin Literature 100 plus any four of the upper-division courses listed as satisfying the classical studies major requirements.

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Cognitive Science

2014-15 General Catalog

273 Social Sciences 2
(831) 459-2002
http://psychology.ucsc.edu

Program Description

Cognitive science has emerged in the last few decades as a major discipline that promises to be increasingly important in the 21st century. Focused on achieving a scientific understanding of how human cognition works and how cognition is possible, its subject matter encompasses cognitive functions (such as memory and perception), the structure and use of human language, the evolution of the mind, animal cognition, artificial intelligence, and more.

The cognitive science degree provides a strong grounding in the principles of cognition through courses in cognitive psychology, and, in addition, provides breadth in the interdisciplinary aspects of cognitive science such as anthropology, linguistics, biology, philosophy, and computer science. Graduates will be well prepared for advanced training in research fields of cognitive psychology and cognitive neuroscience, technology industries such as human-computer interface, and health fields in the treatment of brain disorders.

The cognitive science major is intended for students wishing to enter doctor of philosophy (Ph.D.) programs in cognitive psychology, cognitive science, or cognitive neuroscience to pursue careers in research; enter the field of public health to work with individuals with neurological disorders and learning disabilities; or to enter the field of human-computer interface design; or pursue other related careers.

The Department of Psychology administers the program and student major advising.

Preparation for the Major

Students who are not prepared to begin the calculus requirement should take preparatory courses offered by the mathematics and applied mathematics departments, including pre-calculus.

Requirements for the Cognitive Science Major

The undergraduate degree program in cognitive science is a program offering a course of study leading to the bachelor of science (B.S.) degree. Fifteen courses (75 credits) are required. Because some courses have additional prerequisites, students should read the descriptions of courses carefully, noting the prerequisites for courses of interest to them.

Lower-Division Requirements:

Introduction to Cognition (one of PSYC 20A or 20B)

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
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- Merrill College
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- Porter College
- Psychology

Statistics (one of PSYC 2, AMS 5 or AMS 7/L)

Calculus (one of AMS 11A, MATH 11A, 19A or 20A)

Computer Programming (one of CMPE 13/L, CMPS 5C, 5J, 5P, 12A)

Upper-Division Requirements:

Students must complete 10 courses toward the major after completing the lower-division requirements. At least eight of these must be upper-division courses (a minimum of 40 credits). These must include Psychology 100, three upper-division core courses and three upper-division cognitive psychology electives, as described below. Students must also complete four interdisciplinary electives in other departments, which may or may not be upper-division. Students must ensure that one of the interdisciplinary electives is an upper-division course.

Psychology 100, Research Methods in Psychology (7 credits)

Core Courses

Students must complete a course from three of the following areas:

Perception (Psychology 120 or 121)

Neuroscience (Psychology 123)

Language (Psychology 125)

Memory (Psychology 129)

Cognitive Psychology Electives

Students must complete three additional upper-division Psychology courses from the following list. One of the core courses that is not used to satisfy the core courses requirement may be used to satisfy this requirement. One of these cognitive electives must be a Cognitive Senior Seminar as designated by the asterisks below.

Any of Psychology 120-138 (i.e., the Cognitive Series)

Psychology 104, Development in Infancy

Psychology 105, Children's Thinking

Psychology 119E, The World of Babies *

Psychology 119F, Language Development *

Psychology 119P, Children and Technology *

Psychology 139B, Consciousness *

Psychology 139C, The Psychology of Lying and Deception *

Psychology 139D, Modeling Human Performance *

Psychology 139F, Psychology and Evolutionary Theory *

Psychology 139G, Conversations *

Psychology 139H, Weird Science *

Psychology 139J, Forgetting*

Psychology 139K, Face Recognition*

Psychology 181, Psychological Data Analysis

Psychology 194B, Advanced Cognitive Research

Psychology 195A, Senior Thesis

Psychology 204-252, graduate cognitive courses, by petition

*denotes Senior Seminar

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Nondiscrimination Statement

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Interdisciplinary Electives

Students must complete four interdisciplinary electives from lists of courses pre-approved by the Psychology Department, one of which must be upper-division. The electives fall into four groups: Evolution; Artificial Intelligence and Human-Computer Interaction; Linguistics; Philosophy. Three of the four electives must be selected from the same group. Students are responsible for planning their course of study to complete any necessary prerequisites for electives they wish to take. Possible sequences of interdisciplinary courses, including prerequisites, are given below.

Group 1: Evolution

Anthropology 1, 100, 101, 104, 105, 106, 109, 112, 139 (also listed in Group 3), 173, 174, 175A, 184/L, 194B, 194H, Biology: Ecology and Evolutionary Biology 20C, 109, 124/L, 129/L, 140, 141L, 147, 172/L, Biology: Molecular, Cell, and Developmental Biology 80E, 105, 120, 125, Philosophy 127 (also listed in Group 4), 190F (also listed in Group 4)

Group 2: Artificial Intelligence and Human-Computer Interaction

Computer Engineering 8, 9, 80A, 80U, 131, 161, 167/L, Computer Science 17, 20, 80B, 80J, 80K, 80V, 132, 140, 146, 148, Music 80L

Group 3: Linguistics

Anthropology 139 (also listed in Group 1), Linguistics 50, 53, 80C, 80D, 101, 102, 105, 111 (formerly Linguistics 55), 112 (formerly Linguistics 52), 113, 116, 117, 124, 125, 140, 151, 152, 155, 157, 158

Group 4: Philosophy

Philosophy 9, 11, 80S, 100B (formerly Philosophy 93), 100C (formerly Philosophy 94), 121, 123, 125, 127, (also listed in Group 1), 133, 135, 137, 138, 141, 190F (also listed in Group 1), 190G, 190O, 190S

Major Qualification Requirements

Students may petition to declare the cognitive science major once they have completed the lower-division requirements. For students to be admitted to the major, they must have a 2.80 or higher cumulative grade-point average (GPA) in the lower-division requirements and receive a C or better in each of the courses. Transfer students may substitute equivalent courses from other institutions. Students not meeting the grade requirements in the lower-division courses may take any of the listed alternatives as substitutions; the department will use the highest grade to compute GPA.

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

Comprehensive Requirement

UCSC requires that every student satisfy a senior exit/comprehensive requirement prior to graduation. Cognitive Science students will satisfy this requirement by receiving a passing grade in either a senior seminar (PSYC 139A-K, or 119E, or 119F, or 119P), or research experience (PSYC 194B, Advanced Cognitive Research, or PSYC 195, Senior Thesis).

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that majors upper-division Disciplinary Communication (DC) requirement. The DC requirement in cognitive science is satisfied by completing Psychology 100, Research Methods in Psychology, and the Senior Seminar requirement.

Honors

Honors in the cognitive science major are awarded to graduating seniors whose academic

performance is judged to be consistently excellent by a committee of psychology faculty. Highest honors in the major are reserved for students with consistently excellent academic performance and an honors-level senior thesis.

Cognitive Science Course Planners

Following are two recommended academic plans for students to complete the Cognitive Science major. Plan 1 assumes typical curriculum selections. Plan 2 assumes the maximum number of prerequisites.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	MATH 2	MATH 3	Calculus
	PSYC 20	Programming	
	college core		
2nd (soph)	Interdisciplinary prerequisite	PSYC 2	PSYC 100
		Interdisciplinary prerequisite	
3rd (jr)	Cognitive core	Cognitive core	Cognitive core
	Interdisciplinary elective	Interdisciplinary elective	Interdisciplinary elective
	Cognitive elective	Cognitive elective	Cognitive elective
4th (sr)	Interdisciplinary elective	Cognitive upper-division	Cognitive upper-division

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	MATH 2	MATH 3	Calculus
	PSYC 20	Programming	
	college core		
2nd (soph)	Interdisciplinary prerequisite	PSYC 2	PSYC 100
		Interdisciplinary prerequisite	Interdisciplinary prerequisite
3rd (jr)	Cognitive core	Cognitive core	Cognitive core
	Interdisciplinary prerequisite	Cognitive elective	
	Cognitive elective		
4th (sr)	Cognitive elective	Interdisciplinary elective	Interdisciplinary elective
	Interdisciplinary elective	Interdisciplinary elective	

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College Eight

2014-15 General Catalog

College Office
(831) 459-2361
http://eight.ucsc.edu/

Course Descriptions

College Nine

2014-15 General Catalog

College Office
(831) 459-5034
http://collegenine.ucsc.edu/

Course Descriptions

College Ten

2014-15 General Catalog

College Office
(831) 459-5034
http://collegeten.ucsc.edu/

Course Descriptions

For college description and list of faculty, see Colleges.

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Community Studies

2014-15 General Catalog

213 Oakes Academic Building
(831) 459-2371
http://communitystudies.ucsc.edu

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Program Description

Founded in 1969, community studies is the oldest interdisciplinary program at UCSC. The longstanding hallmarks of community studies are its focus on social justice and its distinctive pedagogy integrating classroom learning and extended field study. Community studies was a national pioneer in the field of experiential education and its civic engagement model has been emulated widely. Community studies was also a pioneer in addressing principles of social justice, specifically inequities arising from race, class and gender dynamics in society at large, and in critically assessing strategies for achieving social change.

The undergraduate major offers highly motivated and focused students the opportunity to pursue a rigorous course of study combining on- and off-campus learning. On campus, students complete a core curriculum enabling them to identify, analyze, and help construct strategies for social justice movements, nonprofit sector advocacy, public policy making, and social enterprise. The core curriculum works in tandem with topical course work that develops expertise in specific domains of social science scholarship related to their field study. Off campus, students commit to spending six months immersed in a setting where they participate in and analyze the social justice work of an organization, with a goal of making a meaningful contribution to the organization's mission. Students work independently but with active guidance from both campus faculty and an on-site supervisor from the field study organization.

The undergraduate core curriculum begins with the development of skills in social analysis and field observation/participation while deepening students' knowledge of specific histories and theoretical perspectives essential to the study of communities and social transformation. Next, through the six-month full-time field study, students engage with specific communities through residence and participation in an organization with a social justice mission. This intensive and extended immersion is a distinguishing feature of the community studies major. Finally, students return to campus to analyze their field study experience and its relation to their ongoing classroom-based learning. The major culminates with a senior capstone integrating academic coursework, field study analysis, and original writing.

With the guidance of faculty and staff advisers, community studies students choose field placements related to one of the program's areas of focus in health justice and economic justice. In the past, placements have been arranged with community health clinics,

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- Portuguese
- Porter College
- Psychology

women's and feminist organizations, immigrant-rights centers, media advocacy organizations, homeless resource and support groups, sustainable development projects, queer and transgender organizations, neighborhood or workers' collectives, civil rights groups, community food security programs, legal clinics, community-based cultural organizations, programs for seniors, tenant or labor unions, HIV/AIDS advocacy groups, harm reduction programs, government agencies and the offices of elected officials, and still other organizations committed to and working for social justice. As political, economic, cultural and technological landscapes shift, so do the needs and opportunities for social justice organizing. It is a dynamic world and throughout its history Community Studies has been noteworthy for being attuned and responsive to innovative field study opportunities.

Community studies alumni have pursued a wide variety of professional careers in health care, K-12 education, public policy, social work, urban planning, higher education, and law. According to a 2005 alumni survey, almost 100 alumni have founded non-profit social justice organizations and many more have served on non-profit boards and/or in executive director positions.

Program Overview

Community studies is a major with a sequential core curriculum. This means that core curriculum courses must be completed in a specific order:

Fall Quarter	CMMU 10, Introduction to Community Activism
Winter (pre-field study)	CMMU 101, Communities, Social Movements, and the Third Sector
Spring	CMMU 102, Preparation for Field Study
Summer/Fall	CMMU 198. Independent Field Study (15 units per quarter)
Winter (post-field study)	CMMU 194, Analysis of Field Study

In addition to the core curriculum, students must successfully complete at least three topical courses to develop expertise in their designated emphasis (health justice and/or economic justice). Students are encouraged to take as many topical courses as possible prior to their field study. Two directed electives complete the requirements for the major, one each in the areas of race/class/privilege and regional/historical contexts. These electives are designed to ensure that all students develop knowledge of the history, culture, and political economy of the place where they will be carrying out their field study—whether that place is a neighborhood in Santa Cruz, New York City, or a small village in Guatemala—and develop a critical consciousness about their own social locations. Students must complete both directed electives before beginning field study.

A list of approved topical and elective courses will be posted in the program office and updated regularly on the program web site.

In sum, the program includes courses that develop a substantive focus for field study immersion, courses that contextualize the field study in wider social and geographical processes, and courses offering instruction about methods relevant to conducting and analyzing the field study experience.

Transfer Students

The Community Studies program can easily accommodate students who transfer to UCSC for the fall quarter. To ensure a smooth transition, all transfer students should contact the Community Studies undergraduate adviser as early as possible to discuss course enrollment and declaring the major.

Declaring the Major

In order to declare the community studies major, a student must satisfactorily complete CMMU 10, Introduction to Community Activism, and at least one upper division topical course from the approved list of courses. Students may then declare the community studies major at any time, but must declare prior to enrolling in CMMU 102, Preparation for Field

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
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Study. As part of the declaration process, students meet with the program director to review their academic plan for the major, including discussion of field study possibilities, directed electives, and appropriate courses to meet the topical requirements. Students must submit their approved academic plan and declaration petition to the Community Studies staff adviser. Any change to the student's academic plan must be approved by the program director.

Major Course Requirements

10, Introduction to Community Activism

This course introduces students to different approaches to community activism including charity, volunteering, labor and community organizing, non-violent resistance, non-profit sector involvement, and media advocacy.

101, Communities, Social Movements, and the Third Sector

This course critically engages with concepts central to the major including constructions of community in social-change efforts and the institutionalization of social movements in third-sector organizations. It is designed to deepen students' understanding of the opportunities and obstacles embedded in various avenues of social action.

102, Preparation for Field Study

This course examines participatory and other social-research methods including participant observation, conducting interviews, writing ethnographic field notes, and collecting descriptive data. Students receive practical experience with developing research questions, methods, and writing field notes. The course also addresses ethical and logistical issues of community-based research. The final project is a literature review completed in partial satisfaction of the disciplinary communication (DC) general education requirement.

Topical Requirements

Students must complete three upper-division courses in the topical area of health justice and/or economic justice from available approved courses listed below. The program director also may approve other courses, as appropriate. These courses are an essential component of the community studies major because they define the focus of students' overall academic plan and their work on full-time study. The topical requirements also permit students to work across academic disciplines by enrolling in the many fascinating topical courses offered by community studies affiliate faculty. Note that not all topical courses are offered every academic year. Check the program website for current year offerings.

Race, Class, and Privilege Electives

These upper-division courses should examine race, class, and other hierarchies of difference as they intersect with structural inequality, self-identification, and identity politics. Students complete this requirement through a course selected from an approved list of directed electives posted on the Community Studies program web site and at the program office.

Regional/Historical Electives

Students have a choice of upper-division courses that provide historical/geographic knowledge of particular peoples, places, or regions relevant to their full-time field study. Students complete this requirement through a course selected from an approved list of directed electives posted on the Community Studies program web site and at the program office.

Topical Courses

Community Studies

CMMU 132, American Cities and Social Change

CMMU 141, Economic Justice

CMMU 143, Walmart Nation

CMMU 145, Globalization and its Discontents

CMMU 149, Political Economy of Food and Agriculture

CMMU 156, Politics of Obesity

CMMU 157, Ageism and Activism

CMMU 160, Women's Health Activism

CMMU 161, Introduction to Public Health

CMMU 162, Community Gardens and Social Change

CMMU 163, Health Care Inequalities

CMMU 186, Agriculture, Food and Social Justice

Anthropology

ANTH 134, Medical Anthropology: An Introduction

ANTH 136, Biology of Everyday Life

ANTH 153, Medicine and Colonialism

ANTH 194P, Space, Place, and Culture

Economics

ECON 180, Labor Economics

ECON 189, Political Economy of Capitalism

History

HIS 115A, U.S. Labor History to 1919

HIS 115B, U.S. Labor History 1919-present

HIS 115C, Learning from the U.S. Great Depression

HIS 123, Immigrants/Immigration in U.S. History

HIS 190S, Women and Social Movements in the U.S.

Latin American and Latino Studies

LALS 166, Latino Families in Transition

LALS 175, Migration, Gender, and Health

Politics

POLI 120C, State and Capitalism in American Political Development

POLI 122, Politics, Labor, and Markets in the U.S.

POLI 124, Politics, Poverty, and Inequality in America

POLI 190L, Poverty Politics

Psychology

PSYC 147A, Psychology and Law

PSYC 147B, Psychology and Law

PSYC 149, Community Psychology: Transforming Communities

PSYC 153, Psychology of Poverty and Social Class

PSYC 155, Social-Community Psychology in Practice

PSYC 159H, Community-based Interventions

PSYC 159P, Social-Community Psychology in Practice

Sociology

SOCY 122, Sociology of Law

SOCY 127, Drugs in Society

SOCY 131, Media, Marketing, and Culture

SOCY 176A, Work and Society

SOCY 177, Urban Sociology

SOCY 177E, Eco-Metropolis: Research Seminar in Urban and Environmental Studies

SOCY 177G, Global Cities

198, Full-Time Independent Field Study

During the full-time, six-month field study, students are enrolled at UCSC and receive full-time university credit. Students are required to submit field notes and several analytical essays during the field study. Students are guided by a campus faculty adviser and on-site organization supervisor.

194, Analysis of Field Materials

This course is designed for students returning from their full-time field study and has two related goals: (1) to help students, both individually and collectively, analyze and gain perspective on their field experiences; and (2) to facilitate completion of the senior capstone requirement. Students work with their field material to develop findings and arguments and connect those to relevant theoretical literature(s). The written work of 194 completes the DC requirement.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division DC requirement. The community studies program's model of experiential pedagogy relies heavily on writing instruction to develop students' analytical, reflexive, and communication skills. As stated, although students in the major develop disciplinary writing skills throughout the core curriculum, they fulfill the DC requirement with course 102 and course 194.

Senior Capstone Requirement

In addition to the full-time field study, another distinctive feature of the major is the emphasis placed on the capstone. Each student must fulfill this requirement, either through a senior essay, a senior thesis or a student-directed seminar. For a thesis or student-directed seminar, the student must work directly with a faculty adviser, usually for two quarters.

Senior Essay: Students complete a senior essay that incorporates field study observations and contextualizes their findings historically and theoretically. Most students pursue this capstone option. The minimum length is 25 pages, plus bibliography. The senior essay is completed entirely in course 194, Analysis of Field Materials.

Senior Thesis: Outstanding students may choose to complete a senior thesis, which is comprised of field-study observations, historical and theoretical contextualizations of the field study, and deeper analysis of the social justice issues at the heart of the field study. The thesis also involves post-field-study research; typical length is 40–50 pages, including bibliography. Students begin the senior thesis during course 194 and complete it in the following quarter(s) by enrolling in course 195, Senior Thesis.

Student-Directed Seminar (SDS): The SDS capstone option is reserved for exceptional students. Under the direction of a faculty adviser, the student develops and teaches a Community Studies 42 course related to the student's field study and academic course work and submits a seminar completion report. Student-directed seminars need advance planning; a proposal for the SDS must be completed before beginning the field study.

Honors in the Major

Honors in the community studies major are awarded to graduating seniors whose academic performance, including coursework, field study, and the senior capstone, is judged by a faculty committee to have achieved excellence. Highest honors in the major are reserved for students with consistently outstanding academic performance.

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Cowell College

2014–15 General Catalog

College Office
(831) 459–2253
http://cowell.ucsc.edu/

Course Descriptions

For college description and list of faculty, see Colleges.

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Critical Race and Ethnic Studies

2014-15 General Catalog

416 Humanities I
(831) 459-3981
http://cres.ucsc.edu/

Faculty | Course Descriptions

Program Description

Critical Race and Ethnic Studies (CRES) majors develop a deep understanding of how race and other modalities of power have structured human life in the past and the present. Students acquire an understanding of the historical production of race and ethnicity in the United States and across the globe. They learn how the contours of race and racism have changed over time and, concomitantly, how individuals and groups have experienced these phenomena in constantly morphing ways. Students examine present-day racial/ethnic ideologies such as multiculturalism, colorblindness, and postracialism as well as contemporary social phenomena such as changing working conditions, new migration patterns, and emergent cultural expressions. Students also explore the ways that race and ethnicity have developed in concert with gender, sexuality, class, indigeneity, citizenship, and other modalities of power and lived identity.

CRES majors make critical use of methods and concepts from different academic disciplines as a means of better understanding historical and contemporary social phenomena and problems. In the process, they learn to recognize both the limits and the value of established knowledge production practices. The configuration of the major allows students flexibility at the upper division to design a course of study that enables a general understanding of a range of issues of intellectual and professional interest and/or a deeper understanding of a key area of focus.

Through their immersion in a program of study that is multidisciplinary, comparative, and transnational in scope, CRES majors develop a critical, situated perspective on the rights, responsibilities, and privileges of being a citizen of the United States or residing in its borders in the 21st century. CRES also helps students develop skills in critical thinking, comparative analysis, the application of social theory, research, communication, and writing so that they can act effectively in an ever-changing, complicated, and culturally diverse world.

Requirements for the Major

To apply for the major, students must have taken or currently be enrolled in CRES 10. Students must submit a proposed study plan to the program adviser that meets the major requirements in a coherent manner. Students are urged to submit their study plan no later than the third quarter of their sophmore year or, in the case of transfer students, no later than the first quarter of their junior year. The study plan should reflect a commitment to

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- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

take CRES 100 and 101 at the next possible opportunity.

Disciplinary Communications (DC) Requirement

Students of every major must satisfy that major's upper division Disciplinary Communication (DC) requirement. The DC requirement in CRES is satisfied by completing CRES 190.

Course Requirements

To graduate with a major in CRES, a student is required to complete 10 courses with the approval of the program.

One lower-division foundation course: CRES 10

Two upper-division foundation courses: CRES 100 and CRES 101

Students may petition to substitute a department-based community engagement course for CRES 101.

At least six upper-division electives offered by other departments, from the list of CRES-approved courses.

At least two electives must be from the list of designated courses focusing on phenomena outside of the US or on transnational or hemispheric subjects.

At least two academic divisions must be represented in the elective coursework.

Students are encouraged to take more than the minimum number of elective courses. They may elect to craft an elective distribution from several areas of specific research and career interests. Or, they may wish to take a number of elective courses in a particular area to develop expertise in it. For example, they may wish to focus on a social group (e.g., members of the African Diaspora), on a discipline (e.g., history), on a social phenomenon (e.g., social movements), or on a methodological or theoretical orientation e.g., theories of race, gender and sexuality.)

Capstone research seminar: CRES 190

Students are encouraged to supplement their upper-division coursework with language study, internships, and individual or group independent studies. Students may petition to have up to 10 credits of such activities substituted for upper-division elective requirements, so long as these activities serve, or do not interfere with, the breadth requirements.

Graduate Program

Designated Emphasis

Requirements for the Designated Emphasis

Graduate students from other departments may obtain a designated emphasis in CRES by completing the following requirements in addition to the requirements for the doctorate in their home department:

- The student must have a designated graduate adviser from the CRES program principal or affiliated faculty. The student must meet with this CRES adviser to develop a coherent plan for meeting the requirements for the designated emphasis, preferably before the end of the student's first year. This plan must be approved by the CRES graduate director.
- A member of the CRES principal or affiliate faculty (usually the CRES graduate adviser) must serve on the student's qualifying examination committee and/or on the student's dissertation committee.
- The student must prepare a significant piece of scholarly writing in the area of CRES. This writing may take the form of a substantial seminar paper, a master's essay, or a portion of the doctoral dissertation. The student's CRES adviser will determine whether a particular piece of writing meets this requirement.
- The student must take four relevant graduate seminars taught by CRES program faculty. One relevant graduate seminar taught by non-program faculty may be counted with the approval of the CRES adviser. The adviser may also approve the substitution of an

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
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individual or group independent study addressing a set of readings or focused on research and writing for one of the four required graduate courses. The specific courses used must reflect a coherent plan of study that embodies both breadth and focus.

Students pursuing the designated emphasis are encouraged to serve as a teaching assistant for at least one CRES core or elective course. CRES faculty are encouraged to appoint CRES designated emphasis students as teaching assistants when possible and appropriate.

Proposing and Obtaining the Designated Emphasis

Once a plan for meeting the requirements is agreed upon, the student should complete the application, obtain the CRES adviser's and graduate director's signatures, and submit the application to the CRES program office. The request for the designated emphasis must originate in the degree-granting department.

Once the requirements have been met, the student submits relevant documentation to the CRES Program office for final approval by the CRES graduate director. At a minimum, the student should submit copies of the qualifying examination and/or Dissertation Committee Nomination forms and a note from the adviser confirming that the writing sample and proposed courses have been completed. If the proposed courses have changed, an explanation of the changes should be included.

The CRES program will notify the student and the home department of approval for the designated emphasis.

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Crown College

2014-15 General Catalog

College Office
(831) 459-2665
http://crown.ucsc.edu/

Course Descriptions

Program Description

For college description and list of faculty, see colleges.

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Digital Arts and New Media

2014-15 General Catalog

DARC 204
(831) 459-1919
http:// danm.ucsc.edu

Faculty | Course Descriptions

Program Description

New technologies have profoundly changed contemporary culture and inevitably altered the role of the arts in society. The Digital Arts and New Media (DANM) Master of Fine Arts (M.F.A.) Program serves as a center for the development and study of digital media and the cultures that they have helped create. Faculty and students are drawn from a variety of backgrounds, such as the arts, computer engineering, humanities, the sciences, and social sciences, to pursue interdisciplinary artistic and scholarly research and production in the context of a broad examination of digital arts and cultures.

Program Learning Objectives

1) Develop necessary digital art and new media knowledge to understand the state of the field. Examples: Technical, aesthetic, historical, and theoretical knowledge.

2) Demonstrate ability to define, plan, and execute individual and collaborative digital art and new media research projects. Examples: Developing project concepts, prototyping, timeline development, creative problem solving.

3) Understand multiple forms of digital art and new media critique, be able to respond to and give critiques productively. Examples: Forms such as studio critique, performance critique, system design critique, and writing critique. Ability to understand critique, evaluate feedback, produce iteration of work.

4) Demonstrate ability to participate in planning, coordinating, and executing collaborative digital art and new media research projects. Examples: Brainstorming, collaborative idea formalization and project planning, iterative development and refinement, team coordination and communication.

5) Employ professional communication practices in digital art and new media to make public contributions to the field. Examples: Research papers, artist talks and statements, exhibitions, performances.

The Digital Arts and New Media M.F.A. Program is a two-year program organized into four interdependent and equally important pursuits:

New Praxis—The term “praxis” has many meanings, which include “translating ideas into action” and “action and reflection upon the world in order to change it.” New Praxis in DANM is comprised of “critique” and “practicum” which provide students with both the practical training and critical dialogue necessary to pursue their own individual goals as artists and cultural practitioners.

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- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
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- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
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- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
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- Physical Education
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- Politics
- Portuguese
- Porter College
- Psychology

Studies—DANM "studies" include required core seminars that allow students first to explore an array of recent methods and approaches in digital arts and culture, and then to pursue the construction of specific genealogies and theories with a sustained focus on a particular topic, by engaging in various dialogues at the intersection of theory and practice while developing their thesis project and paper.

Collaborative Research—Students and faculty engage in research collaborations resulting in publications and exhibitions in one of four possible focused research areas: mechatronics, participatory culture, performative technologies, and playable media described below.

Mechatronics

Mechatronics is the functional integration of mechanical, electronic, and information technologies. In DANM this framework may be employed for the development and production of physical, systems-based artwork that incorporates elements of robotics, motion control, software engineering, and hardware design. DANM mechatronics research involves the use of a variety of media including video, performance, and sculpture for the creation of complex, kinetic, audio-visual systems for the exploration of temporality, materiality, experience, and perception.

Participatory Culture

Participatory culture studies and research efforts explore the role of information and communication technologies in the current shift from "top-down" culture to a culture of participation and social engagement. Within the social register, the human/computer interface acts as both a boundary and a bridge. Participatory culture research in DANM encompasses a range of projects in social computing and community-media activism which involve the design of new technologies to address social problems and facilitate broader participation in culture and politics.

Performative Technologies

Research in performative technologies explores new methods for combining media and technology to create the visual, aural, and connective material of performance. DANM performance research generates new public and performative spaces where digital media, communication networks, and interactive systems may be fused with lighting, movement, and stage and sound design to create real-time shared multimedia experiences for audiences and performers at both local and remote locations. Ongoing projects in this area may include work in telematics; performance-driven, real-time graphics; algorithmic composition of sound and image; computer vision and motion capture; and studies of ritual, performativity, embodiment, interactivity, and subjectivity.

Playable Media

Playable media research explores the potential of computational systems for the creation of new media forms that invite and structure play. This group works to understand and create new ways for computer games and related forms to engage audiences, make arguments, tell stories, and shape social space. Ongoing playable-media work combines game-design and artificial-intelligence research with writing, art, and media authoring.

Prospective students are asked to identify their choice of research group in their application and statement of purpose. Admissions are tied to DANM project group foci. New students are admitted into a specific project group based on the quality and relevance of the student's prior work and expertise to the group project in their chosen area of focus. Students collaborate on faculty-initiated and -directed research projects. This work is intended to provide the student with the opportunity to learn collaborative and practical research methodologies, and to participate in a professional-level research project. The collaborative-project group experience is intended to inform, but not necessarily contribute to, the student's thesis project.

Pedagogy—DANM trains future arts academics through practical experience. Students are awarded teaching assistantships as part of their overall support package as well as opportunities to assist faculty in workshops.

Requirements

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Nondiscrimination Statement

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The DANM M.F.A. Program requires 72 credits of academic course work. In the first year, students generally take three courses each term—one course in each of the program areas, New Praxis, Studies, and Collaborative Research. In the second year, students primarily take elective courses, work with their thesis committees, and pursue independent and directed research leading to the completion of the thesis project and paper.

New Praxis

New Praxis in DANM is comprised of "critique" and "practicum." Students are required to take seven new praxis courses over two years and have the option to take two new praxis electives.

New Praxis–Year One

Practicum—This area of praxis is designed to allow students to develop the conceptual, technical, and practical skills they need to successfully complete projects that realize their own individual goals as digital media artists.

DANM 210—First-year students are required to take a Project Design Studio in the first quarter. This course guides the development of students' individual studio practice, particularly in relation to the transition to digital media.

Electronic and programming requirements—First-year students also take basic courses in electronics and programming. Students with prior experience in programming and/or electronics should discuss their background with the instructor and their adviser to determine if the course is needed or if an alternative course should be taken to fulfill this credit requirement. Students seeking an alternative means to fulfill this requirement may choose to:

- serve as assistants in workshops for beginning students;
- take electronics or programming electives offered in computer engineering; or
- enroll in independent studies, as approved by their adviser.

Critique—This area of praxis is designed to allow students to present their own work and review the work of their fellow students as a means of engaging in the critical dialogue necessary to pursue their own individual goals as digital media artists. First-year students are required to present work-in-progress based on the projects developed in the project-design course in both individual studio and group critiques, and participate in group critique discussion.

During the spring quarter, first-year students identify and engage a thesis committee under the supervision of the program director.

New Praxis–Year Two

Practicum—During the fall quarter, second-year students work on the development of their thesis project proposal and abstract under the supervision of their thesis committee. Second-year students are encouraged to take practice-based electives and independent studies that facilitate the development of their thesis projects.

DANM 299—In the winter and spring quarters, second-year students enroll in a minimum of 10 credits of independent thesis research which is supervised by one or more members of their thesis committee.

DANM 215—Students work with faculty curator/coordinator on development of thesis projects specifically for the group exhibition context. Students contribute to development of exhibition design and collateral materials, while studying the unique presentation and curatorial challenges of new media.

Studies

Students are required to take three core seminars over two years and have the option to take two studies electives.

Studies–Year One

DANM 201 Recent Methods and Approaches to Digital Arts and Culture—In this seminar

students examine an array of methods and approaches to research and writing in digital media art and culture and explore key theories concerning digital media and cultures.

DANM 202 Dialogues and Questions in Digital Arts and Culture—A pre-thesis course in which students engage in dialogues at the intersection of theory and practice with the goal of producing a pre-thesis proposal and preparatory essay. Readings and seminar discussions will inform the development of pre-thesis project proposals and essays.

Studies-Year Two

DANM 203 Frameworks and Arguments in Digital Arts and Culture—This course is intended to help students develop and write the M.F.A. thesis. Students conduct research on the thesis topic, design outlines, construct strong theoretical arguments, and draft the final document. The course is intended to help students structure and develop their thesis papers which are intended to theoretically contextualize their thesis projects.

Elective—Students may choose to take an elective offered by the program or choose an elective from a broad array of graduate courses offered on campus with the approval of their adviser.

Collaborative Research

Students participate in a three-quarter-long, collaborative-research project group in one of four possible DANM research focus areas, which takes place in the winter and spring quarters of the first year. In the second year, students continue with the final quarter of their project group (fall). This work is intended to provide the student with the opportunity to learn collaborative and practical research methodologies, and to participate in a professional-level research project.

Thesis Requirement

Students are required to complete a thesis project and written paper under the supervision of their thesis committee. The thesis will be an arts project with digital documentation accompanied by a written paper. Thesis projects may be individual or collaborative and are expected to grow out of the research pursued in the project groups during the three quarters prior as well as work developed in new praxis courses. Each student will be expected to complete a 20- to 30-page paper discussing the student's preparatory research as well as the theoretical significance of the project. In the case of collaborative projects, each student will be required to submit his or her own paper. During the thesis year, students will make at least two progress presentations to their thesis committee. The chair of the three-person committee will be a full associate professor and DANM faculty member. A completed thesis project and paper must be submitted to and approved by the thesis committee before the degree can be awarded.

Applications

Prospective students in the Digital Arts and New Media program will have a foundation in the arts with some demonstrated interest in technology or a foundation in technology with demonstrated background in the arts. Many, but not all, entering students will have completed a Bachelor of Arts (B.A.) program in one or more of the arts disciplines (art or art history, film, multimedia, music, theater, video, etc.) or a Bachelor of Science (B.S.) program in computer science or computer or electrical engineering. Other successful applicants will have a B.A. or B.S. in another field but will be able to show substantial achievement in the arts, in technology, or in digital arts.

In certain cases, students who demonstrate excellent potential for the program but lack proficiency in a "cross discipline" will be admitted to the program with the understanding that they will take courses during their first two quarters of study to make up that deficiency. An arts student lacking sufficient programming experience, for example, will be expected to take one or two programming courses in their first two quarters in addition to the DANM program requirements.

Students will apply online through the Division of Graduate Studies web site between October and January for the following fall quarter. In addition to submitting an online application, students will be expected to submit an online portfolio. Further information can be found at: http://graddiv.ucsc.edu.

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Earth and Planetary Sciences

2014-15 Catalog

A232 Earth and Marine Sciences Building
(831) 459-4089
http://eps.ucsc.edu

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Program Description

The Earth and Planetary Sciences Department teaches and conducts research in a wide array of topics. We seek to answer questions such as:

How did the Earth form? How has it evolved since then? What makes up the interior of the Earth?

What is the history of life on Earth? What are the causes and effects of past mass extinctions?

How do mountain ranges form? What causes earthquakes? What causes island chains to form? What controls the evolution of glaciers? How do we prevent coastal erosion? How well can we predict tsunamis?

What has Earth's climate been like in the past? How will climate change in the future?

What controls the supply and quality of our freshwater resources?

How are other planets in our solar system different from Earth? How did they evolve to their present state? How have the impacts of asteroids on Earth and other planets affected their evolution?

A variety of methods and tools are used to help us address these questions. Geologists examine rocks and geologic formations in order to understand the processes that control their formation and evolution. Geochemists and mineralogists examine the chemical and mineral composition of rocks, sediments, and fossils using a variety of sophisticated analytical instruments. Geophysicists use seismometers to not only record earthquakes, but also to learn about the deeper parts of the Earth. Environmental scientists collect samples of the atmosphere, rivers, lakes, and the oceans, sometimes requiring the use of aircraft and ships. Spacecraft have visited and explored all of the planets in our solar system. Space-based satellites have provided a massive amount of data about Earth over the past few decades. Scientists from all disciplines use computer models to help them understand these complex systems.

The Department of Earth and Planetary Sciences offers a number of degrees that teach undergraduate and graduate students the knowledge and skills necessary to address these and many other questions. Along with the standard Earth sciences major, we offer degrees with concentrations in environmental geology, ocean sciences, planetary sciences, and

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

science education. We also offer combined majors with environmental studies and anthropology. A minor in Earth sciences is also available. We offer courses across a wide range of topics, allowing students to tailor the curriculum to their interests. Courses are comprised of not only classroom lectures, but frequently field trips, laboratories, and computer exercises are involved. Many related courses are offered by other departments such as Ocean Sciences, Microbiology and Environmental Toxicology, Environmental Studies, Biological Sciences, Chemistry and Biochemistry, and Astronomy and Astrophysics. The university capstone requirement is often fulfilled by attending the departmental field camp, or by completing a senior research thesis, but other choices are also possible.

Graduates of our department continue on to a variety of careers, such as:

- Business and industry
- Geological and environmental consulting
- Governmental agencies at the federal, state, and local level
- Non-profit organizations
- Research at universities, governmental research institutions, or other scientific agencies
- Graduate/professional school in areas such as science, engineering, teaching, law, public health, business

For more information about the people in the department, their areas of interest, departmental facilities, contact e-mails and phone numbers, and how to apply to join our department as an undergraduate or graduate student, please see our web site: http://eps.ucsc.edu/.

Academic Advising

A student who wants to become an Earth sciences major should contact the Earth and Planetary Sciences Department undergraduate staff adviser as soon as possible. After developing a formal study plan and submitting a declaration of major petition, students are required to meet with staff and faculty advisers who can help the student plan his or her program in detail and provide information about independent study, thesis research, advanced study, career options, and other educational opportunities. Relevant courses taken at UCSC or other institutions may be substituted for degree requirements by approved petition. Please see the undergraduate adviser for the substitution petition form and more information about this process.

Bachelor of Science Degree

The bachelor of science (B.S.) program is designed for students who intend to pursue professional careers in Earth and planetary sciences, engineering, policy, law, teaching, or business or who otherwise desire the broad, quantitative training available at UCSC. In addition to providing comprehensive preparation in the basic physical sciences, and particular breadth and depth in Earth and planetary sciences, the curriculum is structured to prepare students for the competitive graduate school and career marketplace.

The core of the major includes calculus, physics, chemistry, and a group of comprehensive Earth and planetary sciences courses. For the standard B.S., students then select at least six additional courses from a diverse list of upper-division electives, with at least two that involve significant laboratory or field data acquisition and analysis. These electives, often in combination with additional upper-division courses from this and related departments, provide the student with expertise in one or more subdisciplines within Earth sciences.

Elective distributions can be designed to emphasize earthquake and faulting studies, Earth surface processes, Earth system sciences, geologic hazards, geology, crustal and deep-Earth geophysics, marine geophysics, and water resources. Four formal concentrations, all with specific course requirements and leading to an Earth and planetary sciences B.S., are available: environmental geology, ocean sciences, science education, and planetary sciences. A senior comprehensive experience (senior thesis, or geologic field camp, intensive internship experience, or exemplary performance in a graduate course) is required of all majors.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
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Qualifications to the Major

We recommend that you consult with the department's undergraduate staff adviser to discuss options for degree concentrations and coursework priorities before you start the process of officially declaring your major. To declare the Earth sciences majors (including all concentrations within the major), a student must complete (with a minimum grade of C) one of the following introductory courses in physical geology:

Earth Sciences 5, California Geology

Earth Sciences 10, Geologic Principles

Earth Sciences 20, Environmental Geology

Transfer students may take an approved substitution for one of the above courses.

The process for declaring the major starts by obtaining a Declaration of Major petition (available online at http://advising.ucsc.edu/student/declaration/Declaration.pdf) and having it approved and processed by the department staff adviser.

Transfer Students

Transfer students planning to major in Earth sciences are strongly recommended (but not required) to complete all lower-division mathematics and science pre-requisites appropriate to their concentration of interest. For example, students planning to major in Earth sciences with a Planetary Science concentration should complete the equivalents to the following courses (including the associated laboratory components): Mathematics 11A and 11B; Chemistry 1A/L, 1B/M and 1C/N; Physics 6A/L and 6B/M; and Earth Sciences 5/L, 10/L or 20/L. One of the latter Earth sciences courses is required for declaring the major (see above).

Having this coursework completed elsewhere allows students greater flexibility in scheduling and completing their UCSC Earth and planetary sciences courses. Transfer students intending to become Earth sciences majors should meet with department advisers during summer orientation or shortly after their arrival on campus to plan their next year's schedule of courses.

Preparation for the Standard Earth Sciences Major (B.S.)

Chemistry 1A, 1B/M and 1C/N

Mathematics 11A–B or 19A–B, or Applied Mathematics and Statistics 15A–B, Mathematics 22 or 23A or Earth Sciences 111

Physics 6A/L and 6B/M (preferred), or 5A/L and 5B/M

Requirements for the Standard Earth Sciences Major (B.S.)

Earth Sciences 5/L, or 10/L, or 20/L; 110A/L, 110B/M, and 110C/N, 190 (optional, 1-credit mentorship class)

At least six elective courses (5+ credits each) from upper-division Earth Sciences or Ocean Sciences offerings must be completed. Two of the six upper-division electives must be selected from this subset of Earth Sciences courses, which involve significant laboratory or field data acquisition/analysis: 107, 109/L, 116, 117/L, 119, 120/L, 130/L, 140/L, 142, 146, 148, 150/L, 168. Two must also be completed from Earth Sciences courses that are part of our Disciplinary Communications (DC) requirement: 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195. Courses may simultaneously satisfy both the laboratory or field data acquisition/analysis and DC requirements.

Five (5) credits of internship (Earth Sciences 198) or independent study (Earth Sciences 199) may be substituted for one upper-division elective.

Students also complete the comprehensive requirement described below.

Students are encouraged to take more than the minimum number of elective courses and

may craft an elective distribution from many areas of specific research and career interests. The following are examples of suggested elective distributions that develop expertise in important areas (an asterisk (*) indicates that the course satisfies the laboratory or field data acquisition/analysis requirement).

Earth system sciences. Focuses on terrestrial, marine, and atmospheric processes and their relations through time; may include paleoclimatic and paleoenvironmental dynamics, global change issues, and surface geological processes such as weathering, erosion, and hydrology: 100/L, 101/L, 102, 107, 109/L*, 116*, 119*, 120/L*, 121, 125, 128, 148*, 191, 208, Ocean Sciences 102, 120

Earthquake and faulting studies. Focuses on crustal deformation and faulting processes and related phenomena such as plate motions, earthquakes, and stress in the lithosphere: 109/L*, 117/L*, 119*, 150/L*, 162, 168*, 172

Geologic hazards. Focuses on Earth processes that impact society, including earthquakes, volcanoes, coastal erosion, and landslides: 104, 105, 107, 109/L*, 116*, 140/L*, 142*, 146*

Geology. Emphasizes a traditional broad background with field skills, rock genesis and interpretation, and structural relations: 109/L*, 117/L*, 120/L*, 130/L*, 140/L*, 150/L*

Geophysics. Develops breadth in geophysical techniques, composition and structure of Earth's deep interior, and gravitational and magnetic fields: 117/L*, 119*, 150/L*, 160, 162, 168*, 172

Marine geophysics. Emphasizes a breadth of geological and geophysical background for continuing study of the processes involved in the growth, evolution, and destruction of the ocean floor and margins: 107, 117/L*, 146*, 150/L*, 152, 168*

Surface processes. Emphasizes understanding the fluxes of energy, water, mass, and chemicals within and across Earth's surface and the relations to climatic and tectonic forcing processes: 107, 109/L*, 116*, 119*, 120/L*, 140/L*, 128, 142*, 146*, 148*, 163, Microbiology and Environmental Toxicology 144

Water resources. Focuses on water resources quality and quantity and relations between climate and water in and on the crust: 105, 109/L*, 116*, 119*, 121, 140/L*, 142*, 146*, 148*, Microbiology and Environmental Toxicology 144, Ocean Sciences 120

Comprehensive Requirement (B.S.)

Students complete one of the following five options:

Satisfactory completion of Earth Sciences188A-B, Summer Field Internship and GIS with Applications in the Earth Sciences. Various external field experiences may also satisfy this requirement. See adviser for more details.

Satisfactory completion of a senior thesis (Earth Sciences 195), which must include a significant element of independent research or original work and can only be undertaken after agreement is obtained from a faculty member to supervise it (at least three quarters in advance of completion)

Exemplary performance (grade of B or better), including a major written report, in a 5-credit graduate course or seminar (which requires permission from the instructor in order to enroll)

Satisfactory completion of Earth Sciences 191, Climate Change and Policy

Satisfactory completion of a 5-credit internship (Earth Sciences 198) under the guidance of an on-site supervisor, with coordination and prior approval of the department's internship director. The project must include a comprehensive final written report.

PLEASE NOTE: None of the above may count toward fulfilling an upper-division elective if used as a capstone.

Standard Earth Sciences B.S. Major Planner

Students planning a professional career in the Earth and planetary sciences should take

more than the minimum number of courses required for the major if possible. Four-year students have ample flexibility to take additional electives if they begin with the required courses in their second year. Junior transfers also have flexibility if they have taken most of their preparatory courses in calculus, chemistry, and physics before entry. Further advice can be obtained from the undergraduate adviser and from faculty members.

Note: Chemistry 1A, 1B/M and 1C/N and Mathematics 11A–B and 19A–B and 22 and 23A are offered every quarter. Physics 6A/L is offered every quarter but Physics 6B/M is not offered in fall.

Year	Fall	Winter	Spring
1st (frsh)	CHEM 1A	MATH 11A or 19A or AMS 15A	EART 10/L MATH 11B or 19B or AMS 15B
	College core	CHEM 1B/M	CHEM 1C/N
2nd (soph)	EART 110A/L*	EART 110B/M*	EART 109/L*
	MATH 22A or 23A or EART 111	PHYS 6A/L	PHYS 6B/M
3rd (jr)		EART elective	EART 110C/N
	EART elective		EART elective
4th (sr)	EART elective	EART elective	EART 188A–B or senior thesis †
	senior thesis †	senior thesis †	
	EART 190 (1-credit, optional)		

*EART 109/L, 110A/L, and 110B/M are required for participation in EART 188A–B
†Students expecting to write a senior thesis for their comprehensive requirement are required to contact the department at least three quarters before graduation to identify the intended project and faculty adviser. Senior theses usually require at least two or three quarters for completion.

Earth Sciences Major with Concentration in Environmental Geology (B.S.)

The environmental geology concentration is designed to provide quantitative preparation for career pathways involving interdisciplinary study of the environment with a geological emphasis. Additional biology and environmental studies courses are required for this concentration along with other distributions of upper-division requirements and electives.

Required Lower-Division Courses

Earth Sciences 20/L (recommended) or 10/L or 5/L

Environmental Studies 25

Biology: Ecology and Evolutionary Biology (EEB) BIOE 20C

Chemistry 1A, 1B/M, and 1C/N

Mathematics 11A–B or 19A–B, or Applied Mathematics and Statistics 15A–B

Physics 6A/L and 6B/M (preferred), or 5A/L and 5B/M

Required Upper-Division Courses

Earth Sciences 110A/L and 110B/M, 190 (optional, 1-credit mentorship class)

At least four elective courses (5+ credits each) from upper division Earth sciences or ocean sciences courses must be completed. Choosing from the following list is recommended but not mandatory: 100/L, 101/L, 102, 104, 105, 107, 109/L, 110C/N, 111, 116, 119, 120/L, 121, 125, 128, 140/L, 142, 146, 148, 150/L. Two must be completed from Earth Sciences courses that are part of our DC requirement: 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195.

Two additional upper-division electives, preferably with environmental topics from biology, chemistry, Earth and planetary sciences, environmental studies, environmental toxicology, or ocean sciences. Courses may simultaneously satisfy both the upper-division elective and DC requirements.

Students also complete a comprehensive requirement from the list described above.

Earth Sciences (Environmental Geology) B.S. Major Planner

Year	Fall	Winter	Spring
1st (frsh)	CHEM 1A	EART 20/L	
	College core	MATH 11A or 19A or AMS 15A	MATH 11B
		CHEM 1B/M	CHEM 1C/N
2nd (soph)	EART 110A/L*	EART 110B/M*	EART 109/L*
	PHYS 6A/L	PHYS 6B/M	
3rd (jr)	BIOE 20C	EART elective	
	EART elective	ENVS 25	EART elective
	EART elective	EART elective	EART elective
4th (sr)	senior thesis †	senior thesis †	senior thesis † or EART 188A-B
	EART 190 (1-credit, optional)		

* EART 109/L, 110A/L, and 110B/M are required for participation in EART 188A-B.

† Students expecting to write a senior thesis for their comprehensive requirement are required to contact the department at least three quarters before graduation to identify the intended project and faculty adviser. Senior theses usually require two or three quarters for completion.

Earth Sciences Major with Concentration in Ocean Sciences (B.S.)

The ocean sciences concentration is intended to provide quantitative preparation for career pathways that include oceanography and biogeochemistry. Additional biology and chemistry courses are required for this concentration along with other distributions of upper-division requirements and electives.

Required Lower-Division Courses

Earth Sciences 5/L or 10/L, or 20/L

BIOE 20C

Chemistry 1A, 1B/M and 1C/N

Mathematics 11A–B or 19A–B, or Applied Mathematics and Statistics 15A–B

Mathematics 22 or 23A or Earth Sciences 111

Physics 6A/L and 6B/M (preferred), or 5A/L and 5B/M

Required Upper-Division Courses

Earth Sciences 110A/L, 110B/M, 110C/N, 190 (optional, 1-credit mentorship class); Ocean Sciences 101 or 102

At least four elective courses (5+ credits each) chosen from upper-division Earth Sciences or Ocean Sciences courses must be completed. Choosing from the following list is recommended, but not mandatory: Earth Sciences 101/L, 102, 105, 107, 109/L, 111, 116, 119, 120/L, 121, 128, 130/L, 148, 172; Chemistry 122; Ocean Sciences 101, 102, 118, 120, 130, 200, 220, 260. Two Earth Sciences courses must be completed that are part of our DC requirement: 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195. Courses may simultaneously satisfy both the upper-division elective and DC requirements.

Students also complete a comprehensive requirement from the list described above. For those choosing a thesis, a topic emphasizing ocean sciences is recommended.

Earth Sciences (Ocean Sciences) B.S. Major Planner

Year	Fall	Winter	Spring
1st (frsh)	CHEM 1A	CHEM 1B/M	EART 10/L
	College core	MATH 11A or 19A or AMS 15A	CHEM 1C/N
			MATH 11B or 19B or AMS 15B
2nd (soph)	EART 110A/L*	EART 110B/M*	EART 110C/N*
	MATH 22 or 23A or EART 111	PHYS 6A/L	PHYS 6B/M
3rd (jr)	EART elective	OCEA 101	EART 109/L*
	BIOE 20C	CHEM 108B/M	
		EART elective	EART elective
4th (sr)	senior thesis †	senior thesis †	senior thesis † or EART 188A–B
	EART 190 (1-credit, optional)		

* EART 109/L, 110A/L, and 110B/M are required for participation in EART 188A–B.

† Students expecting to write a senior thesis for their comprehensive requirement are required to contact the department at least three quarters before graduation to identify the intended project and faculty adviser. Senior theses usually require two or three quarters for completion.

Earth Sciences Major with Concentration in Planetary Sciences (B.S.)

The planetary sciences concentration is designed to provide students with a quantitative

background appropriate for career pathways in the interdisciplinary study of planets and their satellites. The upper-division elective courses can be tailored for students interested in planetary interiors, atmospheres, and/or surfaces.

Required Lower-Division Courses

Earth Sciences 10/L (preferred); or 5/L; or 20/L

Astronomy 12 or 16 or 18

Chemistry 1A, 1B/M, and 1C/N

Mathematics 19A-B (preferred) or 11A-B, or AMS 15A-B

Mathematics 22; or 23A; or Earth Sciences 111

Physics 5A/L, 5B/M (preferred); or 6A/L, 6B/M

Required Upper-Division Courses

Earth Sciences 110A/L, 110B/M, 110C/N, 119, 160, 190 (optional, 1-credit mentorship class)

One elective from the following Earth Sciences courses: 162, 163, 164

At least three electives (5+ credits each) from upper division Earth Sciences, Astronomy 112 or 118, or Mathematics 130 must be completed. Choosing from the following list is recommended but not mandatory: Earth Sciences 107, 109/L, 116, 117/L, 121, 128, 130/L, 140/L, 148, 150/L, 152, 162, 163, 164, 172, 209, 210; Astronomy 112, 118; Mathematics 130. Two Earth Sciences courses must be completed that are part of our DC requirement: 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195. Courses may simultaneously satisfy both the upper-division elective and DC requirements.

Students also complete the comprehensive requirement from the list described above. For those choosing a thesis, a topic emphasizing planetary sciences is recommended.

Earth Sciences (Planetary Sciences) B.S. Major Planner

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A	MATH 19B	EART 10/L
	College core	CHEM 1B/M	CHEM 1C/N
	CHEM 1A		Lower-div ASTR
2nd (soph)	EART 110A/L*	EART 110B/M*	EART 110C/N*
	PHYS 5A/L	PHYS 5B/M	
	MATH 22 or 23A or EART 111		EART elective
3rd (jr)	EART 160	EART 119	EART 109/L*
	PHYS 5D (2 credits, optional)		
4th (sr)	senior thesis †	senior thesis †	senior thesis † or EART 188A-B
	EART 190 (1-credit, optional)	EART elective	EART elective

* EART 109/L, 110A/L, and 110B/M are required for participation in EART 188A-B.

† Students expecting to write a senior thesis for their comprehensive requirement are required to contact the department at least three quarters before graduation to identify the intended project and faculty adviser. Senior theses usually require two or three quarters for completion.

Earth Sciences Major with Concentration in Science Education (B.S.)

The science education concentration provides future K–12 science teachers with coursework aligned with the California K–12 Earth and planetary science standards; a broad background across the sciences; and a thorough introduction to educational theory and practice including a sequence of three classroom-based internships. Additional biology, astronomy, and ocean science courses required for this concentration ensure that students are very well prepared to enter a rigorous teaching-credential program and, ultimately, a career in education. The senior comprehensive requirement involves a curriculum-development project jointly overseen by faculty in Earth and planetary sciences and UCSC's California Teach (Cal Teach) program.

Students may start with either the Cal Teach or Earth and Planetary Sciences Department for degree and course information, but must stay in contact with both for dual advising and development of study plans as well as approval for formally declaring the major.

Required Lower-Division Courses

Earth Sciences 5/L (strongly recommended) or 10/L or 20/L

Astronomy 2 (recommended) or another lower-division course in astronomy

Molecular, Cell, and Developmental Biology (BIOL) 20A

Ecology and Evolutionary Biology (BIOE) 20B and 20C

Education 50C

Mathematics 11A–B, or 19A–B, or Applied Mathematics and Statistics 15A–B

Chemistry 1A, 1B/M, and 1C/N

Physics 6A/L and 6B/M

Required Upper-Division Courses

Ocean Sciences 102

Earth Sciences 110A/L and 110B/M

Earth Sciences 109/L, or both 120/L and 150/L

Earth Sciences 111, or Mathematics 21 or 22, or Applied Mathematics and Statistics 5

At least two elective courses (5+ credits each) from upper-division Earth Sciences or Ocean Sciences offerings must be completed, one of which must involve significant laboratory or field data acquisition/analysis

Education 100C, 185C, 185L

One upper-division Education course from the following list: Education 128, 141, 164, or 181

Students complete a comprehensive requirement by doing an independent project through the Earth and Planetary Sciences Department, which applies knowledge of Earth and planetary sciences to K–12 curriculum development (Earth Sciences 194F).

Earth Sciences (Science Education) B.S. Major Planner

Year	Fall	Winter	Spring
1st	CHEM 1A	CHEM 1B/M	CHEM 1C/N
	EART 5/L	MATH 11A or 19B or AMS 15A	MATH 11B or 19B or AMS 15B

(frsh)			
	College core	EDUC 50C	
2nd (soph)	EART 110A/L	EART 110B/M	ASTR 2
	EDUC 100C (2 credits)	PHYS 6A/L	PHYS 6B/M
3rd (jr)	EART 109/L	EDUC 185C	OCEA 102
	EART 111 or MATH 21	BIOL 20A	BIOE 20B
4th (sr)	EART/OCEA upper-division	EART/OCEA upper-division	EART 194F capstone
	BIOE 20C	EDUC 185/L (2 credits)	EDUC elective

Combined Major in Environmental Studies/Earth Sciences (B.A.)

The combined major in environmental studies and Earth sciences is designed to provide enhanced exposure to geological concepts and processes for students emphasizing environmental policy and social science topics. Students are advised to plan carefully and to contact academic advisers in both the Environmental Studies and Earth and Planetary Sciences Departments early if they have questions. For the requirements of the combined environmental studies/Earth sciences bachelor of arts (B.A.) degree, see the environmental studies program description. [will link to environmental studies]

Combined Major in Earth Sciences/Anthropology (B.A.)

The Earth sciences/anthropology combined major is intended for students with interests in Earth sciences and the laboratory-based aspect of anthropology. These include anthropology students interested in archaeology or paleoanthropology who desire more intensive training in natural sciences and Earth sciences students interested in paleobiology or archaeology. The combined major provides a rigorous training in both anthropology and Earth sciences and will permit students to enter graduate programs in Earth sciences, archaeology, or paleoanthropology. The combined major has a significantly different set of cognate science and required lower- and upper-division courses than the standard major; therefore, students are advised to plan carefully and to contact academic advisers in the Earth and Planetary Sciences and Anthropology Departments early if they have questions.

Required Lower-Division Courses

Anthropology 1, 2, and 3

Earth Sciences 5/L, or 10/L, or 20/L

Mathematics 11A–B, 19A–B, or Applied Mathematics and Statistics 15A–B

Five lower-division science cognate courses (plus laboratories) chosen from the following:

BIOL 20A, BIOE 20B, BIOE 20C

Chemistry 1A, 1B/M, 1C/N

Physics 6A/L, 6B/M

Required Upper-Division Courses

Earth Sciences 110A/L

At least three elective courses (5+ credits) from upper-division Earth Sciences offerings must be completed.

Any four five- to seven-credit upper-division electives listed under the Anthropology Department's Physical Anthropology and Archaeology Courses subdivision.

At least two courses that are part of the DC requirement must be completed as part of the required upper-division courses. Earth Sciences courses that are part of the DC curriculum are: 100, 101, 102, 104, 109, 116, 120, 125, 140, 146, 148, 150, 152, 160, 188A, 191, 195; Anthropology courses are: 100, 170, 194B, 194L, and 194Y). Courses may simultaneously satisfy both the DC requirement and the upper-division Earth Sciences or Anthropology elective requirement.

Comprehensive Requirement

One of the following:

Satisfactory completion of Anthropology 194-series (any senior seminar in physical anthropology or archaeology)

Satisfactory completion of Earth Sciences 188A-B*, Summer Field Internship and Geographic Information Systems with Applications to the Earth Sciences

Satisfactory completion of a senior thesis (Earth Sciences 195) with faculty readers from both departments, which must include a significant element of independent research or original work and can only be undertaken after agreement is obtained from faculty members to supervise it (at least three quarters in advance of completion)

Satisfactory completion of a 5-credit internship (Earth Sciences 198) under the guidance of an on-site supervisor, with coordination and prior approval of the Earth and Planetary Science department's internship director. The project must include a comprehensive final written report.

* Earth Sciences 188A-B has as prerequisites courses 109/L, 110A/L, and 110B/M.

Earth Sciences/Anthropology Combined Major Planner

Year	Fall	Winter	Spring
1st (frsh)	ANTH 1	ANTH 2	ANTH 3
	College core		EART 10/L
2nd (soph)	Cog sci	MATH 11A or 19A or AMS 15A	MATH 11B or 19B or AMS 15B
	Cog sci	Cog sci	ANTH elective
3rd (jr)	EART 110A/L	EART elective	ANTH elective
	Cog sci	Cog sci	EART elective
4th (sr)	ANTH elective	EART elective	ANTH elective
	Sr comp	Sr comp	Sr comp

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. All degree options for the Earth sciences major except science education require students to pass at least two of the following courses (totaling 10 credits), all of which entail writing assignments:

Earth Sciences 100, Vertebrate Paleontology

Earth Sciences 101, The Fossil Record

Earth Sciences 102, Marine Geology

Earth Sciences 104, Geologic Hazards

Earth Sciences 109, Field Geology

Earth Sciences 120, Sedimentology and Stratigraphy

Earth Sciences 125, Analytical Paleobiology

Earth Sciences 140, Geomorphology

Earth Sciences 146, Ground Water

Earth Sciences 148, Glaciology

Earth Sciences 150, Structural Geology

Earth Sciences 152, Tectonics

Earth Sciences 160, Planetary Science

Earth Sciences 188A, Summer Field Internship

Earth Sciences 191, Climate Change Science and Policy

Earth Sciences 195, Senior Thesis

Students in the science education concentration are required to take Education 185L and either Earth Sciences 109 or both Earth Sciences 120 and 150.

Students in the combined major in Earth sciences/anthropology are required to pass two courses in any combination from the above list of Earth Sciences courses or the following Anthropology courses: 100, 170, 194B, 194L, and 194Y.

Honors

Honors in the major are determined by a review of grades (typically 3.50 or above) and narrative evaluations at the time a student applies for graduation. A faculty committee makes the decision based on the quality of all coursework, but especially in the courses required for the major. Extra coursework or independent study as well as more intensive or rigorous coursework and the quality of a capstone project may also be taken into consideration. Honors in the combined majors with environmental studies and anthropology will be granted only when the committees in both departments are in agreement. Highest honors may also be awarded in exceptional cases when a student's overall grade point average (GPA) is above 3.75 and performance in the senior capstone requirement is equally outstanding. The department reserves the right to withhold honors and highest honors based on other criteria, such as an incident of academic dishonesty.

Honors on the senior thesis are determined independently of major honors, and must be approved by two faculty readers.

Keys to Success in the Major

Achieving success in the Earth Sciences major is strongly correlated with successfully taking the required Foundation Classes and their associated 2-credit laboratories,

Earth Science 110A/L, Evolution of the Earth;

Earth Science 110B/M, Earth as a Chemical System.

If you are unsuccessful in passing your first attempt at these classes, past experience suggests that you might have difficulty successfully completing this major. We strongly recommend that you seek advising from the department or your college advisor. Two failures of one of these required gateway classes (or associated lab) is likely to preclude completion of the major.

Minor Requirements

Students can earn a minor in Earth sciences by taking courses 5/L or 10/L or 20/L and five upper-division Earth sciences courses. Courses offering less than 5 credits (such as Earth Sciences190 or 2-credit laboratories and independent studies) may not be counted toward the minor requirements, although additional coursework is always encouraged.

Graduate Program

The graduate program in Earth and planetary sciences is designed to prepare students for research, industry, consulting, teaching, and numerous other career paths, including business and law. The aim is to develop habits of critical analysis and thorough documentation; skills in quantitative field, computational, and/or laboratory research; and proficiency in one or more fields of research. The fundamental requirement for admission to the program is substantial evidence of superior scholarship, dedication and determination to do quality work, and aptitude for original research. Preparation in the basic sciences equivalent to the requirements for the Earth sciences bachelor's degree at UCSC is expected and, for non-undergraduate Earth sciences majors, achieving breadth of knowledge across the Earth and planetary sciences is expected. Excellent scholars from other disciplines, including chemistry, physics, engineering, or biology, are both eligible and encouraged to apply. Gaps in knowledge can be made up through coursework. Prospective students should take the Graduate Record Examination (GRE) General Test and have the scores sent electronically to the UCSC Division of Graduate Studies.

UCSC awards both the master of science (M.S.) and the doctor of philosophy (Ph.D.) degrees. The M.S. degree may be the terminal degree for some seeking careers in industry, government, and teaching at the secondary level. It may also be an initial step toward the Ph.D. degree, in which the student gains knowledge and confidence in carrying out and completing a more complex scientific project.

Thesis Track (Ph.D., M.S.). In their first year, all thesis-track graduate students register for courses 203, Introductory Teaching Seminar; 204, Fundamentals of Earth and Planetary Sciences; 205, Introductory Graduate Seminar; 206, Great Papers in the Earth Sciences; and, in consultation with the graduate advising committee, choose at least one subject course focusing on specific Earth and planetary sciences content and one course focusing on quantitative analysis (from a list available at the department office). In subsequent years, all students participate in course 293, Graduate Research Seminar. Other course requirements are tailored to the individual student's academic background, professional experience, and plans for research. Master's degree students must take a minimum of 35 quarter credits of graduate and upper-division undergraduate courses (at least 20 of which are graduate-level and not including Earth Science 297, Independent Research) including the courses mentioned above. No specific number of course credits is required for the Ph.D., but ordinarily students put more of their effort into coursework during the first year of graduate study. It is recommended that all thesis-track graduate students attain some teaching experience while at UCSC.

Before the start of fall quarter, each first-year thesis track student must meet with his/her faculty adviser to determine a customized course list designed to improve breadth and enable research goals. Immediately afterwards, a meeting is scheduled with the graduate program director to finalize and approve this initial discussion with a written study plan. Yearly academic review meetings will then reassess the student's progress in completing these courses and independent research, initially with the primary adviser but eventually with a reading committee composed of at least three members of the faculty and research staff (at least 50 percent of which must be members of the Academic Senate).

To qualify for candidacy in the Ph.D. program, each student must pass an oral examination in his or her area of specialization by the end of their third year of graduate study, although students are strongly encouraged to take the examination earlier. The examination is based on a research proposal presenting one or more specific questions to be researched by the student in the course of completing their Ph.D. thesis. Students are expected to have in-depth knowledge of fields relevant to the proposal, including familiarity with the professional literature.

The Ph.D. dissertation is a scholarly contribution to knowledge that embodies the results of original and creative effort by the student. Students are urged to prepare their dissertations for publication in peer-reviewed professional journals. A public oral defense of the thesis is required prior to completion of the Ph.D.

The M.S. thesis is a scholarly contribution consisting of results of an original research project by the student. Students are strongly encouraged to prepare their results for publication in the peer-reviewed literature. The M.S. thesis must be completed by the end

of the third year after entering the program, and students are strongly encouraged to complete their thesis earlier and to present the results of this work publicly.

Coursework M.S. Track. The coursework M.S. track is a professional program designed to allow students to increase their breadth, quantitative depth, or emphasis on a particular specialty; to provide the student with a stronger background toward competition for jobs or an enhancement of skills for current employment (e.g., K–14 teaching); and to allow students from other disciplines (e.g., biology, physics, chemistry, mathematics, environmental studies) to acquire advanced training in Earth and planetary sciences. Prior to the first quarter of study, students have a meeting with their faculty adviser in which they develop a study plan of at least nine courses, no more than one of which may be 297 or 298, and a statement of objectives. The plan must be approved by the graduate representative. Students are also limited to one Earth Sciences 290 pro-seminar course. It is expected that the course plan will comprise mainly graduate-level and quantitative, upper-level, undergraduate elective courses.

Coursework master's students are required to fulfill one of the following capstone options: a substantial review/research manuscript or a comprehensive oral examination based on their coursework.

There is no foreign-language requirement for either the M.S. or Ph.D. degree. However, many students in the Earth and planetary sciences find knowledge of one or more foreign languages necessary in their particular research and therefore study the appropriate language.

Details regarding admission to graduate standing, financial aid, examinations, and the requirements for the master of science and doctor of philosophy degrees are available from the Division of Graduate Studies. For more information, see Graduate Studies at http://eps.ucsc.edu/academics/grad-studies/index.html.

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East Asian Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://eastasianstudies.ucsc.edu

Faculty

Program Description

East Asian studies addresses the three societies of China, Japan, and Korea in northeast Asia. We recognize that they compose a meaningful regional designation that contains a diverse range of peoples, languages, and cultures. Linked by centuries of common use of the Chinese writing system, a shared textual canon, general principles of statecraft, and the continual circulation of people and goods, the three societies nevertheless also possess distinctive languages, histories, and social identities, making it necessary to explore each society in its own right.

In recognition of this diversity within the common bonds, East Asian studies at UCSC encourages students to explore East Asia in both depth and breadth. Building first upon developing language skills in Chinese or Japanese, students also begin their studies in one of two historical surveys—History 40A, Early Modern East Asia, or History 40B, The Making of Modern East Asia—which explore the broad regional forces that contextualize each society's particular trajectory. From these foundations, students are encouraged to investigate a broad range of questions pertinent to each society in classes across the university, including anthropology, economics, education, feminist studies, film and digital media, history, history of art and visual culture, languages, linguistics, literature, music, politics, sociology, and theater arts.

The East Asian studies minor is administered by the Department of History. For additional information on curriculum and advising, go to http://eastasianstudies.ucsc.edu.

Requirements for the Minor

Language. All East Asian studies minors are expected to gain proficiency in Chinese or Japanese language. Students with prior knowledge of Chinese or Japanese are required to complete a language placement exam. Instructions for the placement exam can be found on the Languages and Applied Linguistics web site: http://language.ucsc.edu. Students without prior knowledge of Chinese or Japanese should enroll in beginning Chinese (CHIN 1) or Japanese (JAPN 1) no later than fall quarter of the sophomore year. Students may also pursue study abroad opportunities as a way of acquiring Chinese or Japanese language instruction (see below).

All East Asian studies minors are required to complete at least two upper-division courses in Chinese or Japanese language instruction. Additional upper-division

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

offerings in Chinese or Japanese language instruction may be applied to the upper-division electives requirements (see below).

Core Courses. One required core course: History 40A, Early Modern East Asia, or History 40B, The Making of Modern East Asia.

Upper-Division Electives. Three additional upper-division courses from the East Asian studies curriculum, one of which may be an individual study (course 199).

A minimum of 25 upper-division units must be completed within the East Asian studies minor course requirements.

Study Abroad

Because the minor is designed to support the integration of language training with exploration of East Asian societies, we strongly endorse participation in one of the many education abroad programs available for UC students in East Asia where language skills acquired at the university are put to practical use in daily life and research. At present, there are UC education abroad programs in China, Japan, Hong Kong, Korea, and Taiwan. All students interested in studying abroad should meet with the East Asian Studies director prior to their departure. Students who participate in study abroad are required to complete a language placement exam upon their return. Instructions for the placement exam can be found on the Languages and Applied Linguistics web site: http://language.ucsc.edu. For more information on the program, see the UC Education Abroad program (EAP) web sites: UCSC—http://oie.ucsc.edu/sa/apply.html, and UC system-wide—http://eap.ucop.edu/.

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Economics

2014-15 General Catalog

401 Engineering 2
(831) 459-2743
http://economics.ucsc.edu

Faculty | Course Descriptions

Program Description

An understanding of economics is a vital component of a liberal arts education and a necessity for anyone interested in such areas as business, environmental policy, welfare reform, unemployment, international competitiveness and trade, or transformations in the global economy.

The programs offered by the UCSC Economics Department are designed to acquaint students with a broad range of economic issues and with the tools economists use. The department offers the following majors:

- Economics B.A.
- Business management economics B.A.
- Global economics B.A.
- The department also offers the following combined majors:
- Economics/Mathematics B.A.
- Environmental studies/Economics B.A.
- Latin American and Latino studies/Global economics B.A.
- A minor in economics is also available.

The economics curriculum begins at the introductory level; no specific high school preparation is required. All economics majors study a substantial core of economic theory and mathematical and statistical methods, and then choose among a wide variety of upper-division electives.

Economics majors may combine their upper-division elective choices in a variety of ways to achieve specialization in a number of possible areas, including environmental economics, public policy, political economy, international economics, economic development, and quantitative methods.

General Requirements

Qualification for an Economics Major

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
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- German Studies
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- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
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- Microbiology and Environmental Toxicology
- Music
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- Politics
- Portuguese
- Porter College
- Psychology

The Economics Department administers four undergraduate majors: economics, business management economics, global economics, and economics/mathematics. The qualification requirements for major declaration are the same for all four.

Students must take three courses prior to petitioning for entry to an economics major: Economics 1 (Introductory Microeconomics) and Economics 2 (Introductory Macroeconomics) and one of the following calculus courses: Economics/Applied Mathematics and Statistics 11A, Mathematical Methods for Economists; or Mathematics 11A, Calculus with Applications; or Mathematics 19A, Calculus for Science, Engineering, and Mathematics. Students who have a combined grade-point average (GPA) of 2.8 or better in Economics 1, 2, and the first calculus course qualify for the economics major upon applying.Students receiving a grade of NP, D, or F in one of the courses required for admission to the major may only declare once they have passed the same or equivalent course with a grade of C or better. Students who receive two grades of NP, D, or F in the required courses are not eligible to declare the major. Students are encouraged to apply to the major as soon as they have satisfactorily completed these three courses. Equivalent courses may be taken at other universities or community colleges. Students should check on assist.org to determine whether a transfer course is designated as equivalent to Economics 1, 2 or the first required calculus course. Transfer students are strongly encouraged to ask the department to review such courses prior to matriculation at UCSC, since an offer of admission to UCSC does not automatically imply admission to the economics major.

Students may petition for admission to the major by filling the Petition for Major/Minor Declaration and the UCSC Academic Planning form and by supplying evidence of their grades in the three pre-major courses.

Students who have a GPA lower than 2.8 in Economics 1, 2, and the calculus course are not eligible to declare an economics major. Students who are not eligible to declare the major may appeal this decision by submitting a letter of appeal to the department within 15 days of the denial of the declaration. Within 15 days of the receipt of the appeal, the department will notify the student, college and Office of the Registrar of the decision. Please check the department web site (http://economics.ucsc.edu) for further information on declaring a major or appealing ineligibility.

All classes included for major qualification determination must be taken for a letter grade. If students have not taken a letter grade, they must appeal by submitting a letter to the Economics Department.

Core Requirements for All Economics Majors

Economics 1 and 2, 11A, 11B, 100A (or 100M), 100B (or 100N), 113, and Applied Mathematics and Statistics 5 or equivalent courses are required for all economics majors and are prerequisites for most upper-division courses. Students are urged to complete these courses as soon as possible. Students who are committed to the major early in their academic career, should plan to complete at least Economics 1, 2, 11A, 11B, and preferably 100A, 100B, and 113 by the end of their sophomore year. Students are also encouraged to choose the letter grade option when taking these courses.

Mathematics and Statistics Content Requirement

Mathematics: Successful completion of Economics 11A and 11B, also offered as Applied Mathematics and Statistics 11A and 11B, (or equivalent) is required of all economics majors and is prerequisite to Economics 100A (or 100M), 100B (or 100N), and 113. Therefore, students are advised to take Economics 11A and 11B or their equivalent as early as possible in their undergraduate career. Mathematics 11A-B and 22 or 23A, or 19A-B and 22 or 23A, are acceptable equivalents to Economics 11A and 11B. Students may also complete the mathematics requirement by taking Mathematics 11A or Mathematics 19A, and then Economics 11B or Applied Mathematics and Statistics 11B. Students planning to pursue graduate work in economics or business should seriously consider more intensive mathematical training; consult an adviser.

Transfer students interested in the combined Economics/Mathematics major are encouraged to complete as many lower-division (mathematics and statistics) courses as

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Nondiscrimination Statement

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they can prior to transferring. The courses need to be equivalent to Math 19A, 19B, 23A and 23B.

Statistics: Applied Mathematics and Statistics 5, Statistics or

Applied Mathematics and Statistics 7, Statistical Methods for Biological, Environmental and Health Sciences, or

Computer Engineering 7, Statistical Reasoning in the Age of the Internet

Comprehensive Requirement

The comprehensive requirement for the economics major and the combined economics/mathematics major is satisfied by passing the following intermediate core courses with grades of C or better here at UCSC: Economics 100A or 100M, and 100B or 100N, and 113. Students may elect to complete a senior thesis with consent of an instructor in addition to completing the intermediate core courses.

Disciplinary Communication (DC) Requirement

All undergraduate majors must satisfy the campus' Disciplinary Communication (DC) requirement. The DC requirement in economics is satisfied by completing Economics 104, Is There Truth in Numbers: The Role of Statistics in Economics; or Economics 197, Economic Rhetoric. Students in the combined economics/mathematics major may also satisfy the requirement by completing Mathematics 100, Mathematical Proof, and either Mathematics 194, Senior Seminar, or Mathematics 195, Senior Thesis.

Independent Study

Students are encouraged to petition for independent study on topics of special interest to them. Economics 199, Tutorial, may be used as only one of the upper-division courses required for the major or minor.

Field-Study Program

The Economics Department offers its majors the opportunity to integrate their academic knowledge with career-related work. The field-study program places students in internships under the supervision of a faculty sponsor and a professional at the workplace. Students can select from a wide variety of field placements such as accounting firms, community non-profits, government agencies, brokerage firms, marketing agencies, banks, and businesses in Santa Cruz and beyond. Students apply for field study a quarter in advance. Participation in the field-study program requires at least junior standing, completion of courses 100A (or 100M), 100B (or 100N), and 113 as well as good academic standing. Students may earn a maximum of 10 academic credits and complete up to two quarters in a field placement. A field study requires 12 hours per week spent working on internship duties and completion of an academic project supervised by a faculty sponsor. Time spent toward the academic requirements set by the faculty sponsor is not included in the 12 hours spent at the field placement.

Along with the training and supervision by a professional at the workplace, students receive guidance from a faculty sponsor who directs their academic project. Students earn credit through the completion of this project and the job supervisor's evaluation of performance. Economics field-study courses (193 and 198) do not satisfy any upper-division requirements for the major and are available as Pass/No Pass only.

Interested students should make an appointment or stop by the Economics Department at 401 Engineering 2; or e-mail econintern@ucsc.edu. Web address: http://economics.ucsc.edu

Transfer Students

A student transferring to UCSC may fulfill some of the requirements for the major by completing equivalent courses, with a grade of C or better, at another recognized institution. Please refer to the section on Admission to the Major and Minor for specific admission requirements for the Economics majors.

Students should check on assist.org for already established equivalency agreements between UC and the California community colleges. For courses not already articulated through assist.org, transfer students must present their Transfer Credit Summary (available on the student portal) and course syllabi or descriptions to an Economics Department adviser. The department approves courses applicable for economics prerequisites and major requirements.

All transfer students must complete the three-course senior comprehensive requirement (and the DC requirement as stated previously) at UCSC. Economics and global economics majors must take at least two of their upper-division economics electives at UCSC. Business management economics majors must take at least three of their upper-division economics electives at UCSC, one of which must be 101, 133, or 135. Courses taken for credit elsewhere may not be repeated for credit here.

Combined Majors

The Economics Department offers the following combined majors: economics/mathematics, environmental studies/economics, and Latin American and Latino studies/global economics. Requirements for these majors may be reviewed under their separate entries in this catalog.

Economics Program Description

Economics studies how individuals, firms, governments, and other organizations within our society make choices, and how these choices affect the society's use of its available resources. Economists study a wide range of questions such as: How do individuals make decisions in the face of uncertainty? Why were fewer Americans working in 2011 than in 2005? Why do Europeans work fewer hours than Americans? Why have health care and education costs risen so much? What are the consequences of government deficits? Why has the gap between rich and poor in many countries risen? Why have some poor countries grown faster than many rich countries in recent years?

Economics majors study a substantive core of theory and mathematical and statistical methods that aid in addressing these questions. This required core can be combined with electives that emphasize specialized areas such as international economics, finance, public policy, applied microeconomics, law and economics, economic development, quantitative methods, macroeconomics, game theory and behavioral economics. A focus on core theory as well as mathematical and quantitative tools provides a foundation for graduate studies in economics. Selecting a range of electives to sample the broad domain of economics offers an excellent background for students who plan to enter careers in the private sector, in public service, the non-profit sector or to attend law school or other professional schools.

Economics Major Requirements

Students who major in economics are required to take the following courses:

1 Introductory Microeconomics: Resource Allocation and Market Structure

2 Introductory Macroeconomics: Aggregate Economic Activity

11A Mathematical Methods for Economists I (or equivalent)

11B Mathematical Methods for Economists II (or equivalent)

100A or 100M Intermediate Microeconomics

100B or 100N Intermediate Macroeconomics

113 Introduction to Econometrics

197 Economic Rhetoric or Economics 104, Is There Truth in Numbers: The Role of Statistics in Economics

Applied Mathematics and Statistics 5 Statistics or

Applied Mathematics and Statistics 7/L Statistical Methods for the Biological, Environmental, and Health Sciences;

and four additional upper-division economics courses, at least three of which must be selected from the following:

105 Macroeconomic Theory

114 Advanced Quantitative Methods

120 Economic Development

125 Economic History of the U.S.

126 Why Economies Succeed or Fail

128 Poverty and Public Policy

130 Money and Banking

137 Performing Arts in the Public and Private Economy

140 International Trade

141 International Finance

142 Advanced Topics in International Finance

143 Policy Issues in the International Economy

148 Latin American Economies

149 The Economies of East and Southeast Asia

150 Public Finance

156 Health Care and Medical Economics

159 The Economics of Organizations

160A Industrial Organization

160B Government and Industry

165 Economics as an Experimental Science

166A Game Theory and Applications I

166B Game Theory and Applications II

169 Economic Analysis of the Law

170 Environmental Economics

171 Natural Resource Economics

175 Energy Economics

180 Labor Economics

183 Women in the Economy

184 Labor Wars in Theory and Film

185 The Value and Support of the Arts: Challenges and Opportunities in American Society

189 Political Economy of Capitalism

190 Senior Proseminar

Courses 191, 192, 193, 193F, 198, and 198F may not be used to meet major requirements. Either course 195 or 199 may be used to fill one of the four upper-division elective major requirements. Other electives are listed under the Business Management Economics program description.

Minor Requirements

Students earn a minor in economics by completing the following requirements:

ECON 1, Introductory Microeconomics: Resource Allocation and Market Structure

ECON 2 Introductory Macroeconomics: Aggregate Economic Activity

ECON/AMS 11A, Mathematical Methods for Economists I

ECON/AMS 11B, Mathematical Methods for Economists II

Applied Mathematics and Statistics 5, Statistics; or Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological, Environmental, and Health Sciences; or Computer Engineering 7, Statistical Reasoning in the Age of the Internet

ECON 100A/ 100M Intermediate Microeconomics

ECON 100B/100N Intermediate Macroeconomics

ECON 113 Introduction to Econometrics

Three additional upper-division economics electives.

Economics 191, 192, 193, 193F, 198, and 198F may not be used to meet minor requirements.

Business Management Economics Program Description

The business management economics major provides students who are interested in careers in business or management with a foundation in economics and a selection of applied fields related to business management. Particular areas of strength of the program are accounting, finance, and technology management. This course of study prepares students for entrance into the business world or admission to graduate programs—either the master's program in applied economics and finance at UCSC or graduate programs in business and management at other universities.

The program provides a business and management education embedded within a broader economics and liberal arts context and is closely related to the economics and global economics majors and the technology and information management major.

This major has several important elements. First, it combines the strong analytic approach of economics with the technical aspects of management. Second, it recognizes that computing is intrinsic to business and is an essential skill for those who wish to enter this field. Students in this major gain knowledge about using computing as a tool of analysis for economic, statistical, and financial data. Third, the major offers field placements (arranged with the economics advisers) which provide an excellent way to apply students' academic knowledge of economics, business, and management to issues and problems in the real world; they provide marketable skills as well as important job contacts.

In cooperation with the UC Education Abroad Program (EAP), opportunities are available for students to take some business courses (taught in English) in Europe, Mexico, and Hong Kong. Students should ask the Economics Department for additional information about these programs.

Students who are committed to the major early in their academic career should plan to complete Economics 1, 2, 10A, 10B, 11A, 11B and preferably 100A, 100B, and 113 no later than the end of their sophomore year.

Business Management Economics Major Requirements

Introductory and core requirements. Students who major in business management economics are required to take the following courses:

1, Introductory Microeconomics: Resource Allocation and Market Structure

2, Introductory Macroeconomics: Aggregate Economic Activity

10A, Economics of Accounting (or equivalent, see under General Requirements)

10B, Economics of Accounting (or equivalent, see under General Requirements)

11A, Mathematical Methods for Economists I (or equivalent)

11B, Mathematical Methods for Economists II (or equivalent)

100A or 100M, Intermediate Microeconomics

100B or 100N, Intermediate Macroeconomics

113, Introduction to Econometrics

197, Economic Rhetoric; or ECON 104, Is There Truth in Numbers: The Role of Statistics in Economics

Applied Mathematics and Statistics 5, Statistics; or Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological, Environmental, and Health Sciences; or Computer Engineering 7, Statistical Reasoning in the Age of the Internet

Computer literacy requirement. Students must complete a minimum of two courses from the following list (with department approval, a student may substitute other computing courses):

Computer Engineering

12/L, Computer Systems and Assembly Language

80N, Introduction to Networking and the Internet

Computer Science

10, Introduction to Computer Science

12A/L, Introduction to Programming

5C, Introduction to Programming in C++ (formerly CMPS 60 N)

5J, Introduction to Programming in Java (formerly CMPS 60 G)

5P, Introduction to Programming in Python

80B, Systems and Simulation

Technology and Information Management

50, Business Information Systems

58, Systems Analysis and Design

Economics

216, Applied Econometric Analysis I (with permission of instructor)

Note: Students with no prior programming experience are encouraged to take Computer Science 5J and Computer Science 10 rather than Computer Science 12A/L.

Upper-division electives. Students are required to take five additional courses: four in business management and one other economics elective. Students must choose four courses from the following list; at least one of the four must be a course designated with an asterisk (*).

*101, Managerial Economics

110, Managerial Cost Accounting and Control

111A, Intermediate Accounting I

111B, Intermediate Accounting II

112, Auditing and Attestation

115, Introduction to Management Sciences

117A, Tax Factors for Individuals

117B, Tax Factors for Business and Investment

119, Advanced Accounting

131, International Financial Markets

*133, Security Markets and Financial Institutions

*135, Corporate Finance

136, Business Strategy

138, The Economics and Management of Technology and Innovation

139A, Economics of Electronic Commerce

139B, E-Commerce Strategy

161A, Marketing

161B, Marketing Research

164, Economics and the Telecommunications Industry

188, Management in the Global Economy

194, Advanced Topics in Management

Students must choose the remaining two courses from the upper-division economics electives listed for the economics major (see preceding page).

Courses 191, 192, 193, 193F, 198, and 198F may not be used to meet major requirements. Either course 195 or 199 may be used to fill one of the five elective upper-division major requirements.

Field study. One quarter of field study is strongly recommended. Placements and credit for course 193 or 198 are arranged through the economics field-study coordinator. See above under Field-Study Program description.

Global Economics Program Description

Global economics is an interdisciplinary major designed to prepare students to participate in the global economy; the program aims to deepen the student's knowledge of economics within a culturally and linguistically diverse world. The major is particularly useful to students contemplating careers at home or overseas in international relations, in international business, or with international organizations. Hence the major requires overseas study, regional area study, and second-language proficiency in addition to the basic economics requirements.

Global Economics Major Requirements

Introductory and core requirements. Students who major in global economics are required to take the following courses:

1, Introductory Microeconomics: Resource Allocation and Market Structure

2, Introductory Macroeconomics: Aggregate Economic Activity

11A, Mathematical Methods for Economists (or equivalent)

11B, Mathematical Methods for Economists (or equivalent)

100A or 100M, Intermediate Microeconomics

100B or 100N, Intermediate Macroeconomics

113, Introduction to Econometrics

197, Economic Rhetoric or Economics 104, Is There Truth in Numbers: The Role of Statistics in Economics

Applied Mathematics and Statistics 5, Statistics; or Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological, Environmental, and Health Sciences; or Computer Engineering 7, Statistical Reasoning in the Age of the Internet

Students are strongly recommended to complete courses 100A (or 100M), 100B (or 100N), and 113 prior to study abroad. In addition, majors must have language study, area study,

and overseas study, as described below.

Courses 191, 192, 193, 193F, 198 and 198F may not be used to meet major requirements. Either course 195 or 199 may be used to fill one of the four elective upper-division major requirements.

Upper-division requirements. Four additional upper-division courses are required. Please see the entire economics course list. These may include approved courses offered by other departments.

At least one of the four courses must be selected from the following three:

120, Economic Development

140, International Trade

141, International Finance

In addition, at least one course must be chosen from the following departmental listings:

Economics

120, Economic Development

126, Why Economies Succeed or Fail: Lessons from Western and Japanese History

131, International Financial Markets

140, International Trade

141, International Finance

142, Advanced Topics in International Economics

148, Latin American Economies

149, The Economies of East and Southeast Asia

188, Management in the Global Economy

Latin American and Latino Studies

140, Rural Mexico in Crisis

168, Economic History of Latin America

169, Latin American Industrialization in a Global Perspective: Past, Present, Future

Politics

140B, Comparative Post-Communist Politics

160D, International Political Economy (formerly POLI 176)

178, U.S. Foreign Economic Policy

Sociology

163, Global Corporations and National States

167, Development and Underdevelopment

The other two required upper-division electives are determined by the student's interests. See advisers for details.

The global economics major has three additional elements:

1. Foreign Language Study: The global economics major requires a foreign language since students who plan to work in the larger world must have fluency in a language other than English. This language should be relevant to their regional area of interest. Students can meet this requirement by completing two years of university-level language courses or by demonstrating an equivalent level of competence through a recognized language test.

2. Area Study: The major requires students to take two additional courses selected from the offerings of departments other than economics in order to learn about the history, political economy, or culture of some other part of the world. These can be lower- or upper-division courses; the courses should focus on the area of the student's language study and overseas study. The Economics Department provides a list of approved courses; substitute courses are welcomed when they are part of the student's overseas program or from other UCSC departments, but must be approved by the adviser for the global economics major.

3. Study Abroad: All students are required to spend at least one term abroad in an approved course of study in their regional area of concentration; students may also choose a year-long program. Typically, a student will do this through the UC Education Abroad Program (EAP). Numerous overseas study sites are available through EAP. Students desiring to fulfill their required study abroad through EAP must apply directly to the EAP office for the selected program and are subject to the admission requirements determined by UC EAP. In countries and at universities where EAP programs are not available, students may make their own arrangements for study with the permission of the director of the program. Students may use the time abroad to further their language study, to meet the area study course requirements, to meet some of the upper-division economics course requirements, or to take courses unrelated to the major. Students who are not accepted to an overseas program or who cannot meet the language or area course requirements are advised to complete the general economics major as an alternative.

Combined Economics/Mathematics Program Description

The major in Economics and Mathematics is designed to meet the needs of undergraduate students who plan to pursue doctoral study in economics or business, or who wish to pursue a career as an actuary or other professional requiring a sophisticated understanding of economics and mathematics. The major combines the main undergraduate content of both Economics and Mathematics within a programmatic structure that joins the two disciplines. It provides a coursework combination required to prepare for an economics doctoral (Ph.D.) program, or for a group of technically demanding professional careers.

Economics/Mathematics Major Requirements

Economics Required Courses

1, Introductory Microeconomics: Resource Allocation and Market Structure

2, Introductory Macroeconomics: Aggregate Economic Activity

100A or 100M, Intermediate Microeconomics

100B or 100N, Intermediate Macroeconomics

113, Introduction to Econometrics

DC requirement (see statement under General Requirements)

Applied Mathematics and Statistics 5, Statistics; or Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological, Environmental, and Health Sciences; or Computer Engineering 7, Statistical Reasoning in the Age of the Internet

Economics elective courses

(choose three from the following list)

101, Managerial Economics

114, Advanced Quantitative Methods

115, Introduction to Management Sciences

120, Economic Development

125, Economic History of the U.S.

126, Why Economies Succeed or Fail

128, Poverty and Public Policy

130, Money and Banking

131, International Financial Markets

133, Security Markets and Financial Institutions

135, Corporate Finance

136, Business Strategy

137, Performing Arts in the Public and Private Economy

138, Economics and Management of Technology and Innovation

139A, Economics of Electronic Commerce

139B, E-Commerce Strategy

140, International Trade

141, International Finance

142, Advanced Topics in International Finance

148, Latin American Economies

149, The Economies of East and Southeast Asia

150, Public Finance

160A, Industrial Organization

161A, Marketing

164, Economics and the Telecommunications Industry

165, Economics as an Experimental Science

166A, Game Theory and Applications I

166B, Game Theory and Applications II

169, Economic Analysis of the Law

170, Environmental Economics

171, Natural Resource Economics

175, Energy Economics

180, Labor Economics

183, Women in the Economy

184, Labor Wars in Theory and Film

188, Management in the Global Economy

189, Political Economy of Capitalism

Mathematics Required Courses

Mathematics 19A, Calculus for Science, Engineering, and Mathematics

Mathematics 19B, Calculus for Science, Engineering, and Mathematics

Mathematics 21, Linear Algebra

Mathematics 22, Calculus of Several Variables or 23A and 23B, Multivariable Calculus

Mathematics 100, Mathematical Proof

Mathematics 105A, Real Analysis

Mathematics electives

(choose two from the following list)

Mathematics 106, Systems of Ordinary Differential Equations

Mathematics 107, Partial Differential Equations

Mathematics 114, Introduction to Financial Mathematics

Mathematics 117, Advanced Linear Algebra

Mathematics 145/L, Chaos Theory

Mathematics 194, Senior Seminar

Mathematics 195, Senior Thesis

Applied Mathematics and Statistics 114, Introduction to Dynamical Systems

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Applied Mathematics and Statistics 132, Statistical Inference

Applied Mathematics and Statistics 147, Computational Methods and Applications

*Students in the combined economics/mathematics major may also satisfy the DC requirement by completing Mathematics 100, Mathematical Proof, and either Mathematics 194, Senior Seminar; or Mathematics 195, Senior Thesis

Additional Preparation for the Major

Students interested in the combined major must meet a minimum GPA requirement in Economics 1 and 2 (and the first calculus course). Transfer students should check assist.org for agreements with California community colleges about economics and mathematics courses. Students who have met all articulations before transferring will need at least six economics and four to five mathematics classes at UCSC to complete the major.

Honors in the Major

The Economics Department considers for honors and highest honors students who have completed a major program with superior or exceptional work. Honors decisions are made by the department's Honors and Scholarship Committee.

At the end of each quarter, faculty teaching the upper-division core courses submit to the department a list of students in their respective classes whose performance is at the honors level. At the time of graduation, all students who received an honors designation in one or more of these courses are reviewed by the department's honor committee. The faculty committee looks for a record of excellence in courses offered towards the major, with a strong performance in the upper-division core (theory and econometrics—courses 100A/M, 100B/N, and 113) being a necessary condition for honors. Although a GPA is not computed for the economics courses, in general highest honors are awarded to students who have received a grade of at least an "A" throughout their economics program. Honors are awarded to students who have no more than two courses with grades of less than an "A-." Students who have completed a portion of the major at another institution may be asked to submit a transcript for evaluation.

Students interested in being reviewed for honors may request that the department conduct a review, and such requests are always granted.

In general, honors have been awarded to between 10 and 15 percent of each year's graduating class.

Graduate Programs

Master's Program in Applied Economics and Finance

The master of science (M.S.) program in applied economics and finance is designed for

students who want analytical graduate training that prepares them for careers in business, government, international and domestic banking, consulting firms, and nonprofit organizations. The program is unique in its focus on graduate-level economics training for practical applications and its emphasis on communication skills. The curriculum stresses the application of microeconomic and macroeconomic concepts, statistical techniques, finding and using data sources, working out substantial practical applications, developing writing and reporting skills, and presenting material orally before an audience. The program differs from typical master of business administration (M.B.A.) programs by preparing students to meet the increasing technical demands of private- and public-sector employers through comprehensive coursework in economic analysis.

Past graduates of this program have gone on to successful careers in the private and public sectors with placements at a diverse range of companies and institutions, including Cisco Systems, Seagate Technology, Google, Sony Computer Entertainment, Plantronics, Wells Fargo, all of the big four accounting firms, McKesson Corp., Pepsi Corp., Visa, Square Trade, the California Franchise Tax Board, Guardian News (U.K.), Blue Cross, the World Bank, Stanford University, and the Bank of Japan. Other graduates have gone on to earn Ph.D.s in economics.

Please contact Sandra Reebie (econ_grad_coor@ucsc.edu) if you have questions regarding either the program or the application process.

Courses and Program Requirements

M.S. students are required to take the following classes starting in the fall quarter of the academic year they enroll in the program. Students may also take additional classes if they desire.

Courses and Program Requirements

Fall	Winter	Spring
200 Microeconomic Analysis	217 Applied Econometric Analysis II	201 Applications Microeconomics
202 Macroeconomic Analysis	233 Finance	236 Financial Engineering
216 Applied Econometric Analysis	Master's elective	Master's elective
294A Applied Economics		
*186 Math Methods for Economic Analysis		

*Note: M.S. students are strongly encouraged to enroll in Econ 186, a pre-fall math course, which is highly beneficial to students' success in the program. Econ 186 is offered as an accelerated short course before the start of fall quarter.

Upon successful completion of these classes, master's students must either pass a comprehensive examination or complete a final paper. The final paper alternative is only available via petition.

Ph.D. Program in Economics

The Ph.D. program in economics provides students with training in modern microeconomics, macroeconomics, and econometrics, combined with specialized training in the fields of international finance, international trade, economic development, monetary economics, applied microeconomics, experimental economics, and other areas. Graduates of the program have conducted research on a wide variety of topics; examples include international economics, monetary economics, experimental economics, environmental economics, and economic growth and development.

Courses and Program Requirements

First-year Ph.D. students are required to take the three sequences: Economics 204A-B-C, Advanced Micro Theory, Economics 205A-B-C, Advanced Macro Theory, and Economics 211A-B-C, Advanced Econometrics. In late June each year, first-year students take two written preliminary exams; one each in Micro and Macro. First-year students must also

write an econometrics paper and submit it to the department by September 30 (beginning) of the second year.

Ph.D. students are required to complete two field sequences, and take 40 units of coursework in the second year. Only two courses per topic are needed to satisfy one sequence. Students may choose one of the following sequences: Economics 240A–B–C, Adv. International Trade, Economics 241A–B–C, Adv. International Finance, Economics 220A–B, Development Economics, Economics 221A–B, Monetary Economics, and Economics 270 or 273, Applied Microeconomics. At the end of their second year, students are required to submit a field paper.

Third-year Ph.D. students must take Economics 295A–B–C, Directed Reading and the third-year Ph.D. seminar, Economics 296A–B–C. Additionally, the students will take sequences that interest them as well as workshops that are focused on advanced topics such as: Economics 274, Workshop in Macroeconomics; Economics 275, Workshop in Microeconomics; Economics 276, Workshop in Experimental Economics.

In their fourth and fifth years, students are focused on their dissertation research and enroll in either or both Economics 297A–B–C, Independent Study, or Economics 298 or 299A–B–C, Thesis Research.

Courses and Program Requirements

Year	Fall	Winter	Spring
1st	204A Advanced Micro Theory	204B Advanced Micro Theory	204C Advanced Micro Theory
	205A Advanced Macro Theory	205B Advanced Macro Theory	205C Advanced Macro Theory
	210B Math Methods Econ Analysis	211B Advanced Econometrics	211C Advanced Econometrics
	211A Advanced Econometrics		Micro and Macro Prelim Exams
2nd**	220A Development Economics: Theory and Cases	220B Development Economics: Theory and Cases	221B Advanced Monetary Economics II
	240A Advanced International Trade	221A Advanced Monetary Economics I	240C Advanced International Trade
	241A Advanced International Finance	240B Advanced International Trade	241C Empirical Applications
	212 Empirical Project	241B Advanced International Finance	Trade and Finance Field Paper
		243* History of International Economy	
3rd	274 Workshop in Macro+	274 Workshop in Macro+	274 Workshop in Macro+
	275 Workshop in Micro+	275 Workshop in Micro+	275 Workshop in Micro+
	276 Workshop in Experimental Economics+	276 Workshop in Experimental Economics+	276 Workshop in Experimental Economics+
	295A Directed Reading	295B Directed Reading	295C Directed Reading

	296A Third-Year Seminar		
	Qualifying Exam (QE)		
4th	298 Dissertation Research	298 Dissertation Research	298 Dissertation Research
	297A Independent Study	297B Independent Study	297C Independent Study
			Last quarter to challenge QE without academic probation

*ECON 243 is not required, but Ph.D. students are encouraged to enroll in the course when it is offered.

**Not all field sequences are necessarily offered every year.

+Enrollment in Economics 274, 275, 276 is based on student interest.

Based on university policy, course requirements are satisfied by a letter grade of B or better or a grade of S (satisfactory). A letter grade of C in a course is not satisfactory for meeting a course requirement for the Ph.D. program.

Preliminary Requirements

Preliminary examinations are given in two parts: one test in micro theory and one test in macro theory. Students are expected to pass both examinations before the beginning of their second year. Preliminary examinations are currently offered in June and September, although scheduling is subject to change.

In the fall quarter of the second year, each student must enroll in Economics 212. An econometrics paper is due September 30 (beginning) of the second year. A field paper is due August 31 (beginning) of the third year of the program. The graduate handbook of the department details the evaluation procedure for the econometrics and the field papers.

Students who do not pass both preliminary examinations, the econometrics paper, and the field paper requirements will not be allowed to continue in the Ph.D. program.

Qualifying Examination

Advancement to candidacy for the Ph.D. degree requires completion with satisfactory grades or better of the required coursework, preliminary examinations, the econometrics paper, the field paper, and the oral examination. The oral examination is taken after all other requirements have been completed. A student cannot advance to candidacy before clearing any incomplete grades from their record. Students are expected to complete the oral qualifying examination (QE) during the fall quarter of their third year.

Dissertation

The final requirement for the Ph.D. degree is acceptance of the student's dissertation under the rules of the Academic Senate. A three-member dissertation advisory committee, headed by the student's research adviser, evaluates the dissertation for the department. The dissertation advisory committee must be approved by both the Economics Ph.D. Committee and the Graduate Council. The committee may require a formal public defense of the dissertation.

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Education

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McHenry Library
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http://education.ucsc.edu

Faculty | Course Descriptions

Program Description

The purpose of the Education Department's instructional programs is to prepare all students, undergraduates and graduates, to engage in the analysis and integration of educational theory, research, and practice for an increasingly diverse society. The department's primary intellectual and practical focus is on fostering equitable and effective schooling for all students. In working toward this goal, the department seeks to understand the profound issues involved in transforming public education so that it better meets the needs of students from diverse language, ethnic, racial, and class backgrounds. We are a small department with the large agenda of developing educational leaders and pursuing educational research that will affect the future of teaching and learning both inside and outside of schools. Our commitment lies in three essential and interrelated domains: 1) school, families, and communities; 2) teacher education and development; and 3) mathematics and science education. Undergirding them all is a focus on the socio-cultural context in which learning and teaching takes place and an understanding of the power of language and literacy in both formal and informal educational settings.

The Education Department has an active doctor of philosophy (Ph.D.) program and doctor of education (Ed.D.) programs (currently not accepting new students) that attract students who have exemplary preparation as well as experience working in educational settings; a model teacher-education program; and two vibrant minor tracks that serve more than 300 undergraduates each year.

Minors in Education

The UCSC undergraduate courses in education engage students in the study of the history of educational thought and philosophy, the politics and economics of education, learning theory and pedagogy, and issues of cultural and linguistic diversity in education.

Because an academic major in education is not permitted in the state of California, UCSC offers two minors in education for those students who are considering a career in teaching and also for those who hold a general interest in educational studies. Please note that the minors in education do not provide a California Teaching Credential. Additionally, the UCSC teaching credential program is a graduate program and coursework taken in the minor cannot be substituted for credential requirements.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

General Minor in Education

The general minor in education consists of six courses totaling 30 credits:

- Education 60, Introduction to Education
- Education 180, Introduction to Teaching
- Four upper-division education courses (courses number EDUC 102-189) (Please refer to the Education Department's web site for a list of approved upper-division courses being offered during the current academic year.

To be eligible to declare the general minor in education, students must have:

- Completed or be enrolled in EDUC 60, Introduction to Education
- Successfully declared a major.

To officially declare a general minor in education, students must bring from their major department a completed Petition for Major/Minor Declaration and UCSC Academic Planning Forms to the Education Department's Undergraduate Adviser. Students pursuing a minor in education should meet with the Education Department's Undergraduate Adviser as early as possible. The adviser will assist students in completing the Petition for a Major/Minor Declaration and the UCSC Academic Planning Forms.

For Further Information

For specific instructions about how to declare a minor in education and for the current Drop-in Advising Schedule, please refer to the Education Department's web site http://education.ucsc.edu. For other inquiries, please contact the Undergraduate Adviser by sending an e-mail to education@ucsc.edu.

Science, Technology, Engineering, and Mathematics (STEM) Education Minor

The STEM minor specifically serves students in STEM majors who are considering careers in secondary mathematics or science teaching. The STEM minor in education consists of eight courses, totaling 32 credits and including 80-90 hours of classroom field placements:

EDUC 50, Introduction to Teaching, CalTeach 1

EDUC 60, Introduction to Education

EDUC 100, Science and Mathematics, Cal Teach 2

EDUC 185B, Introduction to Mathematics Education, or 185C, Introduction to Teaching Science

EDUC 185L, Introduction to Teaching: Cal Teach 3

One upper-division education course addressing cultural and linguistic diversity (e.g., EDUC 128, 135, 141, 164, 170, 177, or 181),

- Two upper-division education courses (courses number EDUC 102-189). Please refer to the Education Department's web site for a list of approved upper-division courses being offered during the current academic year, http://education.ucsc.edu).

Students pursuing the STEM education minor should meet with the Cal Teach staff as early as possible. Entry into EDUC 50 is by interview only, and interested students must submit an application to the Cal Teach program (see http://calteach.ucsc.edu or e-mail calteach@ucsc.edu).

Graduate Programs

Master of Arts in Education and California Teacher Credential Program

Please note that students are not admitted into the program for a stand-alone master of arts (M.A.) in education or a stand-alone credential.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Nondiscrimination Statement

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Because program requirements are authorized by statutes and regulated by a state entity, the California Commission on Teacher Credentialing, program requirements must be responsive to new legislation and regulatory policies. Admission requirements and programs of study referred to are subject to change to comply with regulatory mandates.

The master of arts in education and California teacher credential program prepare prospective teachers to work with California's culturally and linguistically diverse student population. Students in this program earn a master's degree and are eligible to apply for a Preliminary California Credential upon completing a five-quarter program comprised of two summers and one academic year. Graduates of the program are prepared to teach English language learners enrolled in K–12 public schools. The program also offers the Bilingual Authorization (in Spanish) for primary language instruction or dual language immersion instruction in a K–12 setting.

Students who complete the program are eligible to apply for a California Preliminary Multiple Subjects Teaching Credential or a California Preliminary Single Subject Teaching Credential. The Multiple Subjects Teaching Credential authorizes the holder to teach in a K–12, self-contained public school classroom, where all subjects are taught by the same teacher. The Single Subject Teaching Credential authorizes the holder to teach in his/her credential subject area in a K–12 departmentalized classroom setting within a public school system.

The UCSC, single-subject, teacher-credential program offers the following subject areas: mathematics, English, social science, and science. Programs of study are subject to change.

Master of Arts in Education and Preliminary Credential in Secondary Science in Silicon Valley

The Silicon Valley masters of arts in education and preliminary secondary science credential has the same degree requirements as the campus-based program. The program's course work is offered at UCSC and UCSC Extension in Santa Clara with student teaching placements in middle and high schools in the greater San Jose area. Program details are available at web site http://education.ucsc.edu/macsv/.

Prerequisite Admission Requirements

All candidates must have preparation in the following areas:

A course, or equivalent experience, that addresses cultural and linguistic diversity. The following UCSC undergraduate education courses are examples of courses that meet this requirement: 128, Immigrants and Education; 141, Bilingualism and Schooling; 164, Urban Education; 181, Race, Class, and Culture in Education; and 92C Introduction to Issues in Diversity and Education. Other courses offered outside the Education Department may be acceptable. However, outside coursework cannot be preapproved by the department.

A documented field experience with children or youth in an educational setting. Experiences such as directed observation, substitute teaching, school tutoring, work in after-school programs, camp counseling, instructional aide, or the equivalent are acceptable experiences. When applying to the program, please describe your field experience in the designated area of the application titled, PERSONAL STATEMENT.

Application Selection Criteria

Admission to the program is competitive. Candidates for admission are selected, in part, on the following criteria:

Academic Record

College coursework is evaluated with attention to content and grades or narrative evaluations. The appropriateness of courses taken for the credential sought is also taken into consideration. For the multiple subjects credential, students should have an extensive breadth of courses in the core subject areas taught in elementary school—math, science, social science, and English. For the single subject credential, students should have an extensive body of coursework in the content area.

Statement of Purpose, Writing Sample, Letters of Recommendation, Personal Statement, and Résumé

Information provided in these documents is used in the selection of candidates. All

documents must be submitted by the application deadline.

The statement of purpose should discuss the following:

- an explanation of why you want to become a teacher;
- how your experience has contributed to your motivation and potential to be an educational leader;
- a description of your experiences related to youth, cultural and linguistic diversity, and community involvement.
- Writing sample: a sample of your writing (no more than 10 pages). A research-based paper is preferred, for example, a paper written on an educational topic or a paper written in your content area. Alternatively, applicants may choose to write a brief piece specifically for this application.
- Letters of recommendation: three letters of recommendation are required. At least one letter should be written by university faculty who can address the applicant's academic merit, and at least one letter written from someone in the field who has observed the applicant's work with children or youth. It is recommended that these letters address your qualifications in the following areas:
  a) academic performance

  b) field work with youth

  c) experience in culturally and linguistically diverse settings and with student populations who have traditionally been underserved in schools and classrooms.
- Personal history: write a statement (approximately two to five pages) explaining how your personal history has influenced your decision to apply to this graduate program.
- Résumé: a résumé that includes an employment history; any relevant volunteer or community work, especially in schools and/or with children; and experiences in multicultural and multilingual settings. Include information on languages (other than English) in which you have competence.
- Bilingual Authorization Essay (Bilingual Authorization applicants only): candidates must submit an essay in Spanish as described in the online application.

Admission Requirements

Testing

All required examinations must be met by the stated deadlines.

All admitted applicants must verify completion of the California Basic Educational Skills Test (CBEST) requirement and submit a passing-status verification by June 1 in order to enroll in the program.

Additional information can be found at the CSET Registration web site, http://www.cset.nesinc.com/ (state requirement and subject to change). It is recommended that passing verification be submitted with the application.

Subject-Matter Competence

California state law mandates that all teachers provide evidence of their subject-matter knowledge (state requirement and subject to change).

Admitted Multiple Subject applicants must submit verification of having passed the California Subject Examinations for Teachers (CSET): Multiple Subjects Subtests by June 1 prior to enrollment in the program. However, it is highly recommended that documentation of passing CSET scores be submitted with the application. Multiple Subject applicants must pass each section of the CSET; no coursework or "waiver" program can substitute for passing CSET scores.

Deadline to complete this requirement: June 1 of each year prior to enrollment into the program. However, applicants are encouraged to complete this requirement prior to applying to the program.

Additional information can be found at the CSET Registration web site, http://www.cset.nesinc.com/.

Single Subject

The California Subject Examinations for Teachers (CSET), or verification of an approved subject matter program from the applicant's undergraduate institution is required. Admitted applicants must submit verification of having passed the CSET examination for their subject (e.g., mathematics), or confirmation of 100 percent completion of an approved subject matter program.

Deadline to complete this requirement: June 1 of each year prior to enrollment into the program. However, it is highly recommended that documentation of subject matter competence be submitted with the application. Additional information can be found at the CSET Registration web site, http://www.cset.nesinc.com/.

Certificate of Clearance

In accordance with Education Code Section 44320(b), each credential candidate for an initial credential, prior to admission to any credential program, must obtain a Certificate of Clearance.

A Certificate of Clearance is a document that indicates that the individual has completed the fingerprint and character and identification process and has been cleared by the California Commission on Teacher Credentialing to begin student teaching.

To comply with this regulation the UCSC Education Department must have on file a copy of the Certificate of Clearance before allowing a person to begin public school fieldwork or student teaching.

If you hold or have applied for a credential from the California Commission on Teacher Credentialing (such as an emergency substitute teaching permit) you are not required to apply for another Certificate of Clearance. Please submit a photo copy of your prior credential for your application to the program by mail to: Education Dept., UC Santa Cruz, 1156 High St., Santa Cruz, CA, 95064.

Applicants who do not hold a valid California credential or have not previously applied for a Certificate of Clearance through the Commission on Teacher Credentialing must apply for the Certificate of Clearance.

Further information regarding this requirement, including Live Scan form LS-41, is available within the UCSC Graduate School Online Application October 1 of each year at http://graddiv.ucsc.edu/prospective/, or you may send an e-mail to the Education Department, edma@ucsc.edu, for further instructions regarding your Certificate of Clearance Application.

Deadline for completing this requirement: January 15 of each year.

Program and State of California Requirements (Not Required for Initial Admission in the Program)

These requirements may be met prior to or while enrolled in the program, but they must be met to be eligible for a California teaching credential.

U.S. Constitution Requirement

A course on the U.S. Constitution (or completion of an examination offered by the Education Department to enrolled students) is required. UCSC-approved courses that meet this requirement are Politics 20, American Politics; Politics 111, Constitutional Law; Politics 120A, Congress, President, and the Court in American Politics; and History 25A, United States History to 1877.

Reading Instruction Competence Assessment (RICA)

Multiple Subjects candidates are required—prior to completion of the program and in order to be recommended for a preliminary credential—to pass the RICA examination. The RICA measures the knowledge, skills, and abilities essential to offer effective reading instruction

to K-12 students. Candidates should not take this examination prior to completing course 220.

CPR

A certified cardiopulmonary resuscitation (CPR) course (infant, child, and adult) must be completed and valid upon application for the credential

Bilingual Authorization Candidates

1. CSET - Spanish Language and Culture of Emphasis Requirements

The CSET LOTE (Spanish) Subtest III (CSET test code 147) and CSET LOTE (Spanish) Subtest V (CSET test code 258) (Culture of Emphasis) are required. Admitted applicants must submit verification of having passed the exam prior to completing the final quarter of the MA/Credential program.

Additional testing information can be found at the CSET Registration web site at http://www.cset.nesinc.com.

2. Three-page essay in Spanish

Bilingual Program applicants will be required to submit a three-page essay in Spanish with their application to the MA/Credential Program. The essay should address topical questions listed on the Education M.A. Supplemental Application contained within the online UCSC Graduate School Application.

BCLAD Candidates

The CSET Languages Other Than English (LOTE) (Spanish) Subtest III (CSET test code 147). It is recommended that passing test scores be submitted with the application. Individuals may still apply to the program without having passed the CSET LOTE. However, all admitted BCLAD applicants must submit passing verification for the examination prior to being issued a credential. (CSET Registration: http://www.cset.nesinc.com).

Student Teaching

The successful development of teaching skills in the classrooms is the culmination of a teacher education program. Therefore, candidates must demonstrate, by the end of their program, teaching competence in the classroom. Credentialed public school teachers are responsible for the nurturing of children and youth. Therefore, teaching credential candidates must consistently display conduct befitting the profession. To this end, the candidate must be able to cope with the demands and responsibilities of teaching as outlined below:

- Meet university and program requirements and deadlines (including school expectations during field experiences).
- Plan ahead to anticipate needs and potential student teaching problems.
- Be able to adapt to institutional and/or professional expectations and policies.
- Relate appropriately to children, parents, and school staff.
- Demonstrate sensitivity to the social, cultural, economic context of the school environment.
- Adhere to school expectations for dress, appearance, and personal hygiene.

Candidates whose professional behavior does not meet these minimal standards may be recommended for dismissal from the program.

Beginning student teaching, which begins during the Summer Bridge between the university summer and fall quarters, constitutes the first classroom observation experience for students in the program. Student teachers are in their classroom placements from 10-14 hours a week depending on the school site schedule. To enroll in this course, students must have a Certificate of Clearance issued and on file with the California Commission on Teacher Credentialing.

Intermediate and advanced student teaching is a two-quarter experience (winter/spring) in which student teachers are placed with cooperating teachers in local schools. Students are in the classroom placements 14 or more hours a week in winter quarter leading toward full time in the classroom by spring quarter. They gradually assume responsibility for preparation, instruction, and evaluation of the class during this two-quarter period. Supervisors of teacher education give ongoing and frequent support to students in their classroom placements and in seminars at UCSC. Multiple Subjects candidates obtain classroom experience in both primary and intermediate grades. Single Subjects candidates obtain classroom experience in middle school/junior high and high school.

Admission to course 201 and 201A, Intermediate Student Teaching, and courses 202A-B-C, Advanced Student Teaching, is based on an assessment of academic performance, experience, leadership, and initiative shown in public school placements and required courses taken earlier in the program.

Capstone Requirements

Students will complete a capstone portfolio, which includes a teaching performance assessment and reflective papers. Prompts for these assignments may vary from year to year as they reflect the most current California state credentialing requirements.

Multiple Subject Course Requirements

200 Applied Classroom Analysis and Methods: Beginning Student Teaching

201 Intermediate Student Teaching

202ABC Advanced Student Teaching

203 Methods of English Language Development

205 Teaching, Learning, and Schooling

207 Social Foundations of Education

208 Portfolio Development

210 Creating Supportive, Healthy Environments for Student Learning

211 Teaching Special Populations

212ABC (Bilingual Authorization students only) Bilingualism and Biliteracy

217 Topics in Elementary Education: Physical Education

218 Topics in Elementary Education: Visual Arts

219 Topics in Elementary Education: Performing Arts

220 Reading and Language Arts for Elementary Classrooms

221 Science Learning and Teaching in Elementary Classrooms

222 Mathematics Learning and Teaching in Elementary Classrooms

MA/C students must fulfill the requirements for Level 1 technology skills. Students meet this requirement in one of two ways: (a) passing the CSET examination, or (b) passing an approved course offered via UCSC Extension.

Single Subject Course Requirements

200 Applied Classroom Analysis and Methods: Beginning Student Teaching

201 Intermediate Student Teaching

201A Intermediate Student Teaching: Single Subject

202ABC Advanced Student Teaching

204 Methods of English Language Development

206 Teaching, Learning, and Schooling

207 Social Foundations of Education

208 Portfolio Development

210 Creating Supportive, Healthy Environments for Student Learning

211 Teaching Special Populations

212ABC (Bilingual Authorization students only) Bilingualism and Biliteracy

225 Reading Across the Curriculum in Middle School and Secondary

Single Subject Credential students enroll in the two methods courses related to their subject area:

226 English Teaching: Theory and Curriculum

227 English Teaching for Secondary Classrooms

228 Math Education: Research and Practice

229 Teaching Mathematics in the Secondary Classroom

230 Science Education: Research and Practice

231 Teaching Science in the Secondary Classroom

232 Social Science: Theory and Curriculum

233 Social Science Teaching for Secondary Classrooms

MA/C students must fulfill the requirements for Level 1 technology skills. Students meet this requirement in one of two ways: (a) passing the CSET examination, or (b) passing an approved course offered via UCSC Extension.

For Further Information

Please contact the credential analyst by sending an e-mail to edma@lists.ucsc.edu, or view the department's home page on the web at http://education.ucsc.edu where potential applicants can obtain full details about the programs.

Ed.D in Collaborative Leadership

(Currently not admitting new students)

Overview

The goal of the Ed.D. program is to prepare educational professionals to enact research-based leadership in the transformation of schools and other educational institutions serving racially, culturally, and linguistically diverse communities in California's Central Coast and Bay Area region. Ed.D. students' dissertations apply cutting-edge theory and research in action-research reform efforts. Research projects will often be situated within the student's professional work site. Graduates of the Ed.D. program will be qualified for leadership positions in schools and school districts, as well as for the instruction of professional courses in universities and colleges. Graduates may also choose to work for independent or governmental policy centers.

Admission Requirements

- M.A. or equivalent with a background in research methodology
- 3.0 grade point average (GPA) or above
- Official Graduate Record Examination (GRE) scores http://www.gre.org/~ taken within the last five years
- Documentation of second language and/or multicultural focus
- Statement of purpose

- Personal history
- A research project proposal
- Official transcripts from all undergraduate and graduate work
- Application essay, which includes:
- Three current recommendation letters specifying potential for collaborative leadership and scholarly productivity.
- Application fee

Prior to completing your application, we highly recommend a personal interview with at least one of our faculty members. Please contact an Education Department faculty member whose research interest is similar to your own (please visit the Education Department web site at http://education.ucsc.edu/)

Course Requirements and Sequencing

Courses required in year one:

- EDUC 235, Introduction to Educational Inquiry
- EDUC 236, Quantitative Methods in Educational Research
- EDUC 237, Qualitative Research Methods
- EDUC 262, Social and Cultural Context of Education Core Seminar
- EDUC 263, Foundations of Educational Reform
- EDUC 268, Schools, Communities, and Families
- EDUC 269ABC, First-Year Doctoral Pro-seminar
- Summer research and coursework optional, though encouraged

Courses required in year two

- EDUC 266, Program Evaluation and Action Research in Educational Reform
- EDUC 271, Theoretical Perspectives on Learning and Using Literacy, or EDUC 273, Language Acquisition, Bilingualism, and Education
- EDUC 277ABC, Second/Third-Year Professional Development Seminar Families
- Summer research and coursework optional, though encouraged

Courses required in year three

- EDUC 277ABC, Second/Third-Year Professional Development Seminar
- EDUC 279ABC, Dissertation Supervision
- EDUC 299, Directed Research (each quarter)
- Qualifying examination (conclusion of spring quarter)

Courses required in year four

- Graduation

For Further Information

Contact the doctoral adviser, by sending an e-mail to edphd@lists.ucsc.edu or view the department's home page on the web at http://education.ucsc.edu where potential applicants can obtain full details about the program.

Ph.D. in Education

Overview

The goal of the Ph.D. in education is to support graduate students in becoming creative

scholars who engage in research focused on the educational needs of students from linguistic and cultural groups that have historically not fared well in our nation's public schools. To achieve this goal, this program provides students with grounding in the varieties of interdisciplinary theorizing, research methods, and applications needed to advance the study of learning and teaching for diverse student populations. The courses and research experiences are closely related to practice in K-12 classrooms. Students in this interdisciplinary program apply tools and perspectives from education, anthropology, linguistics, philosophy, psychology, sociology, cognitive science, and cultural historical activity theory. The program integrates theory and practice to examine learning and teaching within the multiple contexts of classroom, school, family, and community. Graduates of this program will be qualified to teach and to conduct the kinds of educational research demanded by tenure-track positions in research and regional universities. Graduates may also work in non-university based institutions that focus on teacher professional development, curriculum development, and related areas of educational research and development.

Together with his or her faculty academic adviser, each student develops an integrated program of study that includes advanced coursework, seminars, and electives. Students learn through an apprenticeship model in which they develop expertise through active participation in research. Courses may be taken in other departments, when appropriate.

Ph.D. Admissions Guidelines

The minimum grade-point average (GPA) established by the University of California for admission to graduate school is 3.0. In general, the Ph.D. in education program looks for potential excellence in graduate students, whether this manifests itself in a high grade-point average, strong letters of recommendation, or a high Graduate Record Examination (GRE) score, or a strong statement of purpose. Applicants will be evaluated on their individual merits and also with regard to how well their proposed doctoral research can be supported by the existing resources of the program.

Admission Requirements

- Bachelor's degree, or its equivalent, from an accepted university prior to the quarter for which admission is sought
- 3.0 GPA or above
- Official GRE scores http://www.gre.org/~ taken within the last five years
- Experience working with culturally and linguistically diverse communities
- Statement of purpose
- Personal history
- A writing sample, preferably in education or a related field. The sample can be a term paper, a field report, a research proposal, or an essay written especially for the application
- Official transcripts from all colleges/universities attended after high school
- Three current recommendation letters specifying potential for scholarly productivity
- Current resume
- Application fee
- International applicants must take the Test of English as a Foreign Language (TOEFL). A minimum score of 550 on the TOEFL (paper) or 220 on the TOEFL (computer) is required for admission. The TOEFL examination may be waived for international students who have taken and successfully passed a freshman composition course at an accredited university in the United States.

Prior to completing your application, we highly recommend a personal interview with at least one of our faculty members. Please contact an education faculty member whose research interest is similar to your own (please visit the Education Department web site at http://education.ucsc.edu/)

Program Requirements

During the first two years of study, all students are expected to enroll in a set of required courses, including foundational courses, methodology courses, and elective courses. The student and his/her adviser will determine the overall individualized program of study, depending on the student's preparation, interests, and plans, which are determined in consultation with relevant faculty and the department chair. The program encourages interdisciplinary study.

To achieve Ph.D. candidacy, students are expected to pass an annual review of their written work, maintain satisfactory academic progress, complete all required courses, attend department colloquia, complete a second-year research project, complete a TAship or teaching internship, pass a qualifying examination (QE), and meet the specific requirements of the Division of Graduate Studies.

The QE is intended to assess a student's depth and breadth of knowledge in his or her areas of concentrations and his/her competence to do extended dissertation-level research and analysis. Normally taken near the end of the third year of enrollment, the QE consists of both written and oral components. For the written portion, the student prepares three papers, two of which advance a position based on a review of related research, theoretical framework, or research design/methods; the third is a dissertation prospectus. The student presents and defends his/her work to at the oral examination.

A dissertation based on original research is required. After the dissertation has been completed and submitted, students must defend the dissertation in an oral examination.

Course Requirements and Sequencing

The following courses constitute the minimum requirments: four foundational courses, four research methods courses, and four elective courses. Incoming students should consult with their faculty advisors and the current course offerings to determine the order in which they will complete required courses. Students are encouraged to take courses beyond the minimum required; in consultation with their advisors, students will determine the full set of research methods and elective courses they will complete based on their intellectual interests and professional goals. All required courses must be completed prior to advancement to candidacy.

Foundational Courses (20 credits)

Course Number and Title	Type	When Taken
EDUC 261, Thinking and Learning	Foundational	Before Advancement
EDUC 262, Social Foundations of Education	Foundational	Before Advancement
EDUC 272, Language in Education and Society	Foundational	Before Advancement
EDUC 2XX, Teaching and Teachers	Foundational	Before Advancement

Research Methods (20 credits)

Course Number and Title	Type	When Taken
EDUC 235, Introduction to Educational Inquiry and Research Study Design	Research Methods	Before Advancement
EDUC 236, Quantitative Research 1	Research Methods	Before Advancement
EDUC 235, Qualitative Research	Research Methods	Before Advancement
EDUC 255, Quantitative Research 2 or EDUC 256, Qualitative Research 2	Research Methods	Before Advancement

Elective Courses (20 credits)

Students in consultation with their advisors will pursue appropriate depth and breadth of study according to each student's intellectual interests and professional goals. Students must complete 4 elective courses (20 credits). Electives can include the following:

- Department elective courses (at least two of the four required elective courses must be from this category):
  - Educational Reform (EDUC 263)
  - Research on Teacher Development and Teacher Education (EDUC 264)
  - Communities, Families, and Education (EDUC 268)
  - Language and Literacy Across Disciplines (EDUC 280)
  - Research in STEM Education (EDUC 286)
  - Critical Perspectives on Education (EDUC 295)
- MA Course in Education with additional readings and assignments (pne maximum)
- Graduate courses in other departments
- Independent Study, Reading Group, Research Apprenticeship (EDUC 293), or undergraduate course with additional readings and assignments taken as IS (one maximum UG course to count toward the four electives)

Requirements for the M.A. Degree

Although applications for a master's degree independent of the Ph.D. program are not accepted, students in the Ph.D. program may obtain a M.A. degree after successfully completing a minimum of six quarters residency, 60 course credits including 4 foundational courses, 4 research methods courses, 4 elective courses, and a second-year research project. Students seeking an M.A. degree must adhere to the guidelines set forth by the Graduate Division.

Other Requirements

Students are required to attend the Education Department's colloquium series during their first and second years in the program.

The education Ph.D. program emphasizes teaching experience, and all students are required to complete one TAship or teaching internship in education prior to advancement to candidacy.

Students are required to complete a second-year project paper by the first day of fall quarter in year three.

Financial Support

It is each student's responsibility to secure funding for graduate studies. Over the course of students' enrollment in the graduate program, students typically fund their education with some combination of the following: TAships, GSRships, UCSC graduate fellowships, scholarships or fellowships from outside sources, loans, personal savings, family income, and support from other individuals (e.g., extended family members). When possible first-year students are supported with UCSC graduate fellowships, which typically cover part of a student's expenses for the first year only. Beginning in the student's first year, he or she is strongly encouraged to apply for TAships in college core courses and in other departments on campus. Students are also encouraged to seek and apply for outside funding from government agencies, private foundations, and industry, and to plan alternative financing should none of these opportunities become available.

Financial support for students includes a variety of fellowships, research assistantships, and

teaching assistantships in the Education Department. Students may participate in research projects under the auspices of several interdisciplinary research centers, including the Chicano/Latino Research Center (CLRC), the Vocabulary Innovations in Education (VINE) project, The Teachers With Computers: Ward Annotations for Vocabulary Education (tecWAVE) project, Effective Science Teaching for English Language Learners (ESTELL) project, The Center for Collaborative Research for an Equitable California (CREC), and the Center for Educational Research in the Interest of Underserved Students (ERIUS).

Designated Emphasis in Education

The Designated Emphasis in Education enables doctoral students in other departments to pursue interests in education and obtain formal certification of a "minor" level of competence in the field of education. The requirements for obtaining a Designated Emphasis in Education are the following:

Obtain a designated graduate adviser from the faculty in education. This adviser will be in addition to the graduate adviser from the student's home department. The education adviser must serve on the student's qualifying examination committee and, as appropriate, may also serve on the student's dissertation committee.

Complete at least two of the following three core courses in education:

EDUC 261, Thinking and Learning

EDUC 262, Social Foundations of Education

EDUC 263, Foundations of Educational Reform

Complete additional courses as needed to total five graduate courses in education, no more than one of which may be a directed readings course (Independent Studies). Courses must be approved by the student's graduate adviser in education. Courses in other departments focused on education may be approved by petition to the Education Department's Doctoral Programs Committee.

Prepare a significant piece of writing in some area of education. This writing may take the form of a substantial position paper (seminar paper, QE paper, dissertation chapter, master's thesis) grounded in the literature of educational research, as determined by the graduate adviser in education.

Education is an institutional field in which scholars from a wide variety of disciplines—including sociology, psychology, politics, economics, mathematics and science—have scholarly interests. A Designated Emphasis in Education enables graduate students from other departments to ground their work in theory and research on important issues in education.

The Education Department's foundational courses, EDUC 261 and 262, are offered every other year; and EDUC 263, an elective course, is offered every other year. The department typically offers five doctoral courses during each year. The Education Department annually admits 7–10 Ph.D. students, leaving adequate room for doctoral students from other departments to take courses in education.

For Further Information

Contact the doctoral adviser, by sending an e-mail to edphd@ucsc.edu or view the department's home page on the web at http://education.ucsc.edu where potential applicants can obtain full details about the programs.

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School of Engineering

School of Engineering

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Professor Charles E. McDowell, Associate Dean for Undergraduate Affairs

Professor Marilyn Walker, Associate Dean for Graduate Studies

Professor Lise Getoor, Associate Dean for Research

Professor Patrick Mantey, Associate Dean for Industry Programs

Professor Brent Haddad, Associate Dean for Technology Management

Baskin School of Engineering

The Baskin School of Engineering has a high-technology focus incorporating programs and curricula that educate students to meet the changing demands of society and a high-technology global marketplace. The school offers a stimulating academic environment that provides a foundation for professional growth as well as a lifetime of learning. The Baskin School's programs and courses prepare students for the human aspects, as well as the technical challenges, of careers in engineering, computer science, and bioinformatics. The Baskin School of Engineering includes the Department of Applied Mathematics and Statistics, the Department of Biomolecular Engineering, the Department of Computer Engineering, the Department of Computer Science, the Department of Electrical Engineering, and the Department of Technology Management.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College

Graduate Study

The Baskin School of Engineering offers 13 graduate programs designed to prepare students for advanced study and research in major areas of biomolecular, computer, and electrical engineering, as well as computer science and statistics and applied mathematics:

- Biomolecular engineering and bioinformatics master of science (M.S.) and doctor of philosophy (Ph.D.)
- Computer engineering M.S. and Ph.D.
- Computer science M.S. and Ph.D.
- Games and playable media M.S.
- Electrical engineering M.S. and Ph.D.
- Statistics and applied mathematics M.S. and Ph.D.
- Technology and information management M.S. and Ph.D.

These programs are described in subsequent sections. The aim of these programs is to develop professionals who can address the complex scientific and technological problems of today and tomorrow.

Undergraduate Study

The School of Engineering offers 12 undergraduate degree programs in the following majors:

- Bioengineering bachelor of science (B.S.)
- Bioinformatics B.S. or combined B.S./Graduate
- Computer engineering B.S. or combined B.S./M.S.
- Computer science bachelor of arts (B.A.) and B.S.
- Computer science: computer game design B.S.
- Electrical engineering B.S.
- Network and digital technology B.A.
- Robotics engineering B.S.
- Technology and information management B.S.

Bioengineering. The bioengineering program prepares graduates for a rewarding career at the interfaces between engineering, medicine and biology. UCSC bioengineering graduates will have a thorough grounding in the principles and practices of bioengineering and the scientific and mathematical principles upon which they are built; they will be prepared for further education (both formal and informal) and for productive employment in industry. The program includes a broad range of courses in the sciences, engineering, ethics, and other topics, and is co-sponsored by the Departments of Biomolecular Engineering, Computer Engineering, Electrical Engineering, and Molecular, Cell and Developmental Biology.

Bioinformatics. The bioinformatics curriculum combines mathematics, the physical sciences, computer science, and engineering to explore and understand biological data from high-throughput experiments, such as genome sequencing and gene expression chips. The immense growth of biological information stored in computerized databases has led to a critical need for people who can understand the languages, tools, and techniques of mathematics, science, and engineering. The undergraduate bioinformatics degree program prepares students for graduate school or a career in the fast-paced pharmaceutical or biotechnology industries.

Computer Engineering. The computer engineering curriculum focuses on making digital systems that work. It overlaps with computer science on one end (software systems) and with electrical engineering on the other (digital hardware). The emphasis of our program is

Psychology
- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
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on design rather than analysis—on making things work, rather than on explaining the abstract theory of computation or electronics. The program's emphasis on problem solving provides both excellent training for future engineers and a strong foundation for graduate study. The computer engineering B.S. program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET). The combined B.S./M.S. program provides an opportunity for outstanding undergraduates to begin advanced study and earn both degrees in five years.

Computer Science. The computer science curriculum has options that include topics in hardware and software, giving students a solid grounding in both theoretical and practical aspects of computer technology and computer usage. The bachelor of arts focus is designed to give students a solid grounding in both theoretical and practical topics in computer science, computer engineering, and mathematics while leaving flexibility for a broad program of study, including many courses outside of science and engineering. The bachelor of science curriculum has a stronger concentration in the sciences, with more courses in computer science and computer engineering, as well as courses in physics or chemistry. Students become proficient in many areas, with a good academic foundation for various careers in the software industry, as well as preparation for graduate school.

Computer Science: Computer Game Design. The computer game design curriculum is a four-year interdisciplinary program that focuses on the technical, dramatic, and artistic elements of computer games. The program provides a rigorous education in computer science, in concert with a broad introduction to those aspects of art, music, narrative, digital media, and computer engineering most relevant to games. An intensive year-long game design studio sequence permits students to create substantial video games as part of a multi-student team. Students receive proficiency in many aspects of computer science, a good academic foundation for careers in the computer game industry or information technology industry, or for the pursuit of graduate studies in computer science, or computer game design.

Electrical Engineering. The electrical engineering curriculum provides a balance of engineering science and design and allows students to specialize in both the traditional topics and the latest subjects in electrical engineering. Students may concentrate their electives in the areas of electronics and optics, communications, or signals and systems. The major is designed to attract motivated students who, upon graduation, will be sought by employers in the high-tech industry. The electrical engineering program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET).

Network and Digital Technology. The network and digital technology B.A. program provides students with in-depth knowledge of the underlying structure and function of network and computer technology and the design processes which make these technologies function. The program, through its flexible requirements, is especially tailored to students who wish to combine technology with other fields, such as through a double major or a minor, or who, through the choice of electives, with to concentrate on the digital design or computer networks aspects of computer engineering in preparation for future employment. The network and digital technology B.A. program is offered by the Computer Engineering Department.

Robotics Engineering. The robotics engineering program prepares graduates for rewarding careers at the interfaces between electrical, computer, and mechanical engineering. UCSC robotics engineering graduates will have a thorough grounding in the principles and practices of robotics and control, and the scientific and mathematical principles upon which they are built; graduates will be prepared for further education (both formal and informal) and for productive employment in industry.

Technology and Information Management. The technology and information management (TIM) curriculum is multidisciplinary and focuses on the fusion of information systems, technology, and business management for two purposes: the use of information systems to solve business problems and the management of technology, which includes new product development and enterprise management. Students must learn the mathematics, science, and technical fundamentals of computer science and engineering as well as understand the environment in which information technology (IT) solutions will be applied—through economics, business, and management of technology courses. It is a rigorous, challenging

major for those students wanting to pursue careers in information systems management and the management of technology.

Undergraduate Minors

Undergraduate students may choose from the following seven minor options:

Applied Mathematics. The applied mathematics minor is available to students who wish to develop 1) proficiency in modeling real-life problems using mathematics and 2) knowledge of standard, practical analytical and numerical methods for the solution of these models. This minor could be combined with a major in any of the physical, biological, mathematical, or engineering sciences as preparation for a graduate degree in that field or in applied mathematics.

Bioinformatics. The bioinformatics minor is intended primarily for bioinformatics tool users who are majoring in a biological or chemical specialty. The bioinformatics minor is also appropriate for computer science or computer engineering majors who are considering graduate work in bioinformatics.

Computer Engineering. The computer engineering minor provides a solid foundation in digital hardware, electronics, and computer software, as well as the prerequisite material in mathematics and physics. The minor is well-suited to students who wish to take part in the design of computer and embedded systems in any discipline.

Computer Science. The computer science minor is available for students whose primary interest is in another area, and are interested in the applications of computer science in other areas of study, from art and music to business and science.

Electrical Engineering. The electrical engineering minor provides a solid foundation in the core areas of electronic circuits and signals and systems, as well as the prerequisite material in mathematics and physics. Concentration of upper-division electives in either of the major tracks constitutes substantial and focused work in the discipline of electrical engineering. This minor is particularly suitable for students with majors in applied physics or any School of Engineering major.

Technology and Information Management. The technology and information management minor provides undergraduates in the School of Engineering as well in other programs and divisions in the university, such as economics and business management economics, the physical and biological sciences, and arts, the opportunity to expand the breadth of their knowledge and training to include the management of information systems and the management of technology.

Statistics. The statistics minor is available for students who wish to gain a quantitative understanding of how to a) measure uncertainty and b) make good decisions on the basis of incomplete or imperfect information and apply these skills to their interests in another field. This minor could also be combined with a major in mathematics as preparation for a graduate degree in statistics or biostatistics.

Undergraduate Advising Office

The Baskin School of Engineering undergraduate advising office offers general advising for prospective and declared undergraduates majoring in School of Engineering programs. The office handles major declarations, transfer credits, course substitutions, articulations, and degree certifications. Undergraduate students obtain and submit all paperwork requiring departmental approval to the undergraduate advising office. Students may obtain additional information and assistance on the School of Engineering web site: http://ua.soe.ucsc.edu/.

Admission to School of Engineering Majors

High School Preparation for Engineering Students

It is recommended that high school students intending to apply to a School of Engineering major have completed four years of mathematics (through advanced algebra and trigonometry) and three years of science in high school. Comparable college mathematics and science courses completed at other institutions also serve to properly prepare students

for these majors.

College Board Advanced Placement Credit

Prospective students are encouraged to take the College Board Advanced Placement (AP) and International Baccalaureate (IBH) Examinations as acceptable scores on these examinations may satisfy both university or major degree requirements. Prospective engineering students should consider taking examinations in computer science, mathematics, economics, chemistry, or biology. Students must provide official examination scores to the UCSC Office of Admissions to be granted credit toward course prerequisites or degree requirements. The following AP and IBH scores are accepted for course credit requirements as follows:

Common Entrance Examination for Admission to Polytechnics

CEEP AP Exam	Score	UCSC Course Credit
Biology	3,4,5	Biology 20A: Cell and Molecular Biology
	5	Biology 20B: Development and Physiology
Chemistry	5	Allows enrollment in Chemistry 1B and 1M
Computer Science:		
Exam A	3	Computer Science 5J: Introduction to Programming in Java
	4,5	Computer Science 12A/L: Introduction to Programming
Computer Science:		
Exam AB	3	Computer Science 12A/L: Introduction to Programming and Lab
	4,5	Computer Science 12 A/L: Introduction to Programming and Lab and Computer Science 12B/M: Introduction to Data Structures Lab
Economics:		
Microeconomics	4 or 5	Economics 1: Introductory Microeconomics
Economics:		
Macroeconomics	4 or 5	Economics 2: Introductory Macroeconomics
Mathematics:		
Calculus AB	3	Mathematics 3 or AMS 3: Precalculus
Mathematics:		
Calculus AB	4 or 5	Mathematics 19A: Calculus for Science, Engineering and Math
Mathematics:		
Calculus BC	3	Mathematics 19A: Calculus for Science, Engineering and Math
Mathematics:		
Calculus BC	4 or 5	Mathematics 19A:Calculus for Science, Engineering and Math and Mathematics 19B: Calculus for Science, Engineering and

	Math

International Baccalaureate Credit

IBH Exam	Score	UCSC Course Credit
Computer Science	5	Computer Science 12A/L: Introduction to Programming and Lab
Computer Science	6 or 7	Computer Science 12A/L: Introduction to Programming and Lab and Computer Science 12B/M: Introduction to Data Structures and Lab

Students may check with the Office of Admissions for details about other AP and IBH examinations that also satisfy university requirements.

Admission as First-Year Students

Students interested in pursuing a school of engineering major should indicate the major as their first or second choice on the UC application for admissions.Some school of engineering programs offer direct acceptance to qualified first-year applicants. For those engineering majors offering direct acceptance, admission is based upon high school grade point average, courses completed in mathematics and sciences, scores on standardized tests, and/or their personal statement. Some majors may specify criteria for directly accepted students to remain declared in the major. Please consult the department program statements for more information about which majors offer direct admission for first-year students and additional criteria, where applicable.

Post First-Year Current Students Acceptance to Majors

Students interested in declaring a School of Engineering major can do so by following the major declaration policy for that major as specified in the corresponding program statement. Major declaration must be completed by the sixth quarter of study at UCSC, but can be done earlier. Students are encouraged to declare as early as possible, to ensure placement into courses required for the major. Specific information about requirements and the School of Engineering major declaration process can be found at http://ua.soe.ucsc.edu/.

Junior Transfer Acceptance to Majors

The School of Engineering strongly encourages applications from transfer students. Due to the prerequisite structure for upper-division courses, prospective transfer students should have completed as many of the lower-division requirements for the respective majors as possible to complete the degree within a reasonable time. Students must plan carefully because many courses must be taken sequentially.

Transfer students should not follow the Intersegmental General Education Transfer Curriculum (IGETC) because it will not provide transfer students with enough mathematics and engineering courses to allow them to complete School of Engineering programs at UCSC in two years.

Students who apply as transfer students with junior status (90 quarter credits or more of transfer credit) who wish to earn a degree from the School of Engineering must indicate a School of Engineering major as their first choice on their UC application. (Students may also indicate an alternative School of Engineering major as their second choice.)

Junior transfers who do not list a School of Engineering major on their application to UCSC will not be considered for admission to such majors after the first day of their first quarter on campus. Junior transfers who are qualified by the applicable declaration of major deadline will be considered by exception.

Acceptance into the major is based on the student's academic college record and preparation for the major. Applicants are encouraged to take and excel in as many courses that are equivalent to the department's foundation courses as possible. For many School of Engineering majors, this includes completion of a year of calculus (accepted as equivalent

to Mathematics 19A–B), linear algebra, differential equations, a year of calculus-based physics courses (accepted as equivalent to Physics 5A, 5B, 5C), and two programming courses (accepted as equivalent to Computer Science 12A/L or Computer Engineering 13/L, Computer Science 12B/M, and Computer Engineering 12/L) are strongly recommended. An applicant will be approved, conditionally approved, or declined. Only students who have completed most or all of the foundation courses will be approved or conditionally approved for acceptance into the major.

Students who are approved for acceptance and who have course credit for all the foundation courses for their major must declare the major in their first term of enrollment at UCSC. The status of students who are approved for acceptance but who, upon review of their transcripts, are found not to have course credit for all the foundation courses for their major will be changed to proposed.

Students who are proposed majors must complete the remaining required foundation courses for their major during their first term at UCSC in order to declare the major at the beginning of the following term at UCSC. Students who are unsuccessful in their attempt to complete their remaining foundation courses should be prepared to declare an alternative major outside of the School of Engineering.

Course Substitutions

Undergraduate engineering students who wish to complete a course at another institution or study abroad must first consult the School of Engineering Undergraduate Advising Office. The advising office may require that a Petition for Course Substitution be approved before credit for a course completed at another institution can be applied to any School of Engineering major requirement. This petition is in addition to and separate from the transfer credit awarded by the university. Petition forms are available at the undergraduate advising office and online at http://ua.soe.ucsc.edu/policies-forms. Each petition must be accompanied by a course description, syllabus, and verification of the number of credits earned with a grade of C or better. To guarantee equivalency, departments may sometimes require a grade of B or better. It is very helpful if students can provide further evidence of course content, such as examples of programming assignments, homework, or examinations.

Appeal Process

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, the college, and the Office of the Registrar of the decision.

If you have further questions concerning the appeal process, please contact the Undergraduate Student Affairs Office at (831) 459-5840 or e-mail soeadmissions@soe.ucsc.edu.

Letter Grade Policy

Starting fall 2014, all students admitted to a School of Engineering major, or seeking admission to a major, must take all courses required for that major for a letter grade.

Ethics Requirement

Graduates of the Baskin School of Engineering are expected to become professionals with the highest ethical standards. Knowledge and practice of professional ethics is a requirement for the degree. Examples of professional society codes of ethics are available at http://www.ieee.org/about/corporate/governance/p7-8.html and http://www.acm.org/about/se-code/. Students of the Baskin School of Engineering are also expected to adhere to high ethical standards while pursuing their undergraduate studies.

Courses Taken Elsewhere After Enrollment

Once enrolled in the School of Engineering continuing students must have permission to subsequently take courses elsewhere. Course substitutions, such as taking a course at

another UC campus, in the Education Abroad Program (EAP), or at a community college, require approval prior to taking the class.

Continuing students must get pre-approval before taking a class at a California community college. Applications and procedures for pre-approval can be obtained from and submitted to the Undergraduate Advising Office.

When a student declares their major, minor, or proposed major in a School of Engineering program, the decision as to whether a course taken elsewhere is accepted for this School of Engineering major or minor is made by the major department at that point. (Note: There is no guarantee that a course will be applicable toward a School of Engineering major, minor, or proposed major even if the student has completed more advanced courses in that department.)

School-Wide Information and Policies

Computing Facilities

The Baskin School of Engineering houses research facilities and teaching laboratories in the Baskin Engineering Building for courses in programming, software design, circuits, electronics, graphics, digital design, and computer and system architecture. Emphasis in these laboratories is on state-of-the-art equipment, including personal computers, engineering workstations, a 1000-processor Linux cluster, logic analyzers, microprocessor development systems, a wireless network for mobile computers, and network support at 100MB/sec.
All Unix computers and workstations and most personal computers on campus are networked together, allowing students to access the School of Engineering and the Information Technology Services (ITS) facilities from any computer account on campus. For a more complete description of the computing facilities on campus, see http://its.ucsc.edu/.

Prerequisites

Because of the sequential nature of the School of Engineering curricula, most courses have prerequisites, which are listed in the course descriptions. Students should carefully review these descriptions in the catalog and the quarterly *Schedule of Classes*. Students must have passed all prerequisites of a course for which they are enrolling. Pre-enrolled students who then fail a prerequisite are no longer eligible to be enrolled in the course and will be dropped.

For example, to enroll in Computer Science 101, a prerequisite to many upper-division courses, the prerequisite courses that must be completed or in progress are Computer Science 12B, Computer Engineering 16, Mathematics 19B, and one of the following: Mathematics 21, 22, 23A, 24, or Applied Mathematics and Statistics 10.

Students who have transferable course work from another institution that appears to satisfy a UCSC course prerequisite, but is not listed in current articulation agreements, should promptly consult with the School of Engineering's staff advisers for guidance. Students will be asked to present records from the other institution to document the course equivalency. Until such evidence has been verified by the department, students attempting to enroll in a course using a prerequisite course that was not completed at UCSC will be informed that they have not satisfied the course prerequisite. (See the Course Substitutions section under Admission to School of Engineering Majors.)

Permission Numbers

Students not meeting the regular prerequisite requirements for courses sponsored by the Baskin School of Engineering may petition the course instructor to receive a permission number to enroll. The instructor may ask a student to demonstrate the ability and/or potential to succeed in the course or may request additional information to formulate a decision. If no instructor has been assigned to the course, please contact the Undergraduate Advising Office for direction.

Materials Fee

Students should be aware that some laboratory courses require each student to purchase miscellaneous parts or a material kit for completion of the laboratory work. Some

laboratory courses may include consumable (one-time use) parts and materials that are distributed to the entire class. Some laboratory kits include parts that the student will assemble into a project and keep. Please refer to the Baskin Engineering Laboratory Support web page for specific course material fee amounts: https://intranet.soe.ucsc.edu/lab-support/fees.

Miscellaneous Fees

Miscellaneous breakage or loss of equipment fees are assessed to address the cost of damaged laboratory equipment and loss of laboratory materials due to abuse or negligence. This fee is only charged if a student breaks or loses laboratory equipment or materials and is not a mandatory fee charged to all students taking the course. Please refer to the Baskin Engineering Laboratory Support web page for more information: https://intranet.soe.ucsc.edu/lab-support/fees.

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Applied Mathematics and Statistics

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Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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Program Description

Applied mathematics and statistics are disciplines devoted to the use of mathematical methods and reasoning to solve real-world problems of a scientific or decision-making nature in a wide variety of subjects, principally (but not exclusively) in engineering, medicine, the physical and biological sciences, and the social sciences. Applied mathematical modeling often involves the use of systems of (partial) differential equations to describe and predict the behavior of complex real-world systems that unfold dynamically in time. Statistics, construed broadly, is the study of uncertainty: how to measure it (using ideas and methods in probability theory), and what to do about it (using concepts from statistical inference and decision theory).

The Applied Mathematics and Statistics Department at UCSC offers master's and doctoral programs in Statistics and Applied Mathematics, or Applied Mathematics and Statistics, depending on chosen emphasis. The goal of these programs is to help students develop into independent scholars who are prepared for productive careers in research, teaching, and industry. The department also offers a designated emphasis in statistics, a minor in statistics, and a minor in applied mathematics.

Additional information on these programs can be found on the department's web pages at www.soe.ucsc.edu.

Undergraduate Programs

Requirements of the Minor in Statistics

The statistics minor is available for students who wish to gain a quantitative understanding of how to (a) measure uncertainty and (b) make good decisions on the basis of incomplete or imperfect information, and to apply these skills to their interests in another field. This minor could also be combined with a major in mathematics as preparation for a graduate degree in statistics or biostatistics.

Students are required to take a two-quarter basic calculus sequence:

- Applied Mathematics and Statistics 11A-B or Economics 11A-B or Applied Mathematics and Statistics 15A-B or Mathematics 11A-B or Mathematics 19A-B or Mathematics 20A-B
- Plus one course from each of the following seven categories:
  - Statistical Concepts: Applied Mathematics and Statistics 5 or 7/L

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

- Computer Programming: Biomolecular Engineering 160/L, Computer Science 12A/L or 5C or 5J or 5P or Computer Engineering 13/L
- Linear Algebra: Applied Mathematics and Statistics 10 or Mathematics 21 (also recommended that students take Applied Mathematics and Statistics 20 or Mathematics 24)
- Multivariate Calculus: Mathematics 22 or both Mathematics 23A and Mathematics 23B
- Probability: Applied Mathematics and Statistics 131 Applied Mathematics and Statistics 203 or Computer Engineering 107
- Statistical Inference: Applied Mathematics and Statistics 132
- Computational Methods: Applied Mathematics and Statistics 147

- Plus two electives from the following category:
  - Statistical Elective: Applied Mathematics and Statistics 118; 156; 198; 202; 205B; 206B; 207; 256;
  - Biomolecular Engineering 205; Computer Engineering 108; Computer Science 142; Economics 104; 113; 114; 120; 161B; and 190; Electrical Engineering 151; Mathematics 114; Psychology 181; Sociology 103A; Technology and Information Management 230.

Note: Students planning graduate work in statistics are recommended to choose Mathematics 23A–B, Applied Mathematics and Statistics 205B, and Mathematics 105A–B.

Requirements of the Minor in Applied Mathematics

The applied mathematics minor is available for students who wish to develop (1) proficiency in modeling real-life problems using mathematics and (2) knowledge of standard, practical analytical and numerical methods for the solution of these models. This minor could be combined with a major in any of the physical, biological, mathematical, or engineering sciences as preparation for a graduate degree in that field or in applied mathematics.

Students are required to take the four-quarter calculus sequence:

- Calculus Sequence: Mathematics 19A–B or Mathematics 20A–B, and Mathematics 23A–B
- Plus one of the following sequences:
  - Applied Mathematics and Statistics 10 and 20
  - Mathematics 21 and 24
  - Physics 116A and 116B

Note: Students who complete Mathematics 21 and 24 or Physics 116A and 116B, are strongly recommended to complete the MATLAB self-paced tutorial at: http://matlab-training.soe.ucsc.edu/

- Plus one course from each of the following categories:
  - Probability Theory: Applied Mathematics and Statistics 131 or Computer Engineering 107
  - Dynamical Systems: Applied Mathematics and Statistics 114 or Applied Mathematics and Statistics 214
  - Introduction to Numerical Methods: Applied Mathematics and Statistics 147, Physics 115, or Earth Sciences 119
  - Partial Differential Equations: Applied Mathematics and Statistics 212A, Physics 116C, or Mathematics 107
- Plus one applied-mathematics elective from the following list:
  - Applied Mathematics elective: Applied Mathematics and Statistics 107/217, 115/215,

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
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- Theater Arts
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- Electrical Engineering 103, 154; Computer Engineering 115; Mathematics 103A, 117, 121A; Physics 105, 139A, 139B, 171.

Students may also propose other electives which use applied mathematical methods, subject to approval by the department.

Graduate Programs (M.S., Ph.D.)

Requirements for a Graduate Degree in Statistics and Applied Mathematics

This track is for students emphasizing statistics. All students must complete the core courses described below.

Required core Applied Mathematics and Statistics courses:

200 Research and Teaching in Applied Mathematics and Statistics

203 Introduction to Probability Theory

205B Intermediate Classical Inference

206B Intermediate Bayesian Inference

207 Intermediate Bayesian Statistical Modeling

211 Foundations of Applied Mathematics

256 Linear Statistical Models

280B Seminar in Statistics and Applied Mathematical Modeling

In addition to these 35 credits, master of science (M.S.) students must complete two additional 5-credit courses from the approved list, for a total requirement of 45 credits; doctor of philosophy (Ph.D.) students must complete four additional 5-credit courses from the approved list, for a total requirement of 55 credits.

Requirements for a Graduate Degree in Applied Mathematics and Statistics

This track is for students emphasizing Applied Mathematics. All students must complete the core courses described below.

Required core Applied Mathematics and Statistics courses:

200 Research and Teaching in Applied Mathematics and Statistics

203 Introduction to Probability Theory

211 Foundations of Applied Mathematics

212A Applied Mathematical Methods I

212B Applied Mathematical Methods II

213 Numerical Solutions of Differential Equations

214 Applied Dynamical Systems

280B Seminar in Statistical and Applied Mathematical Modeling

In addition to these 35 credits, master of science (M.S.) students must complete two additional 5-credit courses from the approved list, for a total requirement of 45 credits; doctor of philosophy (Ph.D.) students must complete four additional 5-credit courses from the approved list, for a total requirement of 55 credits.

For both emphasis tracks, M.S. students will be allowed to substitute up to two courses with their required research project in which they conduct a research program in one or two of the quarters of their second year. The project will consist of solving a problem or problems from the selected area of application and will be presented to the sponsoring faculty member as a written document.

Ph.D. students will be required to serve as teaching assistants for at least two quarters during their graduate study. Certain exceptions may be permitted for those with extensive prior teaching experience, for those who are not allowed to be employed due to visa regulations, or for other reasons approved by the graduate director.

Qualifying Examinations

At the end of the first year, all students will take a pre-qualifying examination covering the six (non-seminar) core courses. This examination will have two parts: an in-class written examination, followed by a take-home project involving data analysis. Students who do not pass this examination will be allowed to retake it before the start of the following fall quarter; if they fail the second examination they will be dismissed from the program.

Ph.D. students must complete the oral proposal defense, through which they advance to candidacy, by the end of the spring quarter of their third year. The proposal defense is a public seminar as part of an oral qualifying examination given by the qualifying committee.

Thesis and/or Dissertation Requirements

A capstone project is required for the M.S. degree and a dissertation for the Ph.D. degree.

For the M.S. degree, students will conduct a capstone research project in their second year (up to three quarters). Students must submit a proposal to the potential faculty sponsor by the start of the fourth academic quarter. If the proposal is accepted, the faculty member will become the sponsor and will supervise the research and writing of the project. The project will involve the solution of a problem or problems from the selected area of application. When the project is completed and written, it will be submitted to and must be accepted by a committee of two individuals, consisting of the faculty adviser and one additional reader. Additional readers will be chosen appropriately from within the Applied Mathematics and Statistics Department or outside of it. Either the adviser or the additional reader must be from within the Applied Mathematics and Statistics Department.

A dissertation is required for the Ph.D. degree. Ph.D. students must select a faculty research adviser by the end of the second year. A written dissertation proposal will be submitted to the adviser, and filed with the graduate secretary. A qualifying examination committee will be formed, consisting of the adviser and three additional members, approved by the Chair of the Graduate Program and the Dean of the Graduate Division. The student will submit the written dissertation proposal to all members of the committee and the graduate secretary no less than one month in advance of the qualifying examination. The dissertation proposal will be formally presented in a public oral qualifying examination with the committee, followed by a private examination.

Students will advance to candidacy after they have completed all course requirements (including removal of all incompletes), passed the qualifying examination, and paid the filing fee. Under normal progress, a student will advance to candidacy by the end of the spring quarter of her/his third year. A student who has not advanced to candidacy by the start of the fourth year will be subject to academic probation. Upon advancement to candidacy, a dissertation reading committee will be formed, consisting of the dissertation supervisor and at least two additional readers appointed by the Graduate Program chair upon recommendation of the dissertation supervisor. At least one of these additional readers must be in the Applied Mathematics and Statistics Department. The committee is subject to the approval of the Graduate Division.

The dissertation will consist of a minimum of three chapters composed of material suitable for submission and publication in major professional journals in statistics or applied mathematics. The completed dissertation will be submitted to the reading committee at least one month before the dissertation defense, which consists of a public presentation of the research followed by a private examination by the reading committee. Successful completion of the dissertation defense is the final requirement for the Ph.D. degree.

Relationship of Masters and Doctoral Programs

The M.S. and Ph.D. programs are freestanding and independent, so that students can be admitted to either. Students completing the M.S. program may proceed into the Ph.D. program, and students in the Ph.D. program can receive a M.S. degree upon completion of M.S. requirements, including the capstone research project. Each Ph.D. student will be required to have knowledge of statistics and applied mathematics equivalent to that

required for the M.S. degree. In addition, Ph.D. candidates will be required to complete coursework beyond the M.S. level.

Transfer Credit

Up to three School of Engineering courses fulfilling the degree requirements of either the M.S. or Ph.D. degrees may be taken before beginning the graduate program through the concurrent enrollment program. Ph.D. students who have previously earned a master's degree in a related field at another institution may substitute courses from their previous university with approval of the adviser and the graduate committee. Courses from other institutions may not be applied to the M.S. degree course requirements.

Petitions should be submitted along with the transcript from the other institution or UCSC Extension. For courses taken at other institutions, copies of the syllabi, exams, and other course work should accompany the petition. Such petitions are not considered until the completion of at least one quarter at UCSC. At most, a total of three courses may be transferred from concurrent enrollment and other institutions.

Review of Progress

Each year, the faculty reviews the progress of every student. Students not making adequate progress toward completion of degree requirements are subject to dismissal from the program (see the Graduate Handbook for the policy on satisfactory academic progress). For specific guidelines on the annual student reviews, please refer to http://www.soe.ucsc.edu/programs/ssm/graduate/index.html.

Requirements for a designated emphasis to an external degree program

Students from another degree program who meet the following requirements can have the designated emphasis of "statistics" annotated to their degree title. For example, a Ph.D. student in electrical engineering who meets the requirements would get a certification that read "Ph.D. Electrical Engineering (Statistics)." The course requirements are:

Required Core Applied Mathematics and Statistics courses:

203 Introduction to Probability Theory

206 Classical and Bayesian Inference (or 206B Intermediate Bayesian Inference)

207 Intermediate Bayesian Statistical Modeling

256 Linear Statistical Models

and one other statistics course from a list of approved courses in AMS (currently 202, 205B, 221, 223, 225, 241, 245, 261, 263, 274, and 291).

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Bioengineering

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Baskin School of Engineering
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Faculty

Program Description

The four concentrations of the UCSC bachelor of science (B.S.) degree in bioengineering prepare graduates for productive employment in industry or further education in graduate school. Each concentration is based on different essential underlying science, but all share an emphasis on teaching engineering design using that basis in science.

The biomolecular engineering concentration is designed for students interested in protein engineering, stem cell engineering, and synthetic biology. The emphasis is on designing biomolecules (DNA, RNA, proteins) and cells for particular functions, and the underlying sciences are biochemistry and cell biology.

The bioelectronics concentration is designed for students interested in the interface between organisms and electronic instrumentation or implants. The emphasis is on the interfacing of biological sensors to computer systems, and the underlying sciences are physics and chemistry.

The assistive technology: motor concentration is designed for students interested in helping people with movement disabilities. The emphasis is on designing exoskeletons and robots, and the underlying sciences are physics and anatomy.

The assistive technology: cognitive/perceptual concentration is designed for students interested in helping people with cognitive or perceptual disabilities. The emphasis is on designing computer systems that help people compensate for disabilities, and the underlying sciences are psychology and computer science.

In all four concentrations, students participate in a capstone design experience: either a two-quarter, group project intended to prepare students for work in industry or a three-quarter senior thesis intended to prepare students for Ph.D. research. Both options involve working closely with faculty and other researchers at UCSC, analyzing ideas, developing technologies, and discovering new approaches. Application areas include biomolecular sensors and systems, nano-electronic implants, assistive technologies for the elderly and disabled, bioinformatics, microfluidics, nanoscale biotechnology, environmental monitoring, and other areas at the junction between engineering and the life sciences.

More information about bioengineering research and undergraduate research opportunities can be found on the web at ugr.ucsc.edu, beng.soe.ucsc.edu, cbse.ucsc.edu, biomedical.ucsc.edu, marcmbrs.ucsc.edu, surf-it.soe.ucsc.edu, and

- Computer Engineering
- Computer Science
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- History of Art and Visual Culture
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- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
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- Psychology

stemdiv.ucsc.edu/ucleads/.

The program is sponsored by the Departments of Biomolecular Engineering, Computer Engineering , Electrical Engineering, and Molecular, Cell, and Developmental Biology , with additional participating faculty in the Departments of Applied Mathematics and Statistics, Chemistry and Biochemistry, and Psychology.

The program has course requirements in mathematics, science, and engineering. Students interested in bioengineering as a major should contact the School of Engineering advising office (advising@soe.ucsc.edu) before enrolling in any courses at UCSC. Early advising is particularly important before choosing calculus and physics courses.

Bioengineering students may continue their research and studies at UCSC in any of several graduate programs. Information may be found at http://www.graddiv.ucsc.edu.

Courses for Nonmajors

The following courses are recommended for nonmajors interested in bioengineering. Computer Engineering 80A, Universal Access: Disability, Technology, and Society; Biomolecular Engineering 80G, Bioethics in the 21st Century: Science, Business, and Society; and Biomolecular Engineering 5, Introduction to Biotechnology. Students are also advised to consult the program discussions of the collaborating departments for additional possibilities related to bioengineering.

Declaration of the Major

To be admitted by the end of the 5th quarter, students need to have taken 50 credits from the following list of courses with a GPA of 2.8 or better:

Applied Mathematics and Statistics (AMS) 7/L, AMS 10, AMS 20, Molecular, Cell, and Developmental Biology (BIOL) 20A, Ecology and Evolutionary Biology (BIOE) 20B, Biomolecular Engineering (BME) 5, BME 80G, Chemistry and Biochemistry (CHEM) 1A, CHEM 1B/M, CHEM 1C/N, CHEM 108A/L, CHEM 108B/M, Computer Engineering (CMPE) 9, CMPE 12/L, CMPE 13/L, CMPE 80A, CMPE 100/L, Computer Science (CMPS) 12A/L, CMPS 12B/M, Mathematics (MATH) 19A, MATH 19B, MATH 22 or MATH 23A, Physics (PHYS) 5A/L (or 6A/L), PHYS 5B/M (or 6B/M), PHYS 5C/N (or 6C/N), and Psychology (PSYC) 20A.

Students changing majors after the 6th quarter will need to have completed 10 more credits of required courses in the major for each additional quarter past the 6th quarter.

Appeals for major declaration may be filed with the Baskin School of Engineering Office of Undergraduate Affairs by the end of the fifth week of each regular quarter for faculty review. Determinations will be made by the end of the seventh week of the quarter. After the campus major declaration deadline, students submitting an appeal must have a declared alternate major.

Transfer Students

Transfer students need to have completed eight transferable courses from the list used for admission for on-campus students, with a GPA in those courses of 2.8 or better. However, students are recommended to complete at least ten transferable courses prior to transfer, as they may otherwise have difficulty finishing in a timely fashion.

Students may satisfy the bioethics requirement if they have completed a suitable ethics course at their community college.

Honors in the Major

Bioengineering majors are considered for “Honors in the Major” and “Highest Honors in the Major” based on their GPA and on the results of undergraduate research. Students with a GPA of 3.7 receive “Highest Honors in the Major.” Students with a GPA of 3.3 receive “Honors in the Major.” Students with particularly significant accomplishments in undergraduate research may receive honors or highest honors with a lower GPA. Students who have been found guilty of academic misconduct are not eligible for either honors or highest honors.

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- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
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Please refer to the letter grade policy in the School of Engineering section.

Baskin School of Engineering Policies

Please refer to the School of Engineering section of the catalog for additional policies that apply to all Baskin School of Engineering programs.

Materials Fee and Miscellaneous Fees

Please see the section on fees in the School of Engineering section.

Major Requirements

Advising and Elective Approval

Every major must have a bioengineering faculty adviser, assigned by the Baskin School of Engineering undergraduate advising office. With assistance from the adviser, students must formulate a program of proposed course work that meets the major requirements. All electives must be pre-approved by the bioengineering undergraduate director.

Optional Courses for Majors

Biomolecular Engineering 88A, BMES Freshman Design Seminar, is recommended for first-year students interested in learning to think like engineers. Students considering the assistive technology:motor concentration or desiring an early introduction to the use of mathematics in engineering may wish to take Computer Engineering 8, Robot Automation, in their first quarter.

Courses required for all concentrations (lower-division, 7):

Mathematics 19-B, Calculus for Science, Engineering, and Mathematics

Biomolecular Engineering 80G, Bioethics in the 21st Century: Science, Business, and Society

Chemistry and Biochemistry 1A, 1B/M General Chemistry

Biology (BIOL) 20A, Cell and Molecular Biology

Biology (BIOE) 20B, Development and Physiology

All concentrations also require physics and computer programming, but the details of the requirements differ, due to the different needs of the concentrations (see below).

Courses required for all concentrations (upper-division, 4):

Biomolecular Engineering 101/L, Applied Circuits for Bioengineers

Computer Engineering 185, Technical Writing (satisfies the Disciplinary Communication requirement)

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Applied Mathematics and Statistics 132, Classical and Bayesian Inference

Capstone requirement, all concentrations, 2-3 courses

All bioengineering students complete a senior capstone project in bioengineering, either as a group project or as an individual senior thesis doing research in a faculty laboratory. (Satisfies the campus comprehensive requirement.)

Biomolecular Engineering 123A-B, Bioengineering Project; or

Computer Engineering, or Electrical Engineering 129A-C, Capstone Project; or

Fifteen credits of independent study or senior thesis research, such as by completing three offerings of Biomolecular Engineering, Computer Engineering, or Electrical Engineering 193 or 195; and Biomolecular Engineering 123T, Senior Thesis Presentation (2 credits).

Students pursuing the senior thesis option must seek approval of their project one year before graduation, typically spring quarter of the third year. Students spend three or more

quarters working on their thesis projects. Thesis students must enroll in 123T, Senior Thesis Presentation, before completing their thesis.

Additional required courses for Biomolecular concentration (16 courses)

Biomolecular Engineering 5, Introduction to Biotechnology

Physics 5A/L or 6A/L, Introduction to Physics I or Introductory Physics I

Physics 5C/N or 6C/N, Introduction to Physics III or Introductory Physics III

Chemistry 1C/N, General Chemistry

Chemistry 108A/L, Organic Chemistry

One of two three-course sequences in biochemistry or molecular biology. The first sequence is intended for students primarily interested in the design of proteins, while the second is intended for students interested in cellular engineering.

Chemistry 108B/M, Organic Chemistry, and Biochemistry and Molecular Biology 100A-B; or

Biology (BIOL) 100, Biology (BIOL) 101/L, and one of Biology 110L, Cell Biology Laboratory, 115L, Eukaryotic Molecular Biology Laboratory, or 120L, Development Laboratory

Biomolecular Engineering 160/L, Research Programming in the Life Sciences

One of three introductions to programming:

Computer Science 12A/L, Introduction to Programming/Laboratory; or Computer Science 5J, Introduction to Programming in Java and 11, Intermediate Programming; or Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory and Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Biomolecular Engineering 110, Bioinformatics Tools

Biology (BIOL) 105, genetics

Biomolecular Engineering 150/L, Molecular Biomechanics/Laboratory

One of Biology 110, Cell Biology; Biology 115, Eukaryotic Molecular Biology; or Microbiology and Environmental Toxicology 119, Microbiology.

Design elective from Baskin School of Engineering.

Upper-division elective from Baskin School of Engineering or Division of Physical and Biological Sciences.

Additional required courses for Bioelectronics concentration (16 courses)

Chemistry 1C/N, General Chemistry

Physics 5A/L, 5B/M, and 5C/N, Introduction to Physics I, II, and III

Mathematics 23A-B, Vector Calculus; or Mathematics 22, Introduction to Calculus of Several Variables

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I

Applied Mathematics and Statistics 20, Mathematical Methods for Engineers II

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Engineering 100/L, Logic Design/Laboratory

Electrical Engineering 101/L, Introduction to Electronic Circuits/Laboratory

Electrical Engineering 103/L, Signals and Systems/Laboratory

Computer Engineering 167/L, Sensing and Sensor Technologies/Laboratory

Electrical Engineering 171/L, Analog Electronics/Laboratory

Biomolecular Engineering 140, Bioinstrumentation

One of Electrical Engineering 153, Digital Signal Processing, 130/L, Introduction to Optoelectronics and Photonics/Laboratory, or 172, Advanced Analog Circuits; or Computer Engineering 141, Feedback Control Systems

Additional required courses for Assistive Technology: Motor concentration (16 courses)

Computer Engineering 80A, Universal Access: Disability, Technology, and Society

Physics 5A/L and 5C/N, Introduction to Physics I/Laboratory and Physics III/Laboratory

Computer Engineering 9, Introduction to Statics Dynamics & Biomechanics

Mathematics 23A–B, Vector Valculus; or Math 22, Introduction to Calculus of Several Variables

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I

Applied Mathematics and Statistics 20, Mathematical Methods for Engineers II

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Engineering 100/L, Logic Design/Laboratory

Biology (BIOL) 135/L, Functional Anatomy/Laboratory

Computer Engineering 118/L, Introduction to Mechatronics/Laboratory

Electrical Engineering 101/L, Introduction to Electronic Circuits/Laboratory

Electrical Engineering 103/L, Signals and Systems/Laboratory

Computer Engineering 167/L, Sensing and Sensor Technologies/Laboratory

Upper-division elective from Baskin School of Engineering or Division of Physical and Biological Sciences.

Additional required courses for Assistive Technology: Cognitive/Perceptual concentration (16 courses)

Computer Engineering 80A, Universal Access: Disability, Technology, and Society

Physics 5A/L or 6A/L, Introduction to Physics I/Laboratory or Introductory Physics I/Laboratory

Physics 5B/M or 6B/M, Introduction to Physics I/Laboratory or Introductory Physics II/Laboratory

Physics 5C/N or 6C/N, Introduction to Physics III/Laboratory or Introductory Physics III/Laboratory

Mathematics 23A–B, Vector Calculus; or Mathematics 22, Introduction to Calculus of Several Variables

Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological, Environmental, and Health Sciences/Laboratory

One of three introductions to programming:

- Computer Science 12A/L, Introduction to Programming/Laboratory; or
- Computer Science 5J, Introduction to Programming in Java and 11, Intermediate Programming; or
- Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory and Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Computer Science 109, Advanced Programming

Psychology 20A, Cognition: Fundamental Theories

Psychology 100, Research Methods in Psychology

Two upper-division Psychology courses selected from the following:

- Psychology 120, Visual and Spatial Cognition
- Psychology 121, Perception
- Psychology 123, Cognitive Neuroscience
- Psychology 128, Human Factors
- Psychology 129, Human Learning and Memory

Computer Engineering 131, Human Computer Interaction

Computer Engineering 161, Mobile Sensing and Interaction

Upper-division elective from Baskin School of Engineering, Division of Physical and Biological Sciences, or Psychology.

Exit Requirement

Students are required to submit a portfolio, exit survey, and exit interview.

The portfolios must be turned in electronically as PDF files by the last day of the quarter of graduation, and will be reviewed quarterly by the undergraduate director.

Portfolios must contain the following:

1) A substantial written report on a design project. This is typically satisfied by a senior thesis, a written capstone project report, or a report from the Applied Circuits for Bioengineers course.
2) Slides from a substantial verbal presentation. This is typically satisfied by a capstone design presentation, Molecular Biomechanics, Stem Cell Engineering, or other design courses.
3) A research poster. This is typically satisfied by a senior thesis poster or a capstone design project poster, presented at the undergraduate poster symposium.

The three parts of the portfolio should represent at least two different design projects. If a senior thesis is completed, it must be provided as the written report. If a capstone project is completed, it must be provided as one (or more) of the three submissions.

Exit interviews are scheduled during the last week of the quarter by the Baskin School of Engineering (BSOE) advising office, generally as small group interviews.

Bioengineering Major Planners

The following sample academic plans show possible courses of study for a bioengineering major. The first plan follows the biomolecular engineering concentration, the second the bioelectronics concentration, the third the assistive technology: motor concentration, and the fourth the assistive technology: cognitive/perceptual concentration.

All plans assume that students are ready for calculus and advanced computer programming courses when they start. Those who need to take precalculus or the CMPS 5J+11 programming series may not be able to complete the entire program within four years.

Students should consider taking courses during the summer to ensure timely completion of the degree. Courses planned to be taken at institutions other than UCSC require pre-approval by the undergraduate director.

All students should meet quarterly with an adviser from the School of Engineering Undergraduate Advising Office to review their finished and planned courses, as schedules and prerequisites change frequently. Any electives should be chosen well ahead of time, to ensure that prerequisites can be scheduled.

Plan One (biomolecular engineering)

Year	Fall	Winter	Spring

1st (frosh)	college core	BME 5	gen ed (C2)
	MATH 19A	MATH 19B	BIOL 20A
	CHEM 1A	CHEM 1B/M	CHEM 1C/N
		BME 88A	
2nd (soph)	BME 80G		PHYS 6C/N
	PHYS 5A/L	BIOE 20B	BIOL 105
	CHEM 108/L	CHEM108B/M	BME 160/L
3rd (jr)	BMB 100A	BMB 100B	BME 150/L
	CMPS 12A/L	CMPE 185	BME 101/L
	BME 110	gen ed	AMS 131
4th (sr)	BME 195	BME 195	BME 195
	BIOL 110	AMS 132	BME 128
	elective	BME 123T	gen ed

Plan Two (bioelectronics)

Year	Fall	Winter	Spring
1st (frosh)	college core	CMPE 12/L	CMPE 13/L
	MATH 19A	MATH 19B	MATH 22
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
		BME 88A	
2nd (soph)	CHEM 1A	CHEM 1B/M	CHEM 1C/N
	AMS 10	AMS 20	gen ed (C2)
	BME 80G	EE 101/L	EE 103/L
3rd (jr)	BIOL 20A	CMPE 100/L	EE 171/L
	CMPE 185	CMPE 167/L	BME 101/L
		BIOE 20B	AMS 131
4th (sr)	EE 129A	EE 129B	EE 129C
	BME 140	EE 130/L	gen ed
	gen ed	AMS 132	gen ed

Plan Three (assistive technology: motor)

Year	Fall	Winter	Spring
	college core	gen ed (C2)	CMPE 80A

1st (frosh)	MATH 19A	MATH 19B	MATH 22
	PHYS 5A/L		PHYS 5C/N
	BME 80G		BME 101/L
2nd (soph)	CMPE 12/L	CMPE 13/L	CMPE 100/L
	AMS 10	CMPE 9	AMS 20
	EE 101/L	gen ed	EE 103/L
3rd (jr)	CHEM 1A	CHEM 1B/M	BIOL 20A
	gen ed	CMPE 185	AMS 131
	CMPE 129A	CMPE 129B	CMPE 129C
4th (sr)	CMPE 118/L	AMS 132	PBSci/BSoE elective
	BIOE 20B	CMPE 167/L	BIOL 135/L

Plan four (assistive technology: cognitive/perceptual)

Year	Fall	Winter	Spring
	college core	gen ed (C2)	CMPE 80A
1st (frosh)	MATH 19A	MATH 19B	MATH 22
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
	CHEM 1A	CHEM 1B/M	BIOL 20A
2nd (soph)	BME 80G	CMPS 12A/L	CMPS 12B/M
	AMS 7/L	PSYCH 100	BME 101/L
	PSYCH 20A	PSYCH 123	PSYCH 120
3rd (jr)	BIOE 20B	CMPE 131	CMPS 109
	CMPE 161		AMS 131
	CMPE 195	CMPE 195	CMPE 195
	CMPE 185	AMS 132	elective
4th (sr)	gen ed	gen ed	gen ed
		BME 123T	

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Biomolecular Engineering

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Program Description

The Department of Biomolecular Engineering is an interdisciplinary department that combines expertise from biology, mathematics, chemistry, computer science, and engineering to train students and develop technologies to address major problems at the forefront of biomedical and bio-industrial research. Students trained in the Department of Biomolecular Engineering can look forward to careers in academia, the information and biotechnology industries, public health, or medical sciences.

The department offers an undergraduate minor and a bachelor of science (B.S.) degree in bioinformatics, and graduate master of science (M.S.) and doctor of philosophy (Ph.D.) degrees in biomolecular engineering and bioinformatics. The department co-sponsors the B.S. in bioengineering program, described elsewhere in this catalog, with the departments of Computer Engineering, Electrical Engineering, and Molecular, Cell, and Developmental (MCD) Biology. The department co-sponsors the Program in Biomedical Science and Engineering (PBSE), a doctoral training program, with the departments of MCD Biology, Chemistry and Biochemistry, and Microbiology and Environmental Toxicology.

Departmental faculty advise undergraduate and graduate researchers enrolled in the bioinformatics, bioengineering, and related degree programs. Members of the Department of Biomolecular Engineering actively collaborate with faculty from other Baskin School of Engineering departments, such as Applied Mathematics and Statistics, Computer Engineering, Computer Science, and Electrical Engineering; and with the Physical and Biological Sciences departments of MCD Biology, Chemistry and Biochemistry, Microbiology and Environmental Toxicology, Ecology and Evolutionary Biology, and Ocean Sciences.

Bioinformatics Major

Bioinformatics combines mathematics, science, and engineering to explore and understand biological data from high-throughput experiments, such as genome sequencing, gene-expression chips, and proteomics experiments. The program builds upon the research and academic strengths of the faculty in the Center for Biomolecular Science and Engineering, http://cbse.ucsc.edu.

The Human Genome Project, the international collaboration to determine the sequence of human DNA and understand its function, had its origin in a conference that took place at UCSC in 1985. One notable output from our research is that UCSC is the primary release site for the public version of the human genome (http://genome.ucsc.edu), as well as the

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- Literature
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- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
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- Oakes College
- Ocean Sciences
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- Politics
- Portuguese
- Porter College
- Psychology

repository for the ENCODE (Encyclopedia Of DNA Elements) project, a national effort to annotate the entire human genome with multiple functional assays. We also have a strong research group in systems biology, functional genomic characterization of stem cells, and play a lead role in national efforts to discover molecular underpinnings of various cancers, including participating as a Dream Team for the Stand Up To Cancer project and a data-analysis center for The Cancer Genome Atlas project.

The undergraduate bioinformatics degree program prepares students for graduate school or a career in the pharmaceutical or biotechnology industries.

The immense growth of biological information stored in computerized databases has led to a critical need for people who can understand the languages, tools, and techniques of statistics, science, and engineering. A classically trained scientist may be unfamiliar with the statistical and algorithmic knowledge required in this field. A classically trained engineer may be unfamiliar with the chemistry and biology required in the field. Thus, this program strives for a balance of the two: an engineer focused on the problems of the underlying science or, conversely, a scientist focused on the use of engineering tools for analysis and discovery.

The undergraduate degree program in bioinformatics builds a solid foundation in the constituent areas of the field. Students complete core sequences in mathematics (including calculus, statistics, and discrete mathematics), science (including biology, chemistry, and biochemistry), and engineering (including programming, algorithms, and databases). The core topics are brought together in two bioinformatics courses: Biomolecular Engineering 110, Computational Biology Tools, and Biomolecular Engineering 205, Bioinformatics Models and Algorithms. Students have two electives for specialization within the fields of bioinformatics and are required to take Biomolecular Engineering 80G, Bioethics in the Twenty-First Century: Science, Business, and Society to study the ethical, legal, and social implications of this new technology.

Courses for Nonmajors

Biomolecular Engineering 5, Introduction to Biotechnology, presents a broad overview of the impact of biotechnology on the diagnosis and treatment of disease.

Biomolecular Engineering 160, Programming for Biologists and Biochemists, provides an introductory programming class using Python and BioPython to analyze, transform, and publish biological data.

Biomolecular Engineering 80G, Bioethics in the Twenty-First Century: Science, Business, and Society, is particularly appropriate to all students interested in the societal issues surrounding the revolutions in bioinformatics and biotechnology.

Biomolecular Engineering 110, Computational Biology Tools, provides an introduction to the tools and techniques of bioinformatics from a users view. It is intended for biologists and biochemists who need to use bioinformatics tools, but are not primarily interested in building new bioinformatics tools.

Biomolecular Engineering 130, Genomes Genome-scale analysis to answer biological questions.

Biomolecular Engineering 155, Biotechnology and Drug Development, examines the science and process of discovering, testing, and manufacturing new drugs within the pharmaceutical industry.

Bioinformatics Policies

Declaration of the Major

Admission to the bioinformatics major is based on the required lower-division courses: BIOL 20A, BIOE 20B, BME 80G, CHEM 1A, CHEM 1B/M, CHEM 1C/N, CMPE 16, CMPS 12A/L (or CMPS 5J and 11 OR CMPE 12/L and CMPE 13/L), CMPS 12B/M, MATH 19A, MATH 19B, MATH 23A, and fundamental upper-division courses: AMS 131, CHEM 108A/L, CHEM 108B/M, and CMPS 101. Students must have completed 50 credits from this list by the end of the fifth quarter. Students must also have a GPA of 2.8 or better in all attempts in these courses. Students changing major after the sixth quarter will need 10 additional credits for

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
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each additional quarter.

Denials of admission to the major may be appealed by submitting a letter to the School of Engineering Undergraduate Office, describing why the grade point average obtained is not an accurate reflection of the student's potential, or requesting that other completed upper-division courses be considered in admissions process.

Courses Taken Elsewhere

Please refer to the School of Engineering section of the catalog for policies about taking courses at other institutions after enrolling at UCSC.

Honors in the Major

Bioinformatics majors are considered for "Honors in the Major" and "Highest Honors in the Major" based on their GPA and on results of undergraduate research. Students with a GPA of 3.7 receive "Highest Honors in the Major." Students with a GPA of 3.3 receive "Honors in the Major." Students with particularly significant accomplishments in undergraduate research may receive honors or highest honors with a lower GPA. Students who have been found guilty of academic misconduct are not eligible for either honors or highest honors.

Transfer Students

Transfer students need eight transferable courses from the list of courses used for admission to the major for on-campus students, with a GPA in those courses of 2.8 or better. Students with fewer than 10 transferable courses may find it difficult to complete the major in only two more years.

School of Engineering Policies

Please refer to the School of Engineering section of the catalog for additional policies that apply to all School of Engineering programs.

Preparation for the Major

Students applying for admission to the bioinformatics major should have completed four years of high school mathematics (through advanced algebra and trigonometry) and three years of science, including one year of chemistry and one year of biology. Comparable college mathematics and science courses completed at other institutions may be accepted in place of high school preparation. Students without this preparation may be required to take additional courses to prepare themselves for the program.

Requirements of the Bioinformatics Major

Every bioinformatics major must have a faculty adviser, assigned by the Baskin School of Engineering undergraduate advising office, and with that adviser must formulate a program of proposed course work that meets the major requirements. Because of the enormous breadth of requirements, bioinformatics majors are urged to take honors courses or sections whenever possible to get as much as possible out of the courses they take in each field.

Lower-Division Requirements

Majors must complete the following lower-division courses:

Biology

Biology (BIOL) 20A, Cell and Molecular Biology

Biology (BIOE) 20B, Development and Physiology

Biomolecular Engineering

Biomolecular Engineering 80G, Bioethics in the Twenty-First Century: Science, Business, and Society

Chemistry

Chemistry 1A, 1B/M, and 1C/N, General Chemistry/Laboratory

Computer Engineering

Computer Engineering 16, Applied Discrete Mathematics

Programming 1

Computer Science 12A/L, Introduction to Programming/Laboratory (accelerated); or

Computer Science 5J, Introduction to Programming in Java, and 11, Intermediate Programming; or

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory, and 13/L, Computer Systems and C Programming/Laboratory

Programming 2

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Mathematics

Mathematics 20A–B, Honors Calculus; or

Mathematics 19A–B, Calculus for Science, Engineering, and Mathematics (Credit for one or both can be granted with adequate performance on the College Entrance Examination Board (CEEB) calculus AB or BC Advanced Placement examination.)

Mathematics 23A, Multivariable Calculus

Upper-Division Requirements

Majors must complete the following upper-division courses:

Applied Mathematics and Statistics

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Applied Mathematics and Statistics 132, Statistical Inference

Biochemistry and Molecular Biology

Biochemistry 100A, Biochemistry (first in three-part sequence)

Bioinformatics

Biomolecular Engineering 110, Computational Biology Tools

Biomolecular Engineering 130, Genomes

Biomolecular Engineering 205, Bioinformatics Models and Algorithms

One of the following:

Biomolecular Engineering 211, Computational Systems Biology; or

Biomolecular Engineering 230/L, Computational Genomics/Laboratory; or

Biomolecular Engineering 195, Senior Thesis Research

Biology (BIOL)

Biology 105, Genetics

Chemistry

Chemistry 108A/L and 108B/M, Organic Chemistry/Laboratory; or

Computer Engineering

Computer Engineering 185, Technical Writing for Computer Engineers

Computer Science

Computer Science 101, Algorithms and Abstract Data Types

One of the following:

Computer Science 182, Introduction to Database Management Systems, or

Computer Science 180, Database Systems.

Advanced Programming

Computer Science 109, Advanced Programming

Required Electives

Students must select one additional course as an elective, justify their choice in writing, and get the choice approved by their faculty adviser. The following courses are typical of the ones chosen, but do not constitute a pre-approved list:

Applied Mathematics and Statistics 162

Biochemistry 100B, 100C, 110

Biology 105L, 105M, 109L, 110, 115, 115L, 117A, 117B, 140, 187L, 200A, 200B

Biomolecular Engineering 101/L, 102, 109, 128, 140, 150/L, 155, 177, 178, 211, 230

Computer Engineering 108, 177

Computer Science 104A, 105, 115, 116, 130, 140, 142, 160/L

Microbiology and Environmental Toxicology 119, 119L

Technology and Information Management 105, 206

Note: many of these courses are offered only once a year and have long prerequisite chains, so advance planning is necessary to make sure elective courses can be fit into the student's schedule.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division disciplinary communication (DC) requirement. Bioinformatics majors satisfy the DC requirement by completing Computer Engineering 185, Technical Writing for Engineers.

Comprehensive Requirement

The bioinformatics comprehensive requirement can be met by taking Biomolecular Engineering 211, Computational Systems Biology; or Biomolecular Engineering 230/L, Computational Genomics, which include substantial projects; or Biomolecular Engineering 195, Senior Thesis Research. Students electing the senior thesis must submit a written thesis proposal to the undergraduate director of bioinformatics for approval one quarter prior to submitting the final thesis.

Requirements of the Bioinformatics Minor

Where the bioinformatics major is intended for people who wish to become bioinformaticians and create the tools needed to solve new problems in computational biology, the bioinformatics minor is intended primarily for bioinformatics tool users who are majoring in a biological or chemical specialty. The bioinformatics minor is also appropriate for computer science or computer engineering majors who are considering graduate work in bioinformatics.

A bioinformatics minor consists of the following 16 courses:

Lower-division (10 courses)

Biology (2)

Biology 20A, Cell and Molecular Biology; and

Biology 20B, Development and Physiology

General chemistry (3)

Chemistry 1A, 1B/M, and 1C/N

Single-Variable Calculus (2)

Mathematics 19A and 19B (preferred); or

Mathematics 11A and 11B; or

Mathematics 20A and 20B

Programming 1 (1)

Computer Science 12A/L; or

Computer Science 5J and 11; or

Computer Engineering 12/L and 13/L

Programming 2 (1)

Biomolecular Engineering 160/L; or

Computer Science 12B/M

Bioethics (1)

Biomolecular Engineering 80G

Upper-division (6 courses)

Organic chemistry (1)

Chemistry 108A

Biochemistry (1)

Biochemistry 100A; or

Chemistry 103; or

Biology 100

Statistics (2)

Computer Engineering 107; or

Applied Mathematics and Statistics 131

Applied Mathematics and Statistics 132

Bioinformatics (1)

Biomolecular Engineering 110

Elective(1)

Biochemistry 100B; or

any other upper-division or graduate biomolecular engineering course

The bioinformatics minor requirements may satisfy the requirements of other majors or minors under the campus policy discussed in Major and Minor Requirements. Majors with substantial overlap include biochemistry, bioengineering, all biology majors, chemistry, computer science, and computer engineering. Students pursuing one of these majors are particularly encouraged to consider the bioinformatics minor.

The Bioinformatics Combined B.S./Graduate Degree Program

Because our bioinformatics B.S. program provides excellent preparation for a graduate program in bioinformatics, we offer a combined B.S./graduate degree program that allows our B.S. students to complete the M.S. (or Ph.D.) somewhat sooner than students with a less tailored preparation.

The current B.S. and graduate requirements have four courses in common:

Biomolecular Engineering 80G, Bioethics in the 21st Century

Biomolecular Engineering 205, Bioinformatics Models and Algorithms

Biomolecular Engineering 230, Computational Genomics

Applied Mathematics and Statistics 206, Bayesian Statistics

The combined B.S./graduate degree program does not make any changes to the undergraduate program, except that students must pass the four overlapping courses listed above for a grade of B- or better.

The requirements at the graduate level are changed to remove the four courses that overlap with the B.S. and to add two graduate electives to be chosen by the students with the approval of their advisers. Thus, the total number of full courses required is reduced from nine to seven.

To apply for the combined program, students apply to the M.S. or Ph.D. program through the normal graduate admission process in the fall of their senior year. If admitted into the graduate program, they are automatically included in the combined B.S./M.S. or B.S./Ph.D. program.

Bioinformatics Major Planners

As in all engineering and science programs, it is recommended that students spread their general education requirements out over all 12 quarters. Students considering pursuing a bioengineering or bioinformatics degree should follow the biomolecular engineering concentration of the bioengineering B.S. program and complete the programming sequence (Computer Science 12A and 12B) by the end of their second year.

Four-year plans require individual design to fit in the desired electives, so only the first two years of the academic plan are presented here. It is recommended that students reserve the summer after the junior year for undergraduate research. One popular plan involves taking organic chemistry and the associated laboratories in the summer after completing general chemistry, so that biochemistry may be started in the junior year.

Biomolecular Engineering 205, Bioinformatics Models and Algorithms, should be taken after Biomolecular Engineering 110, Computational Biology Tools.

Sample Plan

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A	MATH 19B	MATH 23A
	CHEM 1A	CHEM 1B/M	CHEM 1C/N
	college core	gen ed	gen ed
2nd (soph)	BIOL 20A	CMPS 12A/L	CMPS 12B/M
	CHEM 108A/L	BIOE 20B	CMPE 16
	BME 80G	gen ed	gen ed

Biomolecular Engineering and Bioinformatics Graduate Program

The Department of Biomolecular Engineering offers interdisciplinary M.S. and Ph.D. degrees in biomolecular engineering and bioinformatics.

Course Requirements

Both masters and doctoral students must complete eight, 5-credit courses and one 3-credit

research and teaching course. In addition, M.S. students must complete three seminar courses, while Ph.D. students must complete five seminar courses. M.S. students must also complete one lab rotation, and Ph.D. students must complete three research laboratory rotations (course 296) with different supervisors.

Core courses (5-credit) six are required

Bioinformatics Emphasis

- BME 205, Bioinformatics Models and Algorithms
- Two Biomolecular Engineering graduate courses from the bioinformatics list
- One Biomolecular Engineering graduate course from the biomolecular engineering list
- One graduate statistics course (Applied Mathematics and Statistics 206B recommended)
- One graduate course from MCD Biology, Chemistry and Biochemistry, or Microbiology and Environmental Toxicology

Biomolecular Engineering Emphasis

- BME 250, Molecular Biomechanics
- Two Biomolecular Engineering graduate course from the biomolecular engineering list
- One Biomolecular Engineering graduate courses from the bioinformatics list
- Two graduate courses from Applied Mathematics and Statistics, MCD Biology, Chemistry and Biochemistry, or Microbiology and Environmental Toxicology

Ethics Course (5-credit) one is required

- BME 80G, Bioethics in the Twenty-First Century: Science, Business, and Society
- Sociology 268A, Science and Justice: Experiments in Collaboration.

Electives (5-credit) one is required

One graduate course consistent with the students degree objectives. With preapproval by the graduate director, this elective may be an upper-division undergraduate course selected to improve background in areas not studied as an undergraduate.

Independent or thesis research courses cannot be counted as electives.

Students must choose courses with faculty guidance and approval to balance their preparation and make up for deficiencies in background areas. With consent of the graduate director, variations in the composition of the required courses may be approved.

Other Curriculum Requirements

BME 200, Research and Teaching in Bioinformatics, 3 credits

Seminars

M.S. students: a minimum of three seminar courses, including at least one quarter of the 2-credit Biomolecular Engineering seminar, 280B

Ph.D. students: a minimum of six seminar courses, including at least two quarters of the 2-credit Biomolecular Engineering seminar, 280B

Before and after advancement, full-time Ph.D. students are required to enroll in at least one seminar course each quarter (e.g., 280 or 281), and must present the results of their ongoing research at least once each year. Because the intent of the seminar requirement is to ensure breadth of knowledge, lab group meetings (BME 281 courses) do not count for the seminar requirement.

Research Experience

M.S. students: one laboratory rotation (BME 296), and one quarter of independent study (BME 297).

Ph.D. Students: three laboratory rotations (course 296), generally within the first 12 months.

One of the laboratory rotations must be with a faculty supervisor who does wet-lab research, though the students rotation project may be purely computational.

Course Lists

The following are the bioinformatics and biomolecular engineering course lists. The lists are subject to change as courses and course content changes. The graduate office maintains the current list.

Bioinformatics list: 205, 211, 230, 235

Biomolecular Engineering list: 215, 250, 255

Qualifying Examinations

Ph.D. students are required to pass the qualifying examination and advance to candidacy by the end of their second year.

Adequate Progress

Graduate students receiving two or more U (unsatisfactory) grades or grades below B in courses relevant to the program are not making adequate progress and will be placed on academic probation for the next three quarters of registered enrollment.

Graduate students who fail (unsatisfactory or lower than B) a relevant course while on probation may be dismissed from the program. Students may appeal their dismissal. Graduate students who fail a relevant course after being removed from probation are immediately returned to academic probation.

Graduate students experiencing circumstances that may adversely affect their academic performance should consult with their adviser and the graduate director.

Masters Capstone Requirement

M.S. students must complete a one-quarter research project with written report to fulfill the capstone requirement. In consultation with the faculty adviser, the student forms a Master's Capstone Reading Committee of at least two faculty members (including the adviser), each of whom is provided a copy of the project report. The final project report must be signed by the reading committee before the award of the Master of Science Degree.

Doctoral Dissertation Requirements

Ph.D. students must select a faculty research adviser by the end of the first year. A qualifying examination committee is then formed in the second year, which consists of the adviser and three additional members, and which is approved by the graduate director and the campus graduate dean. At least two of the four must be members of the Department of Biomolecular Engineering. The student must submit a written dissertation proposal to all members of the committee and the graduate program adviser one month in advance of the examination. The dissertation proposal is publicly and formally presented in an oral qualifying examination given by the qualifying committee.

Ph.D. candidates will submit the completed dissertation to a reading committee at least one month prior to the dissertation defense. The reading committee, formed upon advancement to candidacy, consists of the dissertation supervisor and two readers appointed by the graduate director upon the recommendation of the dissertation supervisor. At least one of the three must be a member of the Department of Biomolecular Engineering. The candidate will present his or her research in a public seminar. The seminar will be followed by a defense of the dissertation to the reading committee and attending faculty, who will then decide whether the dissertation is acceptable or requires revision.

Transfer Limitations

Up to two courses may be transferred from other graduate institutions with the approval of the faculty adviser and the graduate director.

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Computer Engineering

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Course Descriptions

Program Description

Computer engineering focuses on the design, analysis, and application of computers and on their applications as components of systems. The UCSC Department of Computer Engineering sustains and strengthens its teaching and research program to provide students with inspiration and quality education in the theory and practice of computer engineering. The department offers the bachelor of science (B.S.) in computer engineering, the bachelor of science in robotics engineering, the bachelor of arts (B.A.) in digital and network technology, the master of science (M.S.) and the doctor of philosophy (Ph.D.) in computer engineering degrees as well as an undergraduate minor. A combined B.S./M.S. program allows students to complete both the B.S. and M.S. in computer engineering degrees in five years. The department administers the interdisciplinary graduate designated emphasis in robotics and control that may be pursued along with a graduate degree in computer engineering or another field such as applied mathematics and statistics or electrical engineering.

Undergraduate Program Description

The department offers two bachelor of science majors, one in computer engineering and the other in robotics engineering. The department also offers a bachelor of arts in network and digital technology. The programs are closely related with many common requirements, so that students do not need to immediately decide among the three.

The two undergraduate engineering degrees have the same program objectives for their graduates. The program objectives of the UCSC B.S. in computer engineering and B.S. in robotics engineering are:

1. Graduates who choose to pursue a career in industry, government, or academia will become successful engineers, scientists, or educators who demonstrate strong leadership, technical, and team skills; and a commitment to continuing professional development.
2. Graduates who choose to pursue advanced degrees will gain admission to graduate programs and will be successful graduate students.

The UCSC B.S. in computer engineering prepares graduates for a rewarding career in engineering. UCSC computer engineering graduates will have a thorough grounding in the principles and practices of computer engineering and the scientific and mathematical

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

principles upon which they are built; they will be prepared for further education (both formal and informal) and for productive employment in industry. Because computer engineering is so broad, the B.S. in computer engineering offers five specialized concentrations for completing the program: systems programming, computer systems, robotics and control, networks, and digital hardware.

Descriptions of these concentrations follow in the section on major requirements.

The UCSC B.S. in robotics engineering prepares graduates for a rewarding career at the interfaces between electrical, computer, and mechanical engineering. UCSC robotics engineering graduates will have a thorough grounding in the principles and practices of robotics and control, and the scientific and mathematical principles upon which they are built; graduates will be prepared for further education (both formal and informal) and for productive employment in industry.

The UCSC B.A. in network and digital technology provides students with in-depth knowledge of the underlying structure and function of network and computer technology and the design processes that make those technologies function. The program is tailored to students who wish to combine technology with other fields or have a general focus on digital design or computer networks. The B.A. in network and digital technology is not an engineering degree, but B.A. graduates will be prepared to work with technology development in other capacities, or join the computer network workforce. Students interested in graduate study should pursue either B.S. program.

The Department of Computer Engineering offers an undergraduate minor, described after the B.A. program below. The minor in computer engineering focuses on the technical aspects of computer hardware, embedded systems, and software design. This minor is particularly recommended for students interested in the design of computer technology for use in another discipline.

The Department co-sponsors the B.S. in bioengineering with the Departments of Biomolecular Engineering, Electrical Engineering, and Molecular, Cell and Developmental Biology.

Beyond the extensive research, design, and development projects taking place within courses required for the major, many computer engineering students join faculty-led research projects to take part in cutting-edge research. The department sponsors the summer undergraduate research fellowship in information technology (SURF-IT), as well as many other research opportunities. The department holds regular faculty-undergraduate lunches to discuss research and other issues of interest.

Many computer engineering students continue their education through the M.S. degree. The Department of Computer Engineering offers a combined B.S./M.S. program in computer engineering that enables eligible undergraduates to move without interruption to the graduate program. Interested computer engineering and robotics engineering majors should contact their adviser for more details. The graduate program of the Department of Computer Engineering also offers both the standard M.S. and the Ph.D. degrees.

The computer engineering B.S. program is accredited by the ABET Engineering Accreditation Commission.

Courses for Nonmajors

The Department of Computer Engineering offers course Computer Engineering 1, Hands-on Computer Engineering, a two-credit laboratory course designed to introduce students to computer engineering via many short fun projects; course Computer Engineering 3, Personal Computer Concepts: Software and Hardware, providing students an introductory course on the design and use of computers from an engineering viewpoint; and Computer Engineering 8, Robot Automation: Intelligence through Feedback Control. Other computer engineering courses of interest to nonmajors include Computer Engineering 12, Computing Systems and Assembly Language, an introductory course on computer systems, system software, and machine-level programming; Computer Engineering 80N, Introduction to Networking and the Internet, an introduction to technological services of the Internet; Computer Engineering 80E, Engineering Ethics; and Computer Engineering 80A, Universal Access: Disability, Technology, and Society.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

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Computer Engineering Policies

Advising for Proposed Majors

Students interested in pursuing any of the department's three majors but not yet ready to declare should have their status updated to reflect the associated proposed major. They should also visit the Baskin School of Engineering undergraduate advising office to plan a course of study that will allow them to complete any of the department's three majors as well as preserve their options for other majors that might be of interest. Computer engineering proposed majors will be assigned a faculty adviser on request and invited to School of Engineering and Computer Engineering advising events. Please note that students who are proposed majors still need to follow the procedure for declaring one of the three majors as describe below; a student may not graduate as a proposed major.

Declaration of the Computer Engineering Majors

Declaration of the computer engineering major in the first six quarters of enrollment at UCSC is based on performance in the CE Major Qualification Courses: Mathematics 19A, Mathematics 19B, Mathematics 23A, Applied Mathematics and Statistics 10 or Mathematics 21(whichever is completed first), Applied Mathematics and Statistics 20, Computer Engineering 12/L, Computer Engineering 13/L, Computer Engineering 16, Computer Science 12B/M, Physics 5A/L and Physics 5C/N. Students in their first six quarters who have completed at least 36 credits in these courses will be admitted to the computer engineering major if:

1. their cumulative grade point average is at least 2.8 in all of the CE Major Qualification Courses attempted; and
2. they have no more than 7 credits resulting in grades of D, F or NP among all of the CE Major Qualification Courses attempted.

All other applications for admission to the major in the first six quarters of enrollment will be reviewed individually to ensure the major can be completed within the campus limits. After the first six quarters petitions to declare the major are reviewed individually to ensure the major can be completed within the campus limits. Students seeking to change their current major to computer engineering in their seventh through ninth quarters who have completed the four upper-division classes and associated labs, Computer Engineering 100/L, Computer Engineering 107, Computer Science 101 and Electrical Engineering 101/L with a cumulative grade point average of at least 2.50 or greater and have completed all of the lower-division courses listed above by their ninth quarter will also be admitted.

Declaration of the robotics engineering major in the first six quarters of enrollment at UCSC is based on performance in the following lower-division courses and associated labs required for the major: Mathematics 19A, Mathematics 19B, Mathematics 23A, Applied Mathematics and Statistics 10 or Mathematics 21(whichever is completed first), Applied Mathematics and Statistics 20, Computer Engineering 9, Computer Engineering 12/L, Computer Engineering 13/L, Computer Engineering 16, Computer Science 12B/M, Physics 5A/L and Physics 5C/N. Students in their first six quarters who have completed at least 41 credits in these courses will be admitted to the computer engineering major if

1. their cumulative grade point average is at least 2.8 among the courses listed above; and
2. they have attempted no more than 7 credits resulting in grades of D, F or NP in all of the courses listed above.

All other applications for admission to the major in the first six quarters of enrollment will be reviewed individually to ensure the major can be completed within the campus limits. After the first six quarters petitions to declare the major are reviewed individually to ensure the major can be completed within the campus limits. Students seeking to change their current major to robotics engineering in their seventh through ninth quarters who have completed the five upper-division classes and associated labs, Computer Engineering 100/L, Computer Engineering 107, Computer Science 101, Electrical Engineering 101/L and Electrical Engineering 103/L with a cumulative grade point average of at least 2.50 or greater and have completed all of the lower-division courses listed above will also be admitted.

Declaration of the network and digital technology major is based on performance in the following lower-division courses and associated labs required for the major: Math 19A, Math 19B, Math 23A, Applied Mathematics and Statistics 10 or Mathematics 21(whichever is completed first), Applied Mathematics and Statistics 20 or Mathematics 24(whichever is completed first), Computer Engineering 12/L, Computer Engineering 13/L, Computer Engineering 16, Computer Science 12B/M, Physics 5A/L or Physics 6A/L and Physics 5C/N or Physics 6C/N. Students in their first six quarters who have completed at least 36 credits in these courses with a cumulative grade point average of at least 2.30 or greater will be admitted to the network and digital technology major. After the first six quarters petitions to change a students major to network and digital technology are reviewed individually to ensure the major can be completed within the campus limits. Students seeking to change their current major to network and digital technology after their sixth quarter must have completed the courses listed above with a cumulative grade point average of at least 2.30.

Denials of admission to the major may be appealed by submitting a letter to the School of Engineering Undergraduate Office, addressed to the Computer Engineering Undergraduate Director, describing why the grade point average obtained is not an accurate reflection of the student's potential.

Transfer Students

Admission to the Computer Engineering Major and Robotics Engineering Major for transfer students is based on performance in all attempts at courses transferable to UCSC as Mathematics 19A, Mathematics 19B, Mathematics 23A, Applied Mathematics and Statistics 10 or Mathematics 21, Applied Mathematics and Statistics 20, Computer Engineering 12/L, Computer Engineering 13/L, Computer Engineering 16, Computer Science 12B/M, Physics 5A/L and Physics 5C/N. Before they transfer, students must complete Physics 5A/L, Physics 5C/M, Mathematics 19A, Mathematics 19B and at least one of the following three: Mathematics 23A, Applied Mathematics and Statistics 10 or Mathematics 21, Applied Mathematics and Statistics 20. In addition, completion of at least one programming course (even if not articulated) is required.

Admission to the Network and Digital Technology Major for transfer students is based on performance in all attempts at courses transferable to UCSC as Mathematics 19A, Mathematics 19B, Mathematics 23A, Applied Mathematics and Statistics 10 or Mathematics 21, Applied Mathematics and Statistics 20 or Mathematics 24, Computer Engineering 12/L, Computer Engineering 13/L, Computer Engineering 16, Computer Science 12B/M, Physics 5A/L or Physics 6A/L and Physics 5C/N or Physics 6C/N. Before transferring students must have completed at least 5 of these courses and their associated labs including at least one programming course (even if the programming course is not articulated).

Students should consult assist.org to determine which courses at other institutions in California are transferable to UCSC.

Advising

Every major and minor must have a computer engineering faculty adviser, assigned by the Baskin School of Engineering undergraduate advising office, and with that adviser must formulate a program of proposed coursework that meets the major or minor requirements. Additional information can be found on the SOE web pages.

Restrictions on Double Majors and Minors

Students completing any of the department's three majors cannot also receive the computer engineering minor.

Students completing the Robotics Engineering B.S. or the Computer Engineering BS cannot receive the Network and Digital Technology B.A. degree.

Students completing the Robotics Engineering B.S. can receive the Computer Engineering B.S. as well only by completing a concentration other than Robotics and Control.

Honors in the Major

Majors are considered for "Honors in the Major" and "Highest Honors in the Major" based on their GPA and on results of undergraduate research and other significant contributions to the School of Engineering. Students with a GPA of 3.70, in most cases, receive highest

honors. Students with a GPA of 3.30, in most cases, receive honors. Students with particularly significant accomplishments in undergraduate research or contributions to the School of Engineering may be considered with a lower GPA. Computer engineering and robotics engineering juniors and seniors may also be eligible for election to the UCSC chapter of Tau Beta Pi, the national engineering honor society founded in 1885.

Letter Grade Policy

The Computer Engineering Department requires letter grading for all courses applied towards any of its three undergraduate degrees: the B.S. in computer engineering, the B.S. in robotics engineering and the B.A. in network and digital technology. This policy includes courses required for these degrees that are sponsored by other departments.

School of Engineering Policies

Please refer to the School of Engineering section of the catalog for additional policies that apply to all School of Engineering programs.

Materials Fee and Miscellaneous Fees

Please see the section on fees under the School of Engineering.

Requirements of the Computer Engineering Major

All students in the computer engineering major take the same core courses, which give the fundamentals of programming and hardware design, supported by the physics and mathematics necessary to understand them. Students must complete all of the courses listed within their selected concentration, and they must complete the capstone sequence. The senior comprehensive requirement for computer engineering majors is satisfied by completion of the capstone course and the exit requirement.

Lower-Division Core Requirements

Students who may have originally pursued another major should discuss with the Baskin School of Engineering undergraduate advising office whether or not already completed coursework may be substituted for one or more lower-division requirements.

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I; or Mathematics 21, Linear Algebra

Applied Mathematics and Statistics 20, Mathematical Methods for Engineers II;

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Mathematics 19A-B, Calculus for Science, Engineering, and Mathematics

Mathematics 23A, Multivariable Calculus

Physics 5A/L, Introduction to Physics I /Laboratory;

Physics 5B/M, Introduction to Physics II/Laboratory; or Computer Engineering 9, Statics, Dynamics, and Biomechanics (recommended for robotics and control concentration).

Physics 5C/N, Introduction to Physics III/Laboratory;

Computer Engineering 80E, Engineering Ethics; or another approved ethics course. This course is required even for transfer students who have had their general education requirements waived.

Upper-Division Core Requirements

Computer Engineering 100/L, Logic Design/Laboratory

Computer Engineering 107, Mathematical Methods of Systems Analysis: Stochastic

Computer Engineering 110, Computer Architecture

Computer Engineering 121/L, Microprocessor System Design/Laboratory

Computer Engineering 185, Technical Writing for Computer Engineers

Computer Science 101, Abstract Data Types

Electrical Engineering 101/L, Introduction to Electronics/Laboratory

Electrical Engineering 103/L, Signals and Systems/Laboratory

Concentrations

The following concentrations are specializations for the computer engineering student. Students must complete all of the courses listed within their selected concentration.

Systems Programming Concentration

The systems programming concentration focuses on software systems: courses include operating systems, compilers, software engineering, and advanced programming. Students finishing this concentration are very well prepared for building large software systems of all types. This concentration is the closest one to a computer science major–the main differences are that it does not require computer science theory courses, but because of the core computer engineering requirements, includes more hardware and electronics than a computer science bachelor's degree.

Computer Science 111, Introduction to Operating Systems

Computer Science 115, Software Methodology

Computer Engineering 150/L, Introduction to Computer Networks/Laboratory

Elective: Upper-division or graduate elective from the approved list

Any one of the following courses:

Computer Engineering 113, Parallel and Concurrent Programming

Computer Engineering 156/L, Network Programming/Laboratory

Computer Science 104A, Fundamentals of Compiler Design I

Computer Systems Concentration

The computer systems concentration provides a balance between software and hardware design. Students are prepared for a large variety of different design tasks, especially those requiring the integration of hardware and software systems, but may need further training for any particular specialization.

Computer Engineering 125/L, Logic Design with Verilog/Laboratory

Computer Science 109, Advanced Programming; or Computer Science 115, Software Methodology

Computer Science 111, Introduction to Operating Systems

Elective: Upper-division or graduate elective from the approved list

Robotics and Control Concentration

This concentration covers the hardware, software, sensing, and control aspects of autonomous and embedded systems. Students receive training in the theory, design, and realization of complex systems such as mobile robots. The concentration emphasizes integration of embedded software with hardware systems that interact with the environment.

Any two of the following:

Computer Engineering 118/L, Introduction to Mechatronics/Laboratory

Computer Engineering 167/L, Sensing and Sensor Technologies/Laboratory

Computer Engineering 141, Feedback Control Systems

Elective: Upper-division or graduate elective from the approved list

Third course from above (Computer Engineering 118/L, Computer Engineering 167/L, Computer Engineering 141); or any one of the following courses:

Computer Engineering 115, Solid Mechanics (requires prerequisite)

Computer Engineering 153, Digital Signal Processing

Applied Mathematics and Statistics 114, Introduction to Dynamical Systems

Computer Engineering 215, Models of Robotic Manipulation

Computer Engineering 216, Bio-Inspired Locomotion

Computer Engineering 240, Introduction to Linear Dynamical Systems

Computer Engineering 242, Applied Feedback Control

Computer Engineering 244, Digital Control

Computer Engineering 264, Image Analysis and Computer Vision

Networks Concentration

The networks concentration focuses on communication between computers, covering both network hardware and protocols. Students finishing this concentration are well prepared for the design of wired and wireless network systems.

Computer Engineering 150/L, Introduction to Computer Networks/Laboratory

Computer Engineering 156/L, Network Programming/Laboratory

Computer Science 111, Introduction to Operating Systems

Elective: Computer Engineering 151/L, Advanced Computer Networks/Laboratory; or an upper-division or graduate elective from approved list.

Digital Hardware Concentration

The digital hardware concentration focuses on hardware design and includes more electronics than the other concentrations. Students finishing this concentration are well prepared for building hardware systems. This concentration is the closest one to an electronics major; the main differences are that it does not require as much electronics theory or analog electronic design, but because of the core computer engineering requirements, requires more software skills.

Computer Engineering 125/L, Logic Design with Verilog/Laboratory

Electrical Engineering 171/L, Analog Electronics/Laboratory

Elective: Upper-division or graduate elective from approved list

Any one of the following courses:

Computer Engineering 122, Introduction to VLSI Digital System Design

Electrical Engineering 173/L, High-Speed Digital Design/Laboratory (requires prerequisite)

Computer Engineering 202, Computer Architecture

Computer Engineering 222, Advanced VLSI Digital System Design

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in computer engineering is satisfied by completing Computer Engineering 185, Technical Writing for Computer Engineers.

Capstone Requirement

All computer engineering students complete either the two-quarter capstone project sequence Computer Engineering 123A/B, or the three-quarter capstone project sequence Computer Engineering 129A/B/C or a senior thesis along with the first capstone course.

One of the following sequences:

Computer Engineering 123A, Computer Engineering Design Project I and Computer Engineering 123B, Computer Engineering Design Project II;

Computer Engineering 123A, Computer Engineering Design Project I and Computer Engineering 195, Senior Thesis Research

Computer Engineering 129A, Capstone Project I; and Computer Engineering 129B, Capstone Project II; and Computer Engineering 129C, Capstone Project III

Computer Engineering 129A, Capstone Project I and Computer Engineering 195, Senior Thesis Research

Exit Requirement

Students are required to submit a portfolio, complete the exit survey, and attend an exit interview. Students whose submissions are deemed inadequate, either in presentation or in content, may be required to revise and rewrite the portfolio or to complete an additional project course. The portfolios must be turned in electronically by the last day of the quarter of graduation. The online form can be found on the computer engineering web pages.

The portfolios will be reviewed quarterly by the computer engineering undergraduate committee and must include the following:

- A hardware-oriented project report;
- A software-oriented project report;
- A third project report of the student's selection;

and any additional information related to these projects requested.

If a project report is associated with a course, it must be an upper-division (other than CMPE100/L) or graduate course. One of the reports must be the result of a multi-person project. One of the reports must be the result of an individual project. One of the reports must be the result of the student's capstone design project.

Exit interviews are scheduled during the last week of the quarter.

Computer Engineering Major Planners

The following are two sample academic plans for students to complete during their first two years as preparation for the computer engineering major. Plan One is suggested guidelines for students who are committed to the major early in their academic career. Plan Two is for students who are considering the major. Students who take pre-calculus at UCSC, or who have little programming experience, are strongly advised to take course 8, Robot Automation in the fall quarter.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A	MATH 19B	CMPE 80E
	CMPE 12/L	CMPE 13/L	CMPS 12B/M
	core course	gen ed	MATH 23A
2nd (soph)	PHYS 5A/L	AMS 20	PHYS 5C/N
	AMS 10	CMPE 107	CMPE 100/L
	CMPE 16	PHYS 5B/M	CMPS 101

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	MATH 3 (pre-calc)	MATH 19A	MATH 19B
	CMPE 8	CMPE 12/L	CMPE 13/L
	core course	gen ed	CMPE 80E
2nd (soph)	PHYS 5A/L	CMPE 100/L	PHYS 5C/N
	CMPS 12B/M	CMPE 9	MATH 23A
	AMS 10	AMS 20	CMPE 16

Requirements of the Robotics Engineering Major

All students in the robotics engineering major must take the courses listed below. Although not required, it is strongly recommended that students interested in the robotics engineering major take Computer Engineering 8, Introduction to Robot Automation in their first quarter. The senior comprehensive requirement for robotics engineering majors is satisfied by completion of the capstone course and the portfolio exit requirement. The robotics engineering major requires two more courses than the computer engineering major, including one graduate course. Students not making sufficient progress in the major may be required to change to another major.

Lower-Division Core Requirements

Students who may have originally pursued another major should discuss with the Baskin School of Engineering undergraduate advising office whether or not already completed coursework may be substituted for one or more lower-division requirements.

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I; or Mathematics 21 Linear Algebra

Applied Mathematics and Statistics 20, Mathematical Methods for Engineers II

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Mathematics 19A-B, Calculus for Science, Engineering, and Mathematics

Mathematics 23A, Multivariable Calculus

Physics 5A/L, Introduction Physics /Laboratory I

Physics 5C/N, Introduction Physics III/Laboratory

Computer Engineering 9, Statics, Dynamics, and Biomechanics

Computer Engineering 80E, Engineering Ethics; or another approved ethics course. This course is required even for transfer students who have had their general education requirements waived.

Upper-Division Core Requirements

Computer Engineering 100/L, Logic Design/Laboratory

Computer Engineering 107, Mathematical Methods of Systems Analysis: Stochastic

Computer Engineering 115, Solid Mechanics

Computer Engineering 118/L, Introduction to Mechatronics/Laboratory

Computer Engineering 121/L, Microprocessor System Design/Laboratory

Computer Engineering 141, Feedback Control Systems

Computer Engineering 167/L, Sensing and Sensor Technologies/Laboratory

Computer Engineering 185, Technical Writing for Computer Engineers

Computer Science 101, Abstract Data Types

Electrical Engineering 101/L, Introduction to Electronics/Laboratory

Electrical Engineering 103/L,Signals and Systems/Laboratory

Elective: Upper-division or graduate elective from approved list.

Advanced Robotics Elective (One of the following courses):

Computer Engineering 215, Models of Robotic Manipulation

Computer Engineering 216, Bio-Inspired Locomotion

Computer Engineering 240, Introduction to Linear Dynamical Systems

Computer Engineering 242, Applied Feedback Control

Computer Engineering 244, Digital Control

Computer Engineering 264, Image Analysis and Computer Vision.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in robotics engineering is satisfied by completing Computer Engineering 185, Technical Writing for Computer Engineers.

Capstone Requirement

All robotics engineering students complete either the two-quarter capstone project sequence Computer Engineering 123A/B, or the three-quarter capstone project sequence Computer Engineering 129A/B/C or a senior thesis along with the first capstone course:

One of the following sequences:

Computer Engineering 123A, Computer Engineering Design Project I and Computer Engineering 123B, Computer Engineering Design Project II;

Computer Engineering 123A, Computer Engineering Design Project I and Computer Engineering 195, Senior Thesis Research

Computer Engineering 129A, Capstone Project I; and Computer Engineering 129B, Capstone Project II; and Computer Engineering 129C, Capstone Project III

Computer Engineering 129A, Capstone Project I and Computer Engineering 195, Senior Thesis Research

Exit Requirement

Students are required to submit a portfolio, complete the exit survey and attend an exit interview. Students whose submissions are deemed inadequate, either in presentation or in content, may be required to revise and rewrite the portfolio or to complete an additional project course. The portfolios must be turned in electronically by the last day of the quarter of graduation.

The portfolios will be reviewed quarterly by the computer engineering undergraduate committee and must include three project reports of the student's selection and any additional information related to these projects requested. The online portfolio form can be found on the computer engineering web pages. If a project report is associated with a course, it must be an upper-division (other than Computer Engineering 100/L) or graduate course. One of the reports must be the result of a multi-person project. One of the reports must be the result of an individual project. One of the reports must be the result of the student's capstone design project.

Robotics Engineering Major Planner

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A	MATH 19B	MATH 23A
	CMPE 8	CMPE 12/L	CMPE 13/L
	core course (C1)	gen ed (C2)	CMPE 80E
2nd (soph)	PHYS 5A/L	CMPE 9	PHYS 5C/N
	AMS 10	CMPE 185	CMPE 100/L
	CMPS 12B/L	AMS 20	CMPE 16
3rd (jr)	EE 101/L	SOE elective	CMPE 115
	CMPS 101/L	CMPE 107	CMPE 121/L
	gen ed	gen ed	EE 103/L
4th (sr)	CMPE 141	CMPE 129B	CMPE 129C
	CMPE 129A	CMPE 167/L	CMPE 215
	CMPE 118/L	gen ed	gen ed

Network and Digital Technology Major Requirements

All students in the network and digital technology major must take the following courses. The senior comprehensive requirement is satisfied by completion of the capstone course and the portfolio exit requirement.

Lower-Division Requirements

Students who may have originally pursued another major should discuss with the Baskin School of Engineering undergraduate advising office whether or not already completed coursework may be substituted for one or more lower division-requirements.

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I; or Mathematics 21, Linear Algebra

Applied Mathematics and Statistics 20, Mathematical Methods for Engineers II; or Mathematics 24, Ordinary Differential Equations

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Mathematics 19A-B, Calculus for Science, Engineering, and Mathematics

Mathematics 23A, Multivariable Calculus

Physics 5A/L, Introduction Physics /Laboratory I; or Physics 6A/L, Introductory Physics I/Laboratory

Physics 5C/N, Introduction Physics III/Laboratory; or Physics 6C/N, Introductory Physics III/Laboratory

Upper-Division Requirements

Computer Engineering 100/L, Logic Design/Laboratory

Computer Engineering 150/L,Computer Networks/Laboratory

Computer Engineering 185, Technical Writing for Computer Engineers

Computer Science 101, Abstract Data Types; or Electrical Engineering 101/L, Introduction to Electronics/Laboratory

Three additional 5-credit upper-division electives, and associated laboratories, from the approved list of electives, and one capstone requirement course.

Capstone Requirement

Each capstone course features a 3-month supervised design experience in digital or network technology culminating in a substantial written report. Computer Engineering 185, Technical Writing for Computer Engineers, must be completed prior to or concurrently with the capstone project course. Students must notify the instructor at the start of the quarter that they are working to complete their B.A. in Digital Technology Capstone Requirement. Students select one of the following:

Computer Engineering 118/L, Introduction to Mechatronics/Laboratory

Computer Engineering 121/L, Microprocessor System Design/Laboratory

Computer Engineering 125/L, Logic Design with Verilog/Laboratory

Computer Engineering 151/L, Advanced Computer Networks/Laboratory

Computer Engineering 156/L, Network Programming/Laboratory

Computer Science 115, Software Methodology

Elective Choice

Students wishing to focus on digital technology should consider including among their courses: Electrical Engineering 101/L, Computer Engineering 110, Computer Engineering 118/L, Computer Engineering 121/L, and Computer Engineering 125/L.

Students wishing to focus on network technology should consider including among their courses: Computer Science 101, Computer Engineering 151/L, Computer Engineering 156/L, and Computer Science 111.

In all cases, students should discuss their interests and elective choices with their faculty adviser.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in network and digital technology is satisfied by completing Computer Engineering 185, Technical Writing for Computer Engineers.

Network and Digital Technology Major Planner

The first year is similar to option 2 for the computer engineering major. Students choosing between the B.S. and the B.A. program should follow the B.S. curriculum until major declaration. General education courses needed outside major requirements are not shown.

Year	Fall	Winter	Spring
1st (frsh)	MATH 3 (pre-calc)	MATH 19A	MATH 19B
	CMPE 8 (opt)	CMPE 12/L	CMPE 13/L
2nd (soph)	CMPE 16	CMPE 100/L	CMPS 12B/M
	PHYS 5A/L	MATH 23A	PHYS 5C/N
3rd (jr)	CMPE 150/L	Elective	Elective

	AMS 10	AMS 20	
4th (sr)	EE 101/L	Elective	Capstone
	CMPE 185		

Computer Engineering Minor

The computer engineering minor provides a solid foundation in digital hardware, electronics, and computer software, as well as the prerequisite material in mathematics and physics. The minor is well-suited to students who wish to take part in the design of computer and embedded systems in any discipline. Computer Engineering 118/L, Introduction to Mechatronics/Introduction to Mechatronics Laboratory or Computer Engineering 121/L, Microprocessor System Design/Microprocessor System Design Laboratory provides a capstone engineering design experience for students pursuing the computer engineering minor.

Computer Engineering Minor Requirements

Requirements for the minor in computer engineering are the following:

Applied Mathematics and Statistics 20A or 20, (Basic) Mathematical Methods for Engineers II (requires prerequisite); or Mathematics 24, Ordinary Differential Equations

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Computer Engineering 100/L, Logic Design/Laboratory

Computer Engineering 110, Computer Architecture

Computer Engineering 118/L Introduction to Mechatronics/Laboratory or 121/L, Microprocessor System Design/Laboratory

Computer Engineering 13/L, Computer Systems and C Programming (recommended); or Computer Science 12A/L, Introduction to Programming (Accelerated)/Laboratory; or Computer Science 5J, Introduction to Programming in Java, and Computer Science 11, Intermediate Programming

Computer Science 12B/M, Introduction to Data Structures/Laboratory

Computer Science 101, Abstract Data Types

Electrical Engineering 101/L, Introduction to Electronics/Laboratory

Mathematics 19A-B, Calculus for Science, Engineering, and Mathematics

Physics 5A/L, Introduction to Physics I/Laboratory; or Physics 6A/L, Introductory Physics I/Laboratory

Physics 5C/N, Introduction to Physics III/Laboratory; or Physics 6C/N, Introductory Physics III/Laboratory

B.S./M.S. Undergraduate Program

The Department of Computer Engineering offers a combined bachelor and master of science degree program. Undergraduate students in computer engineering or robotics engineering can apply to the program in order to earn a B.S. degree in their own major together with an M.S. degree in computer engineering. Depending on the student's progress, the B.S./M.S. program can be completed in five years.

The B.S./M.S. program offers a competitive edge to students who are completing their undergraduate degree at UCSC, by enabling those with advanced preparation to move directly from the undergraduate to the graduate program. The program assists qualified enrolled students with a simplified graduate application process that does not require students to take the graduate record examination (GRE), and makes it possible to complete

an M.S. degree with just seven courses beyond the B.S. program in either of the allowed majors.

The program prepares students for leadership positions in industry, and is also attractive for undergraduate students planning to pursue a Ph.D. degree targetting research careers in industry or academia. The School of Engineering has many opportunities for undergraduate research, and B.S./M.S. students can continue their undergraduate research projects with the same research group. Upon advancement to graduate standing, B.S./M.S. students are eligible for financial support as graduate research assistants and teaching assistants.

Particularly motivated B.S./M.S. students can complete the entire program in 14 quarters (or fewer with Advanced Placement credit); however, advance planning is essential. Interested students should contact the department and their faculty adviser early in their college career–no later than the start of their junior year. B.S./M.S. students retain undergraduate status until the completion of all undergraduate requirements, but may begin graduate coursework in advance of graduate standing.

Admission to the B.S./M.S. Program

The undergraduate degree requirements are the same as those for other computer engineering or robotics engineering majors; however, the B.S./M.S. program capitalizes on graduate-level courses that may apply toward both degree requirements. B.S./M.S. candidates may use (at most) two graduate courses taken as undergraduates toward both the M.S. degree and B.S. degree electives. At the time graduate status is achieved, no more than three graduate courses taken as an undergraduate may count toward the nine courses required for the M.S. degree. Furthermore, B.S./M.S. students may not apply undergraduate courses toward the M.S. degree.

Admission to the B.S./M.S. program is by formal application, but is very simple. Undergraduate applicants seeking admission to the program can apply at any time starting in the first quarter of junior standing, and no graduate record examination (GRE) is required to apply. To qualify, applicants must have a 3.0 GPA when they apply to the B.S./M.S. program, and must maintain a 3.0 GPA or higher until the completion of their undergraduate requirements.

Students who cannot meet the B.S./M.S. application requirements or who are not admitted into the program are encouraged to apply for admission to the standard M.S. or Ph.D. program during their senior year.

Additional information about this program can be found on the department's web pages.

Graduate Programs

M.S. and Ph.D. Degree Programs

The graduate program in computer engineering accepts students for both the M.S. and the Ph.D. degrees. Graduate students in this program establish a solid foundation in computer algorithms and architectures and then proceed to a thorough study of recent developments in their selected area of specialization. This provides the basis for the M.S. degree and Ph.D. thesis work. The major areas of research concentration in computer engineering at UCSC are computer networks; embedded and autonomous systems; computer systems design; robotics and control, mobile and pervasive computing; and computer-aided design; and sensing and interaction.

The computer engineering program benefits from a close relationship with other graduate programs in the School of Engineering and UCSC as a whole. It maintains strong ties to local industry in the Silicon Valley and Monterey Bay areas. Graduates of the program are prepared for careers in academia and research as well as for positions in industrial research and development.

While in the program, most graduate students are supported as research assistants on faculty-sponsored projects or as teaching assistants for undergraduate courses.

Additional information on the computer engineering M.S. and Ph.D. degrees, including degree requirements and applications for admission, can be found on the department's

web pages at http://ce.soe.ucsc.edu/academics/graduate/requirements.

Base Requirement (for both M.S. and Ph.D)

In their first year, graduate students (both M.S. and Ph.D.) must show proficiency in three fundamental subjects: 1) computer algorithms and data structures; 2) computer architecture; and 3) one of the following three subjects—logic design, circuits, or software systems. Proficiency can be demonstrated by either completing one of the associated undergraduate courses, by establishing that an equivalent undergraduate course has been completed elsewhere, or by passing the final examination (or project when deemed appropriate by the responsible faculty) of an associated course. Students should obtain a computer engineering base requirement worksheet for the list of associated courses and instructions on fulfilling this requirement.

All graduate students (both M.S. and Ph.D.) must meet the base requirement by the end of the spring quarter of their first year in the program.

Requirements for the Master's Degree Thesis Track

Course Requirements

Each M.S. student is required to complete a total of at least 48 credits. The coursework must include:

1. Completion of base requirement as described above.
2. Core requirements:
   - Computer Engineering 200, Research and Teaching in Computer Science and Engineering (to be taken in fall quarter of the first year)
   - Computer Science 201, Analysis of Algorithms
   - Computer Engineering 202, Computer Architecture
3. Research credits: Up to 10 credits of Computer Engineering 297, Independent Study or Research; or Computer Engineering 299, Thesis Research
4. Up to 10 credits of either graduate courses (not seminars) in related disciplines outside the School of Engineering (requires adviser and computer engineering graduate director approval) or upper-division undergraduate courses when necessary to strengthen the student's preparation for graduate studies (requires adviser approval).
5. All remaining courses must be regular 5-credit graduate courses from within the School of Engineering (with adviser and grad director approval); courses that do not count include all courses numbered 200, 280, 296, 297, and 299.

At least half of the credits from the graduate-level courses must be computer engineering graduate courses.

Thesis

Completion of a master's thesis is required for award of the master's degree. To fulfill this requirement, the student must submit a written proposal to a faculty member, usually by the third academic quarter. By accepting the proposal, the faculty member becomes the thesis adviser for the proposed thesis. In consultation with the adviser, the student must form a master's thesis reading committee with at least two additional faculty members, each of whom is provided a copy of the proposal. It is recommended that the student give an expository talk on the thesis research. The approved reading committee must accept the final thesis before the master of science degree can be awarded.

Requirements for the Master's Degree Project Track

Course Requirements

Each student is required to complete a total of at least 48 credits. The coursework must include:

1. Completion of base requirement as describe above.

2. Core requirements:
    - Computer Engineering 200, Research and Teaching in Computer Science and Engineering (to be taken in Fall quarter of first year)
    - Computer Science 201, Analysis of Algorithms
    - Computer Engineering 202, Computer Architecture
    - Computer Engineering 296, Master's Project, 2 credits;
3. Up to 10 credits of either graduate courses (not seminars) in related disciplines outside the School of Engineering (requires adviser and computer engineering graduate director approval) or upper-division undergraduate courses when necessary to strengthen the student's preparation for graduate studies (requires adviser approval).
4. All remaining courses must be regular, 5-credit graduate courses from within the School of Engineering (with adviser's and grad director's approval); courses that do not count include all courses numbered 200, 280, 296, 297, and 299.

At least half of the credits from the graduate-level courses must be computer engineering graduate courses.

Project

Completion of a master's project is required to satisfy the master's degree capstone requirement. The master's project is the culmination of the student's academic experience and builds upon the knowledge acquired during the program. In consultation with the adviser, the student forms a master's project reading committee of at least two faculty members, each of whom is provided a copy of the project report. The final project must be accepted by the review committee before the award of the master of science degree.

Requirements for the Ph.D. Degree

Course Requirements

A Ph.D. student is required to take a total of 58 credits of graduate courses, which must consist of:

1. Completion of base requirement as describe above
2. Core requirements:
    - Computer Engineering 200, Research and Teaching in Computer Science and Engineering (to be taken in fall quarter of the first year)
    - Computer Science 201, Analysis of Algorithms
    - Computer Engineering 202, Computer Architecture
3. Research credits: Up to 10 credits of Computer Engineering 297, Independent Study or Research; or Computer Engineering 299, Thesis Research
4. Up to 10 credits of graduate courses (not seminars) in related disciplines outside the School of Engineering (requires adviser and computer engineering graduate director approval).
5. All remaining credits must be regular, 5-credit graduate courses from within the School of Engineering (with adviser and computer engineering graduate director approval); credits that do not count include all courses numbered 200, 280, 296, 297, and 299. At least 20 credits of these remaining courses must be Computer Engineering courses.

Course selection should form a coherent plan of study and requires adviser approval. Undergraduate courses may not be used to satisfy Ph.D. course requirements.

Ph.D. students who have satisfied the requirements for the master's degree are eligible to receive a master's degree.

Internships

Where appropriate, research internships with companies, research organizations, or

government labs are recognized as an integral part of the research leading to the Ph.D. dissertation. At the adviser's discretion, internships in an appropriate company, research organization, or government lab may be required for individual students.

Examinations and Dissertation

To continue in the Ph.D. program, students must pass a preliminary examination in their chosen research area by the end of their third year. Preliminary examinations are held during the first three weeks of each spring quarter; students must petition the computer engineering graduate committee for an examination in their chosen area two weeks before the end of winter quarter.

Examination committees consist of four faculty members, two chosen by the student and two by the computer engineering graduate director. The format of this oral examination is up to the examination committee; the examination will typically evaluate both general knowledge of the chosen area and specific understanding of selected technical papers. The preliminary examination requirement is waived for students who advance to candidacy by the end of their third year.

Each student must write a Ph.D. dissertation. The dissertation must show the results of in-depth research, by an original contribution of significant knowledge, and include material worthy of publication. As the first step, a student must submit a written dissertation proposal to a School of Engineering faculty member. By accepting the proposal, the faculty member becomes the student's dissertation supervisor. The student may choose a faculty member outside the Computer Engineering Department within the School of Engineering as adviser only with approval from the computer engineering graduate director. The dissertation proposal is publicly and formally presented in an oral qualifying examination given by a qualifying examination committee, approved by the computer engineering graduate director and the graduate council. The student must submit his or her written dissertation proposal to all members of the qualifying examination committee and the graduate adviser at least one month in advance of the examination.

Students are advanced to candidacy after they have completed the course requirements, passed both the preliminary and qualifying examinations (or just the qualifying examination if passed prior to the end of the student's third year in the program), cleared all Incomplete grades from their records, have an appointed dissertation reading committee, and paid the filing fee. Students who have not advanced to candidacy by the end of their fourth year will be placed on academic probation.

Each Ph.D. candidate must submit the completed dissertation to a reading committee at least one month prior to the dissertation defense. The appointment of the dissertation reading committee is made immediately after the qualifying examination and is necessary for advancing to candidacy. The candidate must present his or her research results in a public seminar sponsored by the dissertation supervisor. The seminar is followed by a defense of the dissertation to the reading committee and attending faculty who will then decide whether the dissertation is acceptable or requires revision. Successful completion of the dissertation fulfills the final academic requirement for the Ph.D. degree.

Transfer Credit

Up to three School of Engineering courses fulfilling the degree requirements of either the M.S. or Ph.D. degrees may be taken before beginning the graduate program through the concurrent enrollment program.

M.S. students who have previously successfully completed graduate-level classes in a related field at another institution may substitute courses from their previous institution with the approval of the graduate director. The number of courses that can be substituted is limited so that, in all cases, students must complete a minimum of four graduate-level classes during their matriculation at UCSC. These classes must be School of Engineering graduate-level courses and must be approved by the student's advisor and the computer engineering graduate director.

Petitions for course substitutions should be submitted along with the transcript from the other institution or UCSC extension. For courses taken at other institutions copies of the syllabi, exams, and other coursework should accompany the petition. Such petitions are not considered until the completion of at least one quarter at UCSC.

Ph.D. students who have previously earned a master's degree or have successfully completed graduate-level classes as regular students in a graduate program in a related field at another institution may apply for a modified program of course requirements taking into account their previous coursework. Such a modified program should specify the coursework that will be completed at UCSC, which must include no fewer than four graduate-level courses and must be approved by the student's adviser and the computer engineering graduate director. These four courses must be taken while in the graduate program at UCSC.

Application for a modified program of course requirements must be made within the first year of graduate study at UCSC, and will be reviewed by the graduate director and a committee of three faculty members approved by the graduate director. Copies of the syllabi, exams, other relevant coursework, and the relevant transcript from the other institution, must accompany the application. Interviews with the committee members may be required to properly assess the coursework.

Acceptance of prior work for course transfer and modified programs of study is at the discretion of the department.

Robotics and Control Designated Emphasis

The graduate designated emphasis (DE) leading to the degree notation "with an emphasis in Robotics and Control" is a collaboration of faculty from several Baskin School of Engineering programs and is administered by the Department of Computer Engineering. Students wishing to complete a master's thesis or doctoral dissertation in this area must satisfy the degree requirements of a primary program as well as of the DE. The DE is most suitable for students pursuing degrees in Applied Mathematics and Statistics, Computer Engineering and Electrical Engineering, but students from any area may work in this interdisciplinary field so long as they meet all requirements, including progress, within the primary degree program. A current list of the robotics and control faculty and electives is available at the Computer Engineering web site, ce.soe.ucsc.edu.

Requirements for the Designated Emphasis Notation

Committee composition. The student's Ph.D. or M.S. committee must include one member of the robotics and control faculty.

Writing. The student's dissertation or thesis must include a significant section (chapter) related to robotics and control, with content suitable for a conference or journal article.

Course requirements. The student must complete four five-credit graduate courses and several two-credit seminar courses. All students must complete CMPE 241/EE 241, Introduction to Feedback Control Systems, and three 5-credit robotics and control graduate electives.

Master's students must complete two offerings of CMPE 280C, Seminar in Control (2 credits).

Doctoral students must complete four offerings of CMPE 280C.

Review of Progress

Each year, computer engineering faculty reviews the progress of every student in the graduate program. Students not making adequate progress towards completion of degree requirements (see the UCSC Graduate Handbook for policy on satisfactory academic progress) are subject to dismissal from the program. Students with academic deficiencies may be required to take additional courses. Full-time students with no academic deficiencies are normally expected to complete the degree requirements at the rate of at least two courses per quarter. Full-time students must complete Computer Science 201 and Computer Engineering 202 within two years and normally must complete all course requirements within two years for the M.S. and three years for the Ph.D. program.

Students receiving two or more grades of U (Unsatisfactory) or below B in School of Engineering courses are not making adequate progress and will be placed on academic probation for the following three quarters of registered enrollment. Withdrawing or taking a

leave of absence does not count as enrollment. Part-time enrollment is counted as a half of a quarter of enrollment.

Should any computer engineering graduate student fail a School of Engineering course while on probation, the Computer Engineering Department may request the graduate dean to dismiss that student from the graduate program. If, after being removed from probation, the student again fails a School of Engineering course, he or she will return immediately to academic probation.

Graduate students experiencing circumstances or difficulties that impact their academic performance should contact their adviser and the graduate director immediately. Students may appeal their dismissal.

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Computer Science

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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Program Description

Computer science is the study of the theoretical and practical aspects of computer technology and computer usage. The Computer Science (CMPS) Department offers courses on a wide range of topics, many of which include a mathematical component, and offers undergraduate bachelor of arts and bachelor of science degrees in computer science, a bachelor of science in computer science: computer game design, as well as the master of science and doctor of philosophy degrees. Besides offering instructional courses, the department engages in a substantial research program in which both advanced undergraduates and graduate students participate.

The bachelor of arts (B.A.) program at UCSC is designed to give students a solid grounding in both theoretical and practical topics in computer science, computer engineering, and mathematics while leaving flexibility for a broad program of study, including many courses outside of science and engineering, or even for a double major in another discipline. The bachelor of science (B.S.) program is appropriate for students desiring a somewhat stronger concentration in the sciences, with more courses in computer science and computer engineering, as well as courses in physics or chemistry; this program also allows for electives outside of science and engineering.

The bachelor of science (B.S.) in computer game design builds on a rigorous core program of study in computer science, adding interdisciplinary study on the artistic, dramatic, and narrative elements of computer game design; a year-long game design project acts as a capstone learning experience. Because many courses in all three programs have prerequisites, students leaning toward any of these programs will enjoy greater scheduling flexibility if they begin some preparatory courses in their first year. The specific course requirements for each undergraduate degree are given below.

Applications of computer science are found in many other areas of study, from art and music to business and science. Thus, interdisciplinary activities are encouraged. For those students whose primary interest is in another area, a minor in computer science is offered.

Courses for Nonmajors

The Computer Science Department offers a wide range of courses intended for nonmajors as well as majors. These include CMPS 10, Introduction to Computer Science; CMPS 17, Social Networks; CMPS 25, Introduction to Computer Graphics: 3D Modeling; CMPS 26, Introduction to Computer Graphics: 3D Animation, CMPS 80J, Technology Targeted at

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Social Issues; CMPS 80S, From Software Innovation to Social Entrepreneurship; and CMPS 80K, Foundations of Interactive Game Design. CMPS 10, Introduction to Computer Science, may be beneficial to students who are considering the major but have a limited background in computer science. There are also introductory programming classes intended for nonmajors: CMPS 5C, 5J, 5P, Introduction to Programming (in the C, Java, and Python languages).

Computer Science Policies

Declaration of the Computer Science Majors

Admission to the computer science majors is selective. First-year applications may receive direct admission at the time they apply to UCSC based on their high school record and test scores. Admission to the major after a student has entered UCSC is based on the grades received in all foundation courses (see below) attempted at UCSC and will be considered no sooner than the student's second quarter. A cumulative GPA of at least 2.80 in these courses is required for declaration of computer science majors (Computer Science B.S., Computer Science B.A., and Computer Science: Computer Game Design B.S.). At most one unsuccessful attempt (grade D, F, or NP) for a foundation course is permitted. In addition to this GPA requirement, after the first three quarters, students must have completed the foundation courses (listed below) and be able to complete the major within campus limits in order to be eligible to declare a computer science major. Denials of admission to the major may be appealed by submitting a letter to the School of Engineering Undergraduate Office, addressed to the Computer Science Undergraduate Director, describing why the prior performance is not an accurate reflection of the student's potential. Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

Foundation Courses

The foundation courses for all computer science majors are as follows:

CMPS 12A/L (or Computer Engineering 13, or both CMPS 5J and CMPS 11) and 12B/M; Computer Engineering 16; and Mathematics 19A and 19B, or 20A and 20B, or 11A and 11B. CMPS 13H/L may be used instead of both CMPS 12A/L and 12B/M.

UCSC students that have completed three or more quarters at UCSC must complete the foundation courses before they can declare a computer science major.

Honors in the Majors

Students must obtain a GPA of 3.8 or higher in the courses in the major to be considered for the distinction of "Highest Honors in the Major." Students must obtain a GPA of 3.5 or higher in the courses in the major to be considered for the distinction of "Honors in the Major." The School of Engineering reserves the right to withhold honors based on other criteria, such as an incident of academic dishonesty.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. Refer to major program statements for details.

Letter Grade Policy

Please refer to the School of Engineering section of the catalog (subheading: *Letter Grade Policy*).

Transfer Students

Most courses in the computer science program at UCSC have a strong theoretical component to prepare the student for designing, as opposed to simply using, computer systems. Often, courses taken at other institutions which emphasize applications of current languages and computers do not count toward the computer science major at UCSC.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

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Nondiscrimination Statement

Search the Catalog

At UCSC, students are first introduced to programming using the programming language Java. The core programming sequence, courses 12A/L and 12B/M (or 13H/L, which covers both 12A/L and 12B/M), exposes students to both Java and C. Many upper-division courses that involve programming use the C and C++ programming languages. Transfer students who are not familiar with both Java and C may need to take a remedial course. Students familiar with C++ and Unix should find the transition to Java and C relatively simple.

Transfer students must have completed all of the foundation courses listed above, or their articulated equivalents. A student lacking one foundation course may be admitted if they have completed at least one of CMPE 12/L or Physics 5A/L. It is highly recommended that all transfer students in computer science complete these two courses prior to admission.

Additional information on SOE policies can be found on the web at: http://ua.soe.ucsc.edu/policies-forms/.

School of Engineering Policies

Please refer to the School of Engineering section of the catalog (subheading: *Admission to School of Engineering Majors)* for additional policies that apply to all School of Engineering programs. These policies include admission to the major and the need for computer science students to obtain preapproval before taking courses elsewhere.

Preparation for the Major

It is recommended that high school students intending to apply to the computer science major have completed four years of mathematics (through advanced algebra and trigonometry) and three years of science in high school. Comparable college mathematics and science courses completed at other institutions also serve to properly prepare a student for the computer science major.

B.A. Major Requirements

The aim of this program is to expose students to a rigorous curriculum in computer science while maintaining sufficient flexibility so that students can take courses outside computer science, pursue a minor in another discipline, or complete a double major. Every student must complete a minimum of 15 courses, 7 lower-division and 8 upper-division. Out of these, the 7 lower-division courses and the first upper-division course are required preparatory courses for every student. Once these preparatory courses are completed, students tailor their own program by choosing 7 additional upper-division elective courses.

Lower-Division Requirements

Each student must successfully complete the following seven required preparatory courses:

Computer Science

CMPS 12A/L, Introduction to Programming(Accelerated)/Laboratory (or CMPS 5J, Introduction to Programming in Java and CMPS 11, Intermediate Programming. Computer Engineering 13 may be taken as an alternative to CMPS 12A/L. CMPS 13H/L may be taken as an alternative to CMPS 12A/L and CMPS 12B/M)

CMPS 12B/M, Introduction to Data Structures/Laboratory (CMPS 13H/L may be taken as an alternative to CMPS 12A/L and CMPS 12B/M)

Computer Engineering

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Mathematics

Mathematics 19A and 19B, Calculus for Science, Engineering, and Mathematics (credit for one or both may be granted with adequate performance on the College Entrance Examination Board (CEEB) calculus AB or BC Advanced Placement examination), or Mathematics 11A and 11B (Calculus with Applications), or Mathematics 20A and 20B, Honors Calculus

Applied Mathematics and Statistics

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I or Mathematics 21, Linear Algebra

Upper-Division Requirements

All students in the major must complete the following course:

CMPS 101, Algorithms and Abstract Data Types

In addition to the above course (and the lower-division requirements, listed above), students must complete upper-division electives chosen as follows:

- Complete three courses from the breadth list below;
- Complete two additional computer science electives chosen from any 5-credit upper-division computer science course except those numbered 191-194 and 196-199;
- Complete two additional 5-credit technical electives selected from the technical elective list below;

Complete the Disciplinary Communication requirement given below. At least 50 percent of these upper-division courses must be completed at UCSC.

Breadth List (complete at least three):

CMPS 102, Introduction to Analysis of Algorithms

CMPS 104A, Compiler Design

CMPS 111, Operating Systems

CMPS 112, Comparative Programming Languages

CMPS 115, Software Methodology

CMPS 122, Computer Security

CMPS 140, Artificial Intelligence

CMPS 160/L, Computer Graphics / Laboratory

CMPS 180/CMPS 180W, Database Systems I

CMPS 185, Technical Writing and Communication in Computer Science

Computer Engineering 110, Computer Architecture

Technical Elective List (complete at least two):

Any 5-credit upper-division course offered by the Baskin School of Engineering except those numbered 191 through 194 and 196 through 199.

Any 5-credit upper-division course from the Division of Physical and Biological Sciences except those numbered 190 and above.

Art 118, Computer Art: Theories, Methods, and Practices

Art 120/121, Advanced Projects in Computer Art I/II

Economics 100M, Intermediate Microeconomics, Math Intensive

Economics 100N, Intermediate Macroeconomics, Math Intensive

Economics 101, Managerial Economics

Environmental Studies 115A/L, Geographic Information Systems

Film and Digital Media170A, Fundamentals of Introduction to Digital Media Production

Film and Digital Media 177, Digital Media Workshop: Computer as Medium

Linguistics 112/113/114, Syntax I/II/III

Linguistics 116/118, Semantics II/III

Linguistics 125, Foundations of Linguistic Theory

Music 123, Electronic Sound Synthesis

Music 124, Intermediate Electronic Sound Synthesis

Music 125, Advanced Electronic Sound Synthesis

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in computer science (B.A.) is satisfied by completing CMPS 115, CMPS195, Computer Engineering 185, CMPS 132 and 132W, CMPS 185, or CMPS180 and 180W. Some of these courses may also fulfill one of the upper-division electives listed above.

B.S. Major Requirements

This program is designed for students who wish to maximize exposure to computer science concepts and methods by taking a larger selection of upper-division computer science courses, as well as additional courses in the sciences and mathematics. A minimum of 21 courses must be completed for the B.S. in computer science, whereas a minimum of 15 courses must be completed for the B.A. in computer science. Out of the 21 courses, 10 are lower-division courses (including two science courses), and 11 are upper-division courses. The B.S. is more structured than the B.A.; 17 specific courses are required, and the remaining four are elective upper-division computer science or computer engineering courses.

Lower- and Upper-Division Requirements

Students are required to take the following 18 courses:

Computer Science

CMPS12A/L Introduction to Programming(Accelerated)/Laboratory (or CMPS5J, Introduction to Programming in Java and CMPS11, Intermediate Programming. Computer Engineering 13/L may be taken as an alternative to CMPS 12A/L. CMPS 13H/L may be taken as an alternative to CMPS 12A/L and CMPS 12B/M)

CMPS 12B/M Introduction to Data Structures/Laboratory (CMPS13H/L may be taken as an alternative to CMPS12A/L and CMPS12B/M)

CMPS101 Algorithms and Abstract Data Types

CMPS102 Introduction to Analysis of Algorithms

CMPS104A Fundamentals of Compiler Design I

CMPS111 Introduction to Operating Systems

CMPS112 Comparative Programming Languages

CMPS130 Computational Models

Computer Engineering

Computer Engineering 12/L Computer Systems and Assembly Language/Laboratory

Computer Engineering 16 Applied Discrete Mathematics

Computer Engineering 110 Computer Architecture, or Computer Engineering 112, Computer and Game Console Architecture

Mathematics

Mathematics 19A and 19B, Calculus for Science, Engineering, and Mathematics, or Mathematics 20A and 20B, Honors Calculus

Mathematics 23A, Multivariable Calculus

Applied Mathematics and Statistics

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I; or Mathematics 21, Linear Algebra

Applied Mathematics and Statistics 131, Introduction to Probability Theory, or Computer Engineering 107, Mathematical Methods of Systems Analysis: Stochastic

Physics or Chemistry

Either two physics or two chemistry courses, with their associated laboratories, from the following:

Physics 5A/L, Introduction to Physics I/Laboratory (or 6A/L);

and either Physics 5B/M, Introduction to Physics II/Laboratory (or 6B/M);

or Physics 5C/N, Introduction to Physics III/Laboratory (or 6C/N)

Chemistry 1A and 1B/M, General Chemistry/Laboratory; or

Chemistry 1A and 1C/N, General Chemistry/Laboratory

Additional Upper-Division Electives

Four upper-division computer science or computer engineering courses with course number 190or below, or CMPS 195. One of these courses may be replaced by one of the following upper-division mathematics courses:

Applied Mathematics and Statistics 114, Introduction to Dynamical Systems

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Applied Mathematics and Statistics 147, Computational Methods and Applications

Mathematics 115, Graph Theory

Mathematics 117, Advanced Linear Algebra

Mathematics 126, Mathematical Control Theory

Mathematics 148, Numerical Analysis

Disciplinary Communication (DC) Requirement

The DC Requirement in computer science (B.S.) is satisfied by completing CMPS 115, CMPS 195, Computer Engineering 185, CMPS 132 and 132W, CMPS 185, or CMPS 180 and 180W. These courses may also fulfill one of the upper-division electives listed above.

Comprehensive Requirement for the Computer Science B.A. and B.S.

In addition to the above B.A. or B.S. requirements, students in the computer science majors must satisfy one of the following two exit requirements: pass one of the capstone courses (see Capstone Courses below); or successfully complete a senior thesis.

Capstone Courses

Students may choose from one of the following capstone courses to satisfy their exit requirement:

CMPS 104B Fundamentals of Compiler Design II

CMPS 117 Software Design Project II

CMPS 161 Introduction to Data Visualization

CMPS 181 Database Systems II

CMPS 183 Hypermedia and the Web

Students taking one of the capstone courses will enroll normally. Students need to pass the capstone course to pass the exit requirement. No course may be attempted more than twice without prior approval from the chair of the department offering the course. Withdrawls count as an attempted class for this purpose. If a student fails to receive a passing score during these two attempts, he or she may still take the GRE Advanced Computer Science Subject Test and achieve a scaled score of 600 or above to satisfy the exit requirement.

Senior Thesis

The senior thesis consists of a self-contained project within the broad scope of computer science, but one that is not available in the regular course offerings. A student wishing to complete a senior thesis must successfully complete a minimum of 5 credits in CMPS 195, Senior Thesis Research. The supervision of a senior thesis student is always at the discretion of the faculty member. The student first submits a written thesis proposal and obtains approval of a faculty sponsor. Then the student submits a written draft and makes an oral presentation to a faculty examining committee. After receiving feedback from the examining committee, the student submits one or more additional drafts, until the final draft is approved by the examining committee. The total amount of writing shall be consistent with the campus disciplinary communication requirement. A passing grade in CMPS 195 is earned when the final thesis is approved.

Computer Science Major Planners

The following are four sample academic plans for first-year students as preparation for the computer science major. Plans One A and Two A are suggested guidelines for students who have some prior experience with programming. Plans One B and Two B are for students who are considering the major and have no prior programming experience. Students who plan carefully can still have several openings free to take other breadth courses they find interesting.

Plan One A, B.A. Degree

Year	Fall	Winter	Spring
1st (frsh)	CMPS 10	MATH 19B	CMPS 12B/M
	MATH 19A	CMPS 12A/L	AMS 10
2nd (soph)	CMPE 12/L	CMPE 16	CMPS 101

Plan One B, B.A. Degree

Year	Fall	Winter	Spring
1st (frsh)	AMS 3	MATH 19A	MATH 19B
	CMPS 10	CMPS 5J	CMPS 11
2nd (soph)	CMPS 12B/M	CMPE 16	CMPS 101
	AMS 10	CMPE 12/L	

Plan Two A, B.S. Degree

Year	Fall	Winter	Spring
1st (frsh)	CMPS 12A/L	CMPS 12B/M	CMPE 16
	MATH 19A	MATH 19B	MATH 23A
2nd (soph)	CMPS 101	CMPE 12/L	CMPS 102
	AMS 10	PHYS 6A/L	PHYS 6C/N

Plan Two B, B.S. Degree

Year	Fall	Winter	Spring
1st (frsh)	CMPS 10	CMPS 5J	CMPS 11
	MATH 3	MATH 19A	MATH 19B
2nd (soph)	CMPS 12B/M	MATH 23A	CMPS 101
	CMPE 12B/M	CMPE 12/L	AMS 10

Minor Requirements

Twelve courses are required for the computer science minor. These courses are:

Mathematics 11A and 11B or 19A and 19B or 20A and 20B

Applied Mathematics and Statistics 10 or Mathematics 21

CMPS 12A/L (or Computer Engineering 13/L, or both CMPS 5J and CMPS 11)

CMPS 12B/M

Computer Engineering 16

CMPS 101

Four additional upper-division computer science courses from a list of approved electives (see the department's curriculum chart for the computer science minor at http://ua.soe.ucsc.edu/curriculum-charts/).

Upper-division computer engineering and mathematics courses that generally apply toward the computer science major may not be applied toward the computer science minor. In addition, some upper-division computer science courses may not be applied toward the computer science minor. There is no comprehensive examination or senior thesis requirement for the minor.

B.S. Computer Science: Computer Game Design Major Requirements

The goal of this degree is to provide students a deep understanding of the technical aspects of computer game engineering, and a broad background in the artistic, narrative, and dramatic elements of game design. The core of the degree program is a strong grounding in computer science and computer engineering, preceded by a foundation in math and physics. Classes in ethics, as well as courses in art, film, music, theater arts, and economics provide breadth in topics of special relevance to computer game design. In their upper division courses, students gain depth by taking upper division electives in computer science and computer engineering. Two advanced courses in digital media give students the ability to view computer software from an artistic framework. A year-long capstone game design studio class allows students to develop substantial computer games, and integrate materials from the rest of the program.

The curriculum has 26 courses. 12 of the courses are upper division. Students interested in the major should pay special attention to the overlap between general education requirements and major requirements, as the major covers up to six general education requirements.

Lower- and Upper-Division Requirements

Course requirements are divided into six conceptual areas:

Mathematics and Physics

Complete all of the following courses:

Mathematics 19A–B, Calculus for Science, Engineering, and Mathematics (students can alternately take, Mathematics 20A–B, Honors Calculus. Credit for one or both Mathematics 19A–B may be granted with adequate performance on the CEEB calculus AB or BC Advanced Placement exams).

Mathematics 21, Linear Algebra, or Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I

Computer Engineering 16, Applied Discrete Mathematics

Physics 5A/L, Introduction to Physics I/Laboratory (or 6A/L)

Computational Foundations

Complete all of the following courses:

CMPS 12A/L, Introduction to Programming (Accelerated)/Laboratory (or 5J Introduction to Programming in Java, and 11 Intermediate Programming. Computer Engineering 13 may be taken as an alternative to CMPS 12A/L.)

CMPS 12B/M, Introduction to Data Structures/Laboratory

Computer Engineering 12/L, Computer Systems and Assembly Language/Laboratory

CMPS 109, Advanced Programming

CMPS 101, Algorithms and Abstract Data Types

Game Design

Complete all of the following courses.

CMPS 80K, Foundations of Interactive Game Design

CMPS 20, Game Design Experience

CMPS 170, Game Design Studio I

CMPS 171, Game Design Studio II

CMPS 172, Game Design Studio III

Computer Game Engineering

Complete five courses from the following list:

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Applied Mathematics and Statistics 147, Computational Methods and Applications

CMPS 102, Introduction to Analysis of Algorithms

CMPS 104A, Fundamentals of Compiler Design I

CMPS 104B, Fundamentals of Compiler Design II

CMPS 105, Systems Programming

CMPS 111, Introduction to Operating Systems

CMPS 112, Comparative Programming Languages

CMPS 115, Software Methodology

CMPS 116, Software Design Project

CMPS 117, Software Design Project II

CMPS 119, Software for Society

CMPS 121, Mobile Applications

CMPS 122, Computer Security

CMPS 128, Distributed Systems, File Sharing, Online Gaming, and More

CMPS 129, Data Storage Systems

CMPS 130, Computational Models

CMPS 132, Computability and Computational Complexity

CMPS 142, Machine Learning and Data Mining

CMPS 160/L, Introduction to Computer Graphics/Laboratory

CMPS 161, Introduction to Data Visualization

CMPS 162, Advanced Computer Graphics and Animation

CMPS 164/L, Game Engines/Laboratory

CMPS 140, Artificial Intelligence

CMPS 146, Game Artificial Intelligence

CMPS 148, Interactive Storytelling

CMPS 166A, Game Theory and Applications I

CMPS 179, Game Design Practicum (may be repeated for credit; only the first offering counts toward the Computer Game Engineering requirement)

CMPS 180, Database Systems I

CMPS 181, Database Systems II

CMPS 183, Hypermedia and the Web

Computer Engineering 110, Computer Architecture

Computer Engineering 112, Computer and Game Console Architecture

Computer Engineering 113, Parallel and Concurrent Programming

Computer Engineering 117/L, Embedded Software/Laboratory

Computer Engineering 118/L, Introduction to Mechatronics/Laboratory

Computer Engineering 131, Human-Computer Interaction

Computer Engineering 150/L, Introduction to Computer Networks/Laboratory

Digital Media

Complete two courses from the following list:

Film and Digital Media 130, Silent Cinema

Film and Digital Media 136C, Visual Culture and Technology: History of New Media

Film and Digital Media 150, Screenwriting

Film and Digital Media 170A, Introduction to Digital Media Production

Film and Digital Media 171D, Social Information Spaces

Film and Digital Media 173, Narrative Workshop: Reconfiguring Narrative within the Digital Realm

Film and Digital Media 177, Digital Media Workshop, Computer as Medium

Film and Digital Media 189, Advanced Topics in Digital and Electronic Media Spaces

Art 103, Physical Computing – Installation and Sculpture

Theatre 105, Introduction to Digital Media Design

Theatre 114, Design Studio: Sound

Theater Arts 157, Playwriting

Music 123, Electronic Sound Synthesis

Music 124, Intermediate Electronic Sound Synthesis

Music 125, Advanced Electronic Sound Synthesis

Any 5-credit, upper-division course offered in the digital arts new media (DANM) curriculum (may require approval of instructor)

Art and Social Foundations

Complete the ethics requirement and three of the following electives.

Ethics Requirement

One of:

Computer Engineering 80E, Engineering Ethics

Philosophy 22, Introduction to Ethical Theory

Philosophy 24, Introduction to Ethics, Contemporary Moral Issues

Philosophy 28, Environmental Ethics

Biomolecular Engineering 80G, Bioethics in the 21st Century: Science, Business, and Society (crosslisted as Philosophy 80G)

Art Elective

One of:

Art 10D, 2D Foundation

Art 10E, 3D Foundation

Art 10F, 4D Foundation

Art 20A, Concepts and Practice in Drawing

Art 20B, Concepts and Practice in Digital/New Media

Art 20J, Introduction to Drawing and Painting

Art 80F, Introduction to Issues in Digital Media

CMPS 25, Introduction to Computer Graphics: 3D Modeling

CMPS 26, Introduction to Computer Graphics: 3D Animation

Film Elective

One of:

Film and Digital Media 20A, The Film Experience

Film and Digital Media 20C, Introduction to Digital Media

Film and Digital Media 20P, Introduction to Production Technique

Any 80-series course in Film and Digital Media.

Theater Elective

One of:

Theater Arts 10, Introduction to Theater Design and Technology

Theater Arts 18, Drafting for Theatrical Production

Theater Arts 19, Design Studio, Lighting Studio

Theater Arts 20, Introductory Studies in Acting

Theater Arts 30, Introduction to Modern Dance Theory and Technique

Theater Arts 40, Introduction to Directing

Theater Arts 80E, Stand-Up Comedy

Theater Arts 80L, Muppet Magic: Jim Henson's Art

Music Elective

One of:

Music 11A, Introduction to Western Art Music

Music 11B, Introduction to Jazz

Music 11C, Introduction to American Popular Music

Music 11D, Introduction to World Music

Music 80C, History, Literature, and Technology of Electronic Music

Music 80L, Artificial Intelligence and Music

Music 80M, Film Music

Music 80R, Music and the World Wide Web

Economics Elective

One of:

Economics 1, Introductory Microeconomics, Resource Allocation and Market Structure

Economics 2, Introductory Macroeconomics, Aggregate Economic Activity

Economics 80H, Wall Street and the Money Game

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in computer science: game design is satisfied by completing the game design studio sequence CMPS 170, 171, and 172.

Comprehensive Requirement

Students satisfy the senior comprehensive requirement by either receiving a passing grade in all three courses of the game design studio sequence or performing a senior thesis.

Computer Science: Computer Game Design Major Planners

The following are two sample academic plans that students can use to plan their sequence of courses in the major. These plans are suggested guidelines for students who begin their studies in their freshman year. Such students, if they plan carefully will have several openings free to take other breadth courses they find interesting. Plan one is for a student entering UCSC in their freshman year who is prepared to go directly into Mathematics 19A/20A and Computer Science 12A/L. Plan two is for a student entering UCSC their freshman year who needs to take preparatory courses prior to Mathematics 19A or Computer Science 12A/L to ensure a successful outcome in those courses.

Plan One—Enter UCSC Freshman Year

Year	Fall	Winter	Spring
1st (frsh)	Core	Art/Social Elective I	CMPS 80K (Foundations of Interactive Game Design)
	MATH 19A or 20A	MATH 19B or 20B	CMPE 16

	CMPS 12A/L	CMPS 12B/M	Composition (C or gen ed)
	PHYS 5A/L or 6A/L	Art/Social elective II	Art/Social elective III
2nd (soph)	gen ed	CMPS 101	Ethics requirement
	MATH 21 or AMS 10	CMPS 20 (Game Design Experience)	Game engineering elective I
	CMPE 12/L	CMPS 109	gen ed
3rd (jr)	Game engineering elective II	Game engineering elective III	Game engineering elective IV
	gen ed	gen ed	
	Digital Media elective I	gen ed	gen ed
4th (sr)	CMPS 170 (Game Design Studio I)	Game engineering elective V	CMPS 172 (Game Design Studio III)
	gen ed	CMPS 171 (Game Design Studio II)	Digital Media elective II

Plan Two—Enter UCSC Freshman Year, Need Math and Computer Science Preparation Classes (Mathematics 3, Computer Science 5J)

Year	Fall	Winter	Spring
	Core	Writing (C, or gen ed)	Art/Social Elective I
1st (frsh)	MATH 3	MATH 19A	MATH 19B
	CMPS 5J	CMPS 11	CMPS 80K (Foundations of Interactive Game Design)
	Art/Social elective II	CMPS 25 (Game Design Experience)	MATH 21 or AMS 10
2nd (soph)	CMPS 12B/M	Ethics requirement	CMPE 16
	PHYS 6A/L	CMPE 12/L	Art/Social elective III
	CMPS 101	Game engineering elective I	gen ed
3rd (jr)	Digital Media elective I	CMPS 109	Game engineering elective II
	gen ed	gen ed	Game engineering elective III
	gen ed	gen ed	gen ed
4th (sr)	CMPS 170 (Game Design Studio I)	CMPS 171 (Game Design Studio II)	CMPS 172 (Game Design Studio III)
	Game engineering elective IV	Game engineering elective V	Digital Media elective II

Graduate Programs

Program Description

The Computer Science Department at UCSC offers both a master's program and a doctoral program in computer science, as well as a master's in games and playable media.

The goal of the computer science programs is to help students develop into independent scholars who are prepared for productive careers in research, teaching, and industry. The master of science (M.S.) degree may be used as a terminal degree or as the first step toward the doctor of philosophy degree (Ph.D.). The student-faculty ratio is five to one, making it possible for students to receive individual attention and to pursue programs that fit their individual needs. The intellectual atmosphere is enriched by regular colloquia and seminars presented by eminent contributors to the field, many of whom are associated with other major universities and industrial research centers in Silicon Valley and the wider San Francisco Bay Area.

The goal of the M.S. in games and playable media is to prepare students to make professional contributions to the creation of games and other forms of media that invite and structure play. The degree is offered through the UC Santa Cruz location in Silicon Valley, making possible deep connection and collaboration with local industry and economic development groups. The curriculum includes deep engagement with game creation as well as a focus on professional development. Students can also take advantage of the strong course offerings in games and related technologies on the Santa Cruz campus, as well as make connections with the department's field-leading research groups. The M.S. in games and playable media is a four-quarter program that begins in fall quarter and ends in the following summer. Students are expected to complete coursework in one academic year, without leaves of absence.

The Computer Science Department enjoys a close relationship with the Computer Engineering and Electrical Engineering Departments, the Biomolecular Engineering Department, the Applied Mathematics and Statistics Department, and the new Technology Management Department.

Most computer science Ph.D. students are hired as teaching assistants helping with undergraduate courses, hired as research assistants working for computer science and other School of Engineering faculty, or awarded fellowships to pursue their research.

Additional information on the computer science graduate programs can be found on the department's web pages at www.soe.ucsc.edu.

Requirements for the Computer Science Master's Degree: Project Track

Course Requirements

Each student is required to take 50 credits as follows:

Computer Science 200, Research and Teaching in Computer Science and Engineering, 3 credits

Computer Science 201, Analysis of Algorithms, 5 credits

Computer Science 203, Programming Languages, 5 credits

Computer Science 296, Master's Project, 2 credits

A base requirement in computer architecture must be met by taking Computer Engineering 110 or Computer Engineering 202 or equivalent elsewhere (approval required). Computer Engineering 110 can be taken to meet the architecture requirement, however, the credits will not be counted toward graduation requirements

One course each from three different breadth categories for a total of three courses (15 credits)—see www.cs.ucsc.edu/graduates/breadth/

All remaining courses must be regular, 5-credit graduate courses from: computer

science, within the School of Engineering (with adviser's approval); or outside the School of Engineering (with adviser's and grad director's approval); courses that do not count include all courses numbered 200, 280, 296, 297, and 299

At least 30 credits must be in computer science

Two upper-division undergraduate computer science courses (other than course 101) or a graduate course (not seminar) in related disciplines outside the list of approved graduate courses may be substituted for one graduate course, when necessary to strengthen a student's preparation for graduate studies, with prior approval from the adviser and the graduate director.

Each student must complete CMPS200 in their first year.
Each student must complete CMPS 201 or a course to prepare the student for CMPS 201 in their first year, after which CMPS 201 should be completed by the end of the second year.
Each student must complete CMPS 203 or a course to prepare the student for CMPS 203 in their first year, after which CMPS 203 should be completed by the end of the second year.
Each student must complete Computer Engineering 110 or Computer Engineering 202 in their first year.

Project

Completion of a master's project is required for the master's degree. In consultation with the adviser, the student forms a master's project reading committee of at least two faculty members, each of whom is provided a copy of the project report. The final project must be accepted by the review committee before the award of the master of science degree.

Requirements for the Computer Science Master's Degree: Thesis Track

Course Requirements

Each student is required to take 48 credits as follows:

Computer Science 200, Research and Teaching in Computer Science and Engineering, 3 credits

Computer Science 201, Analysis of Algorithms, 5 credits

Computer Science 203, Programming Languages, 5 credits

A base requirement in computer architecture must be met by taking Computer Engineering 110 or Computer Engineering 202 or equivalent elsewhere (approval required). Computer Engineering 110 can be taken to meet the architecture requirement, however, the credits will not be counted toward graduation requirements

One course each from three different breadth categories for a total of three courses (15 credits) —see www.cs.ucsc.edu/graduates/breadth/

Up to 10 credits of course 297, Independent Study or Research; or course 299, Thesis Research

All remaining courses must be regular, 5-credit graduate courses from: computer science, within the School of Engineering (with adviser's approval); or outside the School of Engineering (with adviser's and grad director's approval); courses that do not count include all courses numbered 200, 280, 296, 297, and 299

At least 28 credits must be in computer science

Two upper-division undergraduate computer science courses (other than course 101) or a graduate course (not seminar) in related disciplines outside the list of approved graduate courses may be substituted for one graduate course, when necessary to strengthen a student's preparation for graduate studies, with prior approval from the adviser and the graduate director.

Each student must complete CMPS200 in their first year.
Each student must complete CMPS 201 or a course to prepare the student for CMPS 201 in their first year, after which CMPS 201 should be completed by the end of the second year.
Each student must complete CMPS 203 or a course to prepare the student for CMPS 203 in their first year, after which CMPS 203 should be completed by the end of the second year.
Each student must complete Computer Engineering 110 or Computer Engineering 202 in their first year.

Thesis

Completion of a master's thesis is required for the master's degree. To fulfill this requirement, the student submits a written proposal to a faculty member, usually by the third academic quarter. By accepting the proposal, the faculty member becomes the thesis adviser. In consultation with the adviser, the student forms a master's thesis reading committee with at least two additional faculty members, each of whom is provided a copy of the proposal. The student presents an expository talk on the thesis research, and the final thesis must be accepted by the review committee before the award of the master of science degree.

Requirements for the Ph.D. Degree

Course Requirements

Each student is required to take 58 credits as follows:

- CMPS 200, Research and Teaching in Computer Science and Engineering, 3 credits
- CMPS 201, Analysis of Algorithms, 5 credits
- CMPS 203, Programming Languages, 5 credits
- A base requirement in computer architecture must be met by taking Computer Engineering 110 or Computer Engineering 202 or equivalent elsewhere (approval required); Computer Engineering 110 can be taken to meet the architecture requirement, however, the credits will not be counted toward degree requirements
- One course each from three different breadth categories for a total of three courses (15 credits)—see www.cs.ucsc.edu/graduates/breadth/
- Up to 10 credits of course 297, Independent Study or Research; or course 299, Thesis Research
- All remaining courses must be regular, 5-credit graduate courses from: computer science, within the School of Engineering (with adviser's approval); or outside the School of Engineering (with adviser's and grad director's approval); courses that do not count include all courses numbered 200, 280, 296, 297, and 299
- At least 33 credits must be in computer science
- Graduate courses (not seminars) in related disciplines outside the list of approved graduate courses may be substituted, when necessary to strengthen a student's preparation for graduate studies, with prior approval from the adviser and the graduate director. Course selection should form a coherent plan of study and requires adviser approval. Undergraduate courses may not be used to satisfy Ph.D. course requirements
- Each student is required to complete at least one quarter of teaching assistantship. This requirement can be met after advancement to candidacy. Certain exceptions may be permitted for those with extensive prior teaching experience or those who are not allowed to be employed due to visa regulations.

Ph.D. students who have satisfied the requirements for the master's degree are eligible to receive a masters degree.

Examinations and Dissertation

To continue in the Ph.D. program, students must pass a preliminary examination in their chosen research area by the end of their third year. Preliminary examinations are held during the first three weeks of each spring quarter; students must petition the computer science graduate committee for an examination in their chosen area two weeks before the end of winter quarter. Examination committees consist of four faculty members, two chosen by the student and two by the computer science graduate committee. The format of this oral examination is up to the examination committee; the examination will typically evaluate both general knowledge of the chosen area and specific understanding of selected technical papers. The preliminary examination requirement is waived for students who advance to candidacy by the end of their third year.

Each student writes a Ph.D. dissertation. The dissertation must show the results of in-depth research, be an original contribution of significant knowledge, and include material worthy of publication. Where appropriate, research internships with companies, government labs, or elsewhere are recognized (and may be required) as an integral part of the research

leading to the dissertation. As the first step, a student submits a written dissertation proposal to a School of Engineering faculty member. By accepting the proposal, the faculty member becomes the dissertation supervisor. The dissertation proposal is publicly and formally presented in an oral qualifying examination given by a qualifying examination committee, approved by the graduate committee and the Graduate Council. The student must submit his or her written dissertation proposal to all members of the committee and the graduate assistant one month in advance of the examination.

Students are advanced to candidacy after they have completed the course requirements, passed the qualifying examination, cleared all Incompletes from their records, have an appointed dissertation reading committee, and paid the filing fee. Students who have not advanced to candidacy by the end of their fourth year will be placed on academic probation.

Each Ph.D. candidate submits the completed dissertation to a reading committee at least one month prior to the dissertation defense. The appointment of the dissertation reading committee is made immediately after the qualifying examination and is necessary for advancing to candidacy. The candidate presents his or her research results in a public seminar sponsored by the dissertation supervisor. The seminar is followed by a defense of the dissertation to the reading committee and attending faculty, who will then decide whether the dissertation is acceptable or requires revision. Successful completion of the dissertation fulfills the final academic requirement for the Ph.D. degree.

Requirements for the Games and Playable Media Master's Degree

Course Requirements

Each student is required to take 46 credits, though the game art, game writing, and game sound requirements will likely lead to more. Required courses are as follows:

Games and Playable Media 221, 222, and 223; Professional Development for Game Makers 1, 2, and 3; 6 credits (2 credits each)

CMPS 265, Generative Methods, 5 credits

Games and Playable Media 270, 271, and 272; Games and Playable Media Studio 1, 2, and 3; 15 credits (5 credits each)

Games and Playable Media 273, Game Development Intensive, 10 credits

Two courses from the Game Engineering Electives list below, 10 credits, (5 credits each); can be upper-division undergraduate if appearing on approved list for Games and Playable Media M.S. degree; often satisfied by taking CMPS 265, Generative Methods and CMPS 248, Interactive Storytelling.

Before entering the Game Development Intensive (GAME 273), students must satisfy the game art, game writing, and game sound requirements, as described below:

- The game art requirement is satisfied by (a) having completed two or more courses in a relevant area of art, at any institution, at either the undergraduate or graduate level (such as courses CMPS 25, and CMPS 26); or (b) by completing course Games and Playable Media 210, Game Art Intensive; or (c) by submitting a portfolio of prior work in one or more areas and undergoing a qualifying examination.
- The game writing requirement is satisfied by (a) having completed two or more courses in a relevant area of writing or interactive narrative (such as CMPS 148, Interactive Storytelling), at any institution, at either the undergraduate or graduate level; or (b) by completing course CMPS 248, Interactive Storytelling (pending approval); or (c) by submitting a portfolio of prior work in one or more areas and undergoing a qualifying examination.
- The game sound requirement is satisfied by (a) having completed two or more courses in a relevant area of music, sound effects, or game audio, at any institution, at either the undergraduate or graduate level; or (b) by completing course Games and Playable Media 215, Audio Direction; or (c) by submitting a portfolio of prior work in one or more areas and undergoing a qualifying examination.

Project

Completion of a master's project is required for the master's degree. These are generally collaborative projects, created together with other students in the Games and Playable Media M.S. program. Projects are typically performed by students during Games and Playable Media 273, Game Development Intensive. Students are evaluated based both on their individual contributions to the project and on the overall success of the project as a whole. Each project will be demonstrated via a public presentation.

Game Engineering Electives

The following courses may be used to satisfy game engineering electives for the Games and Playable Media M.S. degree:

Graduate courses:

CMPS 221: Advanced Operating Systems

CMPS 223: Advanced Computer Security

CMPS 229: Storage Systems

CMPS 232: Distributed Systems

CMPS 240: Artificial Intelligence

CMPS 241: Knowledge Engineering

CMPS 242: Machine Learning

CMPS 244: Artificial Intelligence in Games

CMPS 245: Computational Models of Discourse and Dialogue

CMPS 248: Interactive Storytelling

CMPS 253: Advanced Programming Languages

CMPS 260: Computer Graphics

CMPS 261: Advanced Visualization

CMPS 262: Computer Animation

CMPS 265: Generative Methods

CMPS 272: Evolutionary Game Theory

CMPS 277: Principles of Database Systems

CMPS 278: Design and Implementation of Database Systems

Computer Engineering 202: Computer Architecture

Computer Engineering 215: Models of Robotic Manipulation

Computer Engineering 216: Bio-inspired Locomotion

Computer Engineering 218: Mechatronics

Computer Engineering 231: Human-Computer Interaction

Computer Engineering 233: Human Factors

Computer Engineering 235: User Evaluation of Technology

Computer Engineering 248: Games in Design and Control

Computer Engineering 250: Multimedia Systems

Computer Engineering 253: Network Security

Computer Engineering 263: Data Compression

Computer Engineering 264: Image Analysis and Computer Vision.

Upper-division undergraduate courses:

CMPS 115: Software Methodology

CMPS 119: Software for Society

CMPS 122: Computer Security

CMPS 128: Distributed Systems: File Sharing, Online Gaming, and More

CMPS 130: Computational Models

CMPS 140: Artificial Intelligence

CMPS 142: Machine Learning and Data Mining

CMPS 146: Game AI

CMPS 148: Interactive Storytelling

CMPS 160: Introduction to Computer Graphics

CMPS 161: Introduction to Data Visualization

CMPS 162: Advanced Computer Graphics and Animation

CMPS 164: Game Engines

CMPS 166A: Game Theory and Applications I

CMPS 166B: Game Theory and Applications II

CMPS 179: Game Design Practicum

CMPS 180: Database Systems I

CMPS 181: Database Systems II

CMPS 183: Hypermedia and the Web

Computer Engineering 110: Computer Architecture

Computer Engineering 112: Computer and Game Console Architecture

Computer Engineering 118: Introduction to Mechatronics

Computer Engineering 131: Human-Computer Interaction.

Transfer Credit

Up to three School of Engineering courses fulfilling the degree requirements of either the M.S. or Ph.D. degrees may be taken before beginning the graduate program through the concurrent enrollment program.

Ph.D. students who have previously earned a master's degree in a related field at another institution may substitute courses from their previous university with approval of the adviser and the graduate committee.

With the exception of the game art, game writing, and game sound requirements of the Games and Playable Media M.S. program, courses from other institutions may not be applied to the M.S. degree course requirements.

Petitions should be submitted along with the transcript from the other institution or UCSC extension. For courses taken at other institutions, copies of the syllabi, exams, and other coursework should accompany the petition. Such petitions are not considered until the completion of at least one quarter at UCSC.

At most, a total of three courses may be transferred from concurrent enrollment and other institutions.

Review of Progress

Each year, the faculty reviews the progress of every student. Students not making adequate progress toward completion of degree requirements (see the Graduate Handbook for policy on satisfactory academic progress) are subject to dismissal from the program. Students with academic deficiencies may be required to take additional courses. Full-time students with no academic deficiencies are normally expected to complete the degree requirements at the rate of at least two courses per quarter. Full-time computer science students must complete course 201, Computer Engineering 202, and course 203 within two years and normally must complete all course requirements within two years for the M.S. and three years for the Ph.D.

Ph.D. students who have not advanced to candidacy by the end of their fourth year will be placed on academic probation.

Students receiving two or more grades of below B or U (fail) in the School of Engineering (SoE) courses are not making adequate progress and will be placed on academic probation for the following three quarters of registered enrollment. Withdrawing or taking a leave of absence does not count as enrollment. Part-time enrollment is counted as a half quarter of enrollment.

Should any computer science graduate student fail a School of Engineering course while on probation, the Computer Science Department may request the graduate dean to dismiss that student from the graduate program. If after being removed from probation, the student again fails a School of Engineering course, he or she will return immediately to academic probation.

Graduate students experiencing circumstances or difficulties that impact their academic performance should contact their adviser and the graduate director immediately. Students may appeal their dismissal.

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Electrical Engineering

2014-15 General Catalog

Baskin School of Engineering
335 Baskin Engineering Building
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Course Descriptions

Program Description

Mission Statement

The mission of the Electrical Engineering (EE) Department is to build and sustain a teaching and research program to provide undergraduate and graduate students with inspiring and quality education in the theory and practice of hardware- and information-processing-oriented electrical engineering; serving industry, science, and government; and bringing faculty and staff a rewarding career in teaching, research, and service. The electrical engineering program is accredited by the Engineering Accreditation Committee of the Accreditation Board for Engineering and Technology (ABET).

Summary of Objectives

The educational objectives that the Electrical Engineering Department strives to provide for students are focused in five areas: fundamental prerequisites in theory, design, and basic science for a career based on electrical engineering; a scope of application that provides theory and practical knowledge as well as specialized training in hardware- and information-oriented electrical engineering; a professional approach to engineering in terms of high quality work skills in communication, teamwork, responsibility, high ethical standards, and participation in lifelong learning and the professional engineering community; encouragement and motivation based on a milieu of readily available opportunities, mentoring, and advising; and the basis for a successful transition to an engineering career, including an ability to apply research to engineering and opportunities for experience in an industry setting.

Engineering is a profession that emphasizes analysis and design, and electrical engineers apply their knowledge to an expanding array of technical, scientific, and mathematical questions. A good engineering education has three parts: a sound foundation in mathematics and science, substantial design experience to develop skills and engineering aesthetics, and a focus in the humanities and social sciences to learn how and where to apply the skills developed. Electrical engineering is a very broad discipline; the program at UCSC complements existing campus programs, emphasizing three general areas: electronics/optics (including digital and analog circuits and devices); communications (including signal and image processing and control); and VLSI design, micro-technology, nanotechnology, and biomedical devices.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

The undergraduate curriculum provides a balance of engineering science and design. For the first two years, all electrical engineering students are expected to take a basic set of lower-division mathematics, physical science, and engineering courses. After the first two years, electrical engineering students focus on topics within the discipline and specialize in one of two options: electronics/optics, including digital and analog circuits and devices, VLSI design, optoelectronics, electromagnetics, power engineering, and biomedical device engineering; or communications, signals, systems, and control, including optical, wireless communication, signal and image processing, networks signal processing, instrumentation, and control. Students interested in admission to the electrical engineering major should contact the Baskin School of Engineering Undergraduate Advising office, (831) 459-5840 or advising@soe.ucsc.edu.

Electrical Engineering Policies

Admissions Policy

Admission to the electrical engineering major is selective. First-year applicants may receive direct admission at the time they apply to UCSC based on their high school record and test scores. Students not directly admitted can apply to declare an electrical engineering major upon successful completion of all the following foundation courses with a GPA of 2.8 or better: Mathematics 19A–B, Applied Mathematics and Statistics 10 and 20, Physics 5A/L, 5B/M, and 5C/N.

Students who have not met this GPA requirement are required to meet with the Electrical Engineering Undergraduate Director. Please refer to the School of Engineering section of the catalog for the full admissions policy.

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

Course Substitution

Please refer to the School of Engineering section of the catalog for the policy regarding course substitution.

Letter Grade Policy

The Electrical Engineering Department requires letter grading for all courses applied toward the bachelor of science (B.S.) degree.

Honors in the Major

Electrical engineering majors are considered for “Honors in the Major” and “Highest Honors in the Major” based on the GPA and on results of undergraduate research and other significant contributions to the School of Engineering. Students with a GPA of 3.7 receive highest honors. Students with a GPA of 3.3, receive honors. A student meeting the GPA requirement for highest honors or honors may not receive honors if a student has been found guilty of academic misconduct. Students with particularly significant accomplishments in undergraduate research or contributions to the School of Engineering may be considered with a lower GPA. Electrical engineering juniors and seniors may also be eligible for election to the UCSC chapter of Tau Beta Pi, the national engineering honor society founded in 1885.

Transfer Students

Acceptance into the major is based on the student’s academic college record and preparation for the major. Applicants are encouraged to take and excel in as many courses that are equivalent to the department’s foundation courses as possible. For electrical engineering majors, the following courses, or their equivalents, should be completed prior to transfer: first year calculus (Mathematics 19A–B), linear algebra (Applied Mathematics and Statistics 10 or Mathematics 21), differential equations (Applied Mathematics and Statistics 20 or Mathematics 24), a year of calculus-based physics courses (accepted as equivalent to Physics 5A/L, 5B/M, 5C/N). To ensure timely graduation, it is strongly recommended (but not required) that two programming courses (accepted as equivalent to

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

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Nondiscrimination Statement

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Computer Engineering 12/L or Computer Engineering 13/L) and Multivariable Calculus (accepted as equivalent to Mathematics 23A and 23B) be taken prior to transfer. An applicant will be approved, conditionally approved, or declined. Only students who have completed most or all of the foundation courses will be approved for acceptance into the major.

Students who are approved for acceptance and who have course credit for all the foundation courses for the major must declare the major in their first term of enrollment at UCSC. The status of students who are approved for acceptance but who, upon review of their transcripts, are found not to have course credit for all the foundation courses for their major will be required to complete those courses before they can declare the major.

School of Engineering Policies

Please refer to the School of Engineering section of the catalog for additional policies that apply to all School of Engineering programs.

Requirements of the Major

In addition to completing UCSC's general education requirements, students must complete 15 lower-division science and engineering courses, plus associated laboratories; nine upper-division engineering courses, plus associated laboratories; four engineering electives; and a two-quarter comprehensive senior design project course. To plan for completion of these requirements within the normative time, students should consult with an adviser at the Baskin School of Engineering Undergraduate Advising office as early as possible.

Lower-Division Requirements

Students gain a solid foundation in calculus, engineering mathematics, physics, computer science, and computer engineering during their first two years. Majors must complete the following 15 lower-division courses (including corresponding laboratories). These courses form part of the prerequisite sequence and should be completed during the first two years at UCSC. The requirements are rigorous; students must be prepared to begin these courses early in their studies.

ELECTRICAL ENGINEERING

80T, Modern Electronic Technology and How It Works

COMPUTER ENGINEERING/COMPUTER SCIENCE

Computer Engineering 12/L, Computer Systems and Assembly Language/ Laboratory

Computer Engineering 13/L, Computer Systems and C Programming/Laboratory or Computer Science 12A/L, Introduction to Programming (Accelerated)/Laboratory

Computer Engineering 16, Applied Discrete Mathematics

Computer Engineering 80E, Engineering Ethics

MATHEMATICS

19A-B, Calculus for Science, Engineering, and Mathematics

23A-B, Multivariable Calculus

APPLIED MATHEMATICS AND STATISTICS

10, Mathematical Methods for Engineers I

20, Mathematical Methods for Engineers II

PHYSICS

5A/L, 5B/M, 5C/N, Introduction to Physics/Laboratories

5D, Heat, Thermodynamics, and Kinetics

ETHICS

Students must take one of the following courses (required even for transfer students who have had their general education requirements waived):

Computer Engineering 80E, Engineering Ethics

Philosophy 22, Introduction to Ethical Theory

Philosophy 24, Introduction to Ethics: Contemporary Moral Issues

Philosophy 28, Environmental Ethics

Biomolecular Engineering 80G/Philosophy 80G, Bioethics in the 21st Century: Science, Business, and Society

Upper-Division Requirements

Fifteen upper-division courses along with associated 1- or 2-credit laboratories are required for the major. The course requirements include both depth and breadth, technical writing, and a comprehensive capstone design project.

All students are required to take the following nine upper-division courses, with associated laboratories:

ELECTRICAL ENGINEERING

101/L, Introduction to Electronic Circuits/Laboratory

103/L, Signals and Systems/Laboratory

135/L, Electromagnetic Fields and Waves/Laboratory

145/L, Properties of Materials/Laboratory

151, Communications Systems

171/L, Analog Electronics/Laboratory

COMPUTER ENGINEERING

100/L, Logic Design/Laboratory

107, Mathematical Methods of Systems Analysis: Stochastic

185, Technical Writing for Computer Engineers

Required Electives. In addition to completing the above required courses, electrical engineering majors must complete four elective courses chosen from the list below. At least three must be from one of the depth-sequence concentrations listed. Certain graduate-level courses as well as those courses taught in conjunction with graduate courses may also be used to fulfill an elective requirement as listed below. No course may be counted twice. See the electrical engineering web site for course descriptions: www.ee.ucsc.edu/.

Electronics/Optics Concentration

ELECTRICAL ENGINEERING

104, Bio-electronics and Bio-instrumentation

115, Introduction to Micro-Electro-Mechanical-Systems Design

130/L/ 230, Introduction to Optoelectronics and Photonics and Laboratory/Optical Fiber Communication

136, Engineering Electromagnetics (strongly recommended)

154/241, Feedback Control Systems, and Introduction to Feedback Control Systems

157/L, RF Hardware Design/Laboratory

172/221, Advanced Analog Circuits/Advanced Analog Integrated Circuits

173/L, High-Speed Digital Design/Laboratory

175/L, Energy Generation and Control/Laboratory

176/L, Energy Conversion and Control/Laboratory

177/L, Power Electronics/Laboratory

178, Device Electronics

180J, Renewable Energy Sources in Practice

211, Introduction to Nanotechnology

213, Micro/Nano-characterization of Materials

231, Optical Electronics

COMPUTER ENGINEERING

118/L, Introduction to Mechatronics/Laboratory

121/L, Microprocessor System Design/Laboratory (strongly recommended)

Communications, Signals, Systems, and Controls Concentration

ELECTRICAL ENGINEERING

130/L/230, Introduction to Optoelectronics, and Photonics and Laboratory/Optical Fiber Communication

136, Engineering Electromagnetics (strongly recommended)

152/252, Introduction to Wireless Communications and Wireless Communications

153/250, Digital Signal Processing/Digital Signal Processing

154/241, Feedback Control Systems and Introduction to Feedback Control Systems

251, Principles of Digital Communications

253, Introduction to Information Theory

261, Error Control Coding

262, Statistical Signal Processing I

264, Image Processing and Reconstruction

COMPUTER ENGINEERING

118/L, Introduction to Mechatronics/Laboratory

150/L, Introduction to Computer Networks/Laboratory

251, Error Control Coding (taught in conjunction with EE 261)

The senior-year curriculum enables students to pursue independent study with a faculty member. Electrical engineering students are encouraged to take advantage of the opportunity to work within a faculty member's research group as part of their educational experience. Internship programs with local industry are also available.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in electrical engineering is satisfied by completing Computer Engineering 185.

Comprehensive Requirement

The senior comprehensive requirement for electrical engineering majors is in two parts: a project course and assessment options.

Project Course

Students must complete one capstone design course that spans three quarters, Electrical Engineering 129A/B/C, or complete a senior thesis. These senior-level courses encompass an in-depth project, including analysis, design, testing, and documentation, requiring students to call upon knowledge acquired throughout their undergraduate studies. Current course choices include the following:

Electrical Engineering

129A/B/C, Engineering Design Project I, II, and III (12 credits total)

195, Senior Thesis Project (12 credits total)

Outcomes Assessment Options

The Electrical Engineering Department requires an outcomes assessment. All students are required to complete an exit survey and meet with a faculty member for an exit interview. The specifics of the outcomes assessment may change from year to year; for this catalog year, students must complete one of the following options:

1. maintenance of a 2.5 grade point average in all required and elective courses for the major; or
2. senior thesis submission; or
3. portfolio review.

Portfolios must include the following:

- project report(s);
- a one- or two-page overview of the student's contribution to the project(s);
- a two-page essay concerning the relationship of engineering to society (specific topics will be provided by the Electrical Engineering Department).

The portfolios must be submitted electronically at least seven days before the end of the instruction in the quarter of graduation. Portfolios will not be returned.

Electrical Engineering Major Planners

The following are two sample academic plans for students to complete during their first two years as preparation for the electrical engineering major.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A	MATH 19B	AMS 10
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
	college core	EE 80T	gen ed (C2)
2nd (soph)	PHYS 5D	EE 101/L	EE 171/L
	MATH 23A	AMS 20	CMPE 13/L
	CMPE 12/L	MATH 23B	gen ed

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	MATH 3	MATH 19A	MATH 19B
	CMPE 8	CMPE 12/L	CMPE 13/L
	college core	EE 80T	gen ed (C2)
2nd (soph)	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
	AMS 10	AMS 20	MATH 23A

gen ed	CMPE 100/L	CMPE 80E

Additional information about this program can be found on the department's web site at www.ee.ucsc.edu.

Electrical Engineering Minor

The electrical engineering minor provides a solid foundation in the core areas of electronic circuits and signals and systems, as well as the prerequisite material in mathematics and physics. Concentration of upper division electives in either of the major tracks constitutes substantial and focused work in the discipline of electrical engineering. This minor is particularly suitable for students with majors in Applied Physics or any School of Engineering major.

Electrical Engineering Minor Requirements

Requirements for the minor in electrical engineering are the following:

Mathematics

Mathematics 19A–B, Calculus for Science, Engineering, and Mathematics

Mathematics 23A, Multivariable Calculus

Applied Mathematics and Statistics 10, Mathematical Methods for Engineers I, and 20, Mathematical Methods for Engineers II; or Mathematics 21, Linear Algebra and Mathematics 24, Ordinary Differential Equations

Science

Physics 5A/L or 6A/L, Mechanics and 5C/N or 6C/N, Electricity and Magnetism

Core Requirements

Electrical Engineering

Electrical Engineering 101/L, Introduction to Electronic Circuits/Laboratory; and

Electrical Engineering 103, Signals and Systems; and

Electrical Engineering 171/L, Analog Electronics/Laboratory

Upper-Division Electives

At least 15 credits of upper-division or graduate electrical engineering courses, all chosen from one of the existing electrical engineering major tracks. All of the upper-division electives must come from the same track.

Graduate Programs

The Department of Electrical Engineering (EE) at the University of California, Santa Cruz (UCSC) offers master of science (M.S.) and doctor of philosophy (Ph.D.) degree programs and conducts research in:

- Photonics and electronics focusing on VLSI, electronic and optoelectronic materials; devices, circuits and systems for information transmission; storage, processing, and display, especially for optical-fiber communications and lower-power, high-performance systems; biomedical device instrumentation and MEMS; and optofluidics;
- Signal processing and communications, including wireless communications, network information theory, digital signal processing, image and video processing;
- Remote sensing including wave propagation and scattering radar oceanography, and microwave remote sensing.
- Nanotechnology including applications to bio-medicine, integrated optics for biomedical imaging, opto-thermo-electric energy conversion, near-field scanning optical microscopy, nano-magneto-optics, micro-mechanics and micro-fluidics.

Electrical Engineering enjoys a close relationship with the Departments of Applied Mathematics and Statistics, Computer Science, Computer Engineering, Biomolecular Engineering, Chemistry, Physics, Astronomy, and Molecular, Cell and Developmental Biology faculty. The Electrical Engineering faculty are affiliated with: 1) several federally funded and nationally recognized centers such as the Center for Adaptive Optics, and the Center for Biomolecular Science and Engineering; 2) state-funded centers such as the Institute for Quantitative Biology (QB3), the Center for Information Technology Research in the Interest of Society (CITRIS), and the Institute for Regenerative Medicine (CIRM); 3) privately funded centers such as the W.M. Keck Center for Nanoscale Optofluidics (CfNO), the W.M. Keck Center for Adaptive Optical Microscopy (CfAOM), and the Center for Sustainable Energy and Power Systems (CenSEPS). Many EE faculty participate in the University Affiliated Research Center (UARC) at NASA-Ames Research Center, which is managed by UCSC and in the Advanced Studies Laboratory, a partnership between UCSC and NASA-Ames Research Center. The department also has ties to nearby industry, employing electrical engineering professionals as visiting and adjunct faculty and arranging for students to gain practical research experience through work in industrial labs. Indeed, the department strongly encourages students of all nationalities to seek practical training as part of their graduate education.

Students begin the program with the completion of courses in a core area of interest and then proceed to do research in their area of specialization. The M.S. degree can be completed in two years. M.S. students must complete a master's thesis. A Ph.D. degree is usually completed in four to six years. Ph.D. students are required to take a preliminary exam within their first two years of study. After completing the course requirements, students must pass an oral qualifying exam and write a dissertation. Part-time study is possible for students working in industry while attending school.

Requirements for the Master's Degree

Course Requirements

Each student is required to take 45 credits which must consist of:

- At least 15 credits in one of the four core areas of emphasis defined above.
- At least 25 of the total 45 credits must be satisfied through EE graduate courses.
- At most 10 credits of independent study (EE 297, EE 299) are counted toward the EE course requirements.

Total credits required for the M.S. degree = 45.

Note that each graduate course satisfying the above requirements typically covers 5 credits.

Thesis

Completion of a master's thesis is required for the master's degree. To fulfill this requirement, the student submits a written proposal to a faculty member, usually by the third academic quarter. By accepting the proposal, the faculty member becomes the thesis adviser. In consultation with the adviser, the student forms a master's thesis reading committee with at least two additional faculty members, each of whom is provided a copy of the proposal. Upon completion of the thesis work, the student presents an expository talk on the thesis research, and the final thesis must be accepted by the review committee before the award of the master of science degree.

M.S. students admitted to continue to the Ph.D. program must pass a preliminary exam covering fundamental undergraduate course work (see below).

Requirements for the Ph.D. Degree

Course Requirements*

Each student is required to take 50 credits which must consist of:

- At least 20 credits in one of the four core areas of emphasis defined above.
- At least 30 of the total 50 credits must be satisfied through EE graduate courses.
- At most 10 credits of independent study (EE297, EE299) will be counted toward EE course requirements.

Total credits required for the PhD. degree = 50

* For students already holding a master of science in electrical engineering (M.S.E.E.) or equivalent degree, at most 20 credits of transfer credit may be granted for equivalent coursework performed at the students' M.S. granting institution. Credit transfer is subject to approval by the adviser and the electrical engineering graduate director.

Preliminary Examination

At the end of the first year, i.e., no later than the fall quarter in the following year after their entry, students admitted to the Ph.D. program must take a written examination covering basic knowledge in electrical engineering. This examination will cover material from the following technical areas:

- Circuits at the level of Electrical Engineering 101
- Electromagnetics at the level of Electrical Engineering 135
- Systems and signals at the level of Electrical Engineering 103
- Materials at the level of Electrical Engineering 145
- Applied Mathematics and Statistics at the level of Computer Engineering 107, and Applied Mathematics and Statistics 10 and 20.

The student will choose three areas from the above list in which to be examined. If the student does not pass the preliminary examination, the electrical engineering graduate committee may allow the student to repeat the preliminary examination once. If the student is to leave the Ph.D. program, and the student wishes to obtain a master's degree prior to departure, all requirements for the master's degree must still be satisfied.

After the student passes the preliminary examination, the student begins work on a thesis prospectus in preparation for the qualifying examination. During this period the student finds an adviser willing to supervise the student's thesis research, works with the adviser to prepare for the qualifying examination, and assembles a dissertation reading committee, consisting of the student's research supervisor (chair of the committee) and three or four appropriate faculty members in electrical engineering and other relevant departments. The committee must consist of at least two ladder-rank, electrical-engineering, faculty members in addition to the student's supervisor.

Qualifying Examination

This oral examination is a defense of the student's thesis prospectus and a test of the student's knowledge in advanced technical areas of relevance to the dissertation topic. This oral examination consists of a seminar-style talk before the examining committee, where the student describes the thesis prospectus, followed by questions from the committee on the substance of the talk and the areas of presumed expertise of the student. The examination, taken typically in the third year of Ph.D. study, is administered by a Ph.D. qualifying examination committee, consisting of at least four examiners. The composition of the committee must be approved by the graduate director and the dean of graduate studies whereupon the student and the committee are notified.

If the student does not pass the qualifying examination, the student may be asked to complete additional coursework, or other research-related work, before retaking the examination. The student may be allowed to retake the qualifying examination once, and the composition of the examining committee will remain the same for the second try. Students who fail the qualifying examination twice may be dismissed from the Ph.D. program.

Ph.D. students who have not advanced to candidacy by the end of the fourth year may be recommended for academic probation.

Dissertation and Advancement to Ph.D. Degree Candidacy

Advancement to candidacy requires that the student:

- pass the preliminary examination;
- complete all course requirements prior to taking the qualifying examination;
- clear all Incompletes from the student's record;
- pass the qualifying examination; and

- have an appointed Ph.D. dissertation reading committee.

After advancement to candidacy, work on the thesis research progresses until the dissertation is completed. The Ph.D. dissertation must show the results of in-depth research, be an original contribution of significant knowledge to the student's field of study, and include material worthy of publication. The student is strongly advised to submit research work for publication in advance of completing the thesis so that the latter requirement is clearly satisfied. The Ph.D. thesis results are presented in both oral and written forms, the oral form being a dissertation defense (see below) and the written form being the Ph.D. dissertation. The student must submit his or her written Ph.D. dissertation to the dissertation reading committee at least one month before the defense.

Dissertation Defense

Each Ph.D. candidate submits the completed dissertation to a Ph.D. thesis reading committee at least one month prior to the dissertation defense. The appointment of the dissertation reading committee is made immediately after the qualifying examination and is necessary for advancing to candidacy. The candidate presents his or her research results in a public seminar sponsored by the dissertation supervisor. The seminar is followed by a defense of the dissertation to the reading committee (only), who will then decide whether the dissertation is acceptable or requires revision. Successful completion of the dissertation fulfills the final academic requirement for the Ph.D. degree.

Transfer Credit

For students already holding an M.S.E.E. or equivalent degree, at most 20 credits of transfer credit may be granted for equivalent course work performed at the student's M.S. granting institution. Credit transfer is subject to approval by the electrical engineering graduate director.

Students not already holding an M.S.E.E. degree, who are studying for the Ph.D. degree, may apply to be granted a M.S. degree when they have fulfilled all the M.S. degree requirements (including an M.S. thesis).

Review of Progress

Each year, the faculty reviews the progress of every student. Students not making adequate progress toward completion of degree requirements (see the Graduate Student Handbook for the policy on satisfactory academic progress) are subject to dismissal from the program. Students with academic deficiencies may be required to take additional courses. Full-time students with no academic deficiencies are normally expected to complete the degree course requirements at the rate of at least two courses each quarter. Full-time students must complete all course requirements within two years for the M.S. and three years for the Ph.D.

Students receiving two or more grades of U (unsatisfactory) or below B in the School of Engineering courses are not making adequate progress and will be placed on academic probation for the following three quarters of registered enrollment. Withdrawing or taking a leave of absence does not count as enrollment. Part-time enrollment is counted as a half-quarter of enrollment.

If an electrical engineering graduate student fails a School of Engineering course while on probation, the Electrical Engineering Department may request the graduate dean to dismiss that student from the graduate program. If after being removed from probation, the student again fails a School of Engineering course, he or she will return immediately to academic probation.

Graduate students experiencing circumstances or difficulties that impact their academic performance should contact their adviser and the graduate director immediately. Students may appeal their dismissal to the graduate committee.

Materials Fee

Please see the section on fees under School of Engineering.

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Technology and Information Management

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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Program Description

Technology and Information Management (TIM) is a multi-disciplinary program that focuses on the integration of engineering, computer science, information technology, and business management for two purposes: the technology of management, which includes the design of information technology to solve business problems, and the management of technology, which includes the management of new-product development and entrepreneurship.

The program offers a bachelor of science (B.S.) degree as well as a minor. At the graduate level, it offers a professional masters of science in TIM and a Ph.D. in TIM.

TIM is a rigorous, challenging major for those students wanting to pursue careers in the management of information and technology. TIM students will receive a thorough grounding in the fundamental principles and practices of technology (in particular, computer science and computer engineering) and management, and the scientific, mathematics, and economics principles upon which they are built. In particular, they will become proficient in the following areas: strategy, planning, innovation, entrepreneurship, information technology, software design, product development, and supply-chain management.

The essence of the technology and information management major at UCSC is the integration of fundamental intellectual content from the disciplines of computer science, computer engineering, business management economics, and finance. TIM students learn how to apply the fundamentals of these diverse disciplines to solving problems that require the integration of management and technology, e.g., developing information technology systems to manage all activities and operations in a firm, e-commerce, managing and commercializing a new technology, and starting a new high-technology company.

To graduate with a B.S. in technology and information management, students normally complete 23-24 required courses (with four laboratories, totaling 120-123 quarter credits) plus four elective courses (20 quarter credits) for the technology and information management major program. To plan for completion of these course requirements within the normative time, students should consult with an adviser as early as possible. Honors students are likely to find the rigorous management and leadership elements of the new program of significant interest. Industrial interactions and projects are key features of this major.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
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- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
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- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
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- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Technology and Information Management Policies

Admissions Policy

Admission to the technology and information management major is selective. First-year applicants may receive direct admission at the time they apply to UCSC based on their high school record and test scores.

To be admitted to the major after a student has entered UCSC, students need to complete a total of six courses chosen from the following:

At least one course chosen from the following list of mathematics courses:

- MATH 19A or MATH 20A
- MATH 19B or MATH 20B
- MATH 22 or 23A
- CMPE 16

At least one course chosen from the following list of engineering courses:

- CMPS 12A/L, or CMPS 5J and CMPS 11, or CMPE 13/L
- CMPS 12B/M
- CMPE 12/L

At least one course chosen from the following list of economics and technology and information management courses:

- ECON 1
- ECON 2
- ECON 10A
- TIM 50

At least three additional courses must be chosen from the following:

- CMPS 12A/L (or CMPS 5J and CMPS 11) or CMPE 13/L
- CMPS 12B/M
- CMPE 12/L
- CMPE 16
- ECON 1
- ECON 2
- ECON 10A
- MATH 19A or 20A
- MATH 19B or 20B
- MATH 22 or 23A
- TIM 50

In addition, students who have passed six qualifying courses and who have received more than one grade of NP, D, or F in the qualifying courses are not eligible to declare the major.

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

Course Descriptions

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Appendixes

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Letter Grade Policy

Please refer to the letter grade policy in the School of Engineering section.

Transfer Students

Transfer students must have completed all of the foundation courses listed above. A student lacking one foundation course may be admitted if they have completed at least one of AMS 5 or Math 22 (or 23A) or Econ 10A.

Admission of transfer students will be based on performance in all foundation and other courses transferable to the Technology and Information Management major.

Students should consult assist.org to determine which courses at other institutions in California are transferable to UCSC.

School of Engineering Policies

Please refer to the School of Engineering section of the catalog for additional policies that apply to all School of Engineering programs. These policies include admission to the major and the need for UCSC students to obtain pre-approval before taking courses elsewhere.

Preparation for the Major

The technology and information management major is intended for students with an interest in both technology and business. It is recommended that students intending to declare this major have completed four years of mathematics (through advanced algebra and trigonometry) and three years of science in high school. Completion of business-oriented computer literacy and basic programming courses is of benefit to students entering this major. Completion of any economics and/or business-related courses in high school is also beneficial, but the faculty realizes that these courses may not be available at many high schools. Completion of comparable college courses at other institutions serves to strengthen the preparation of a student for the technology and information management major.

Requirements of the Technology and Information Management Major

In addition to completing UCSC general education requirements, students must complete 23 required courses (with four laboratories, totaling 120-123 quarter credits) plus four elective courses (20 quarter credits) for the technology and information management major program. To plan for completion of these course requirements within the normative time, students should consult with a School of Engineering adviser as early as possible. These 27-28 courses include the following:

Required Courses (23-24 courses plus four laboratories)

Applied Mathematics and Statistics (one 5-credit course)

Applied Mathematics and Statistics 5, Statistics

Mathematics (five 5-credit courses)

19A-B, Calculus for Science, Engineering, and Mathematics; and

22, Introduction to Calculus of Several Variables; or 23A, Multivariable Calculus, and

Applied Mathematics and Statistics 10 and 20, Mathematical Methods for Engineers I and II;

or Applied Mathematics and Statistics 10A and 20A, Basic Mathematical Methods for Engineers I and II (3 credits each); or Mathematics 21, Linear Algebra and Mathematics 24, Ordinary Differential Equations

Economics (five 5-credit courses)

1 Introductory Microeconomics: Resource Allocation and Market Structure

2 Introductory Macroeconomics: Aggregate Economic Activity

10A, Economics of Accounting

100A, Intermediate Microeconomics; or

100M, Intermediate Microeconomics Math Intensive

113, Introduction to Econometrics

Computer Engineering (three 5-credit courses and two 2-credit laboratories)

12/L, Computer Systems and Assembly Language/Laboratory

16, Applied Discrete Mathematics

150/L, Introduction to Computer Networks/Laboratory

Computer Science (three or four 5-credit courses and two 2-credit laboratories)

12A/L, Introduction to Programming(Accelerated)/Laboratory; or 5J, Introduction to Programming in Java and 11, Intermediate Programming

12B/M, Introduction to Data Structures/Laboratory

182, Introduction to Database Management Systems

Technology and Information Management (five 5-credit courses and one 2-credit seminar)

50, Business Information Systems

58, Systems Analysis and Design

101, Management of Technology Seminar

105, Management of Technology I

125, Management of Technology II

158, Business Strategy and Information Systems

Elective Courses (four courses)

Two 5-credit School of Engineering courses

- Students select two upper-division School of Engineering electives on the basis of their particular interests. These electives may be any 5-credit upper-division or graduate School of Engineering courses, with the following limitations:

1. either Computer Engineering 153 or Electrical Engineering 153, but not both;
2. either Applied Mathematics and Statistics 131 or Computer Engineering 107, but not both;
3. at most one independent or field-study course (193, 195, 198, 199) with prior approval from the department to be used as an elective.

- One 5-credit upper-division economics course
- One 5-credit, upper-division School of Engineering or economics course (the limitations on School of Engineering electives given above apply)

Technology and Information Management Major Planners

The following are two sample academic plans for students to complete during their first two years as preparation for the technology and information management major. Plan One is recommended for students who are more proficient in mathematics and programming and Plan Two is recommended for students who need more time to develop proficiency in mathematics and programming.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	ECON 1	ECON 2	TIM 50
	MATH 19A	MATH 19B	MATH 22 or 23A
	college core		
2nd (soph)	CMPS 5J	CMPS 11	ECON 100A
	ECON 10A	CMPE 16	AMS 10

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	CMPS 10	CMPS 5J	CMPS 11
	MATH 3	MATH 19A	MATH 19B
	college core		
2nd (soph)	TIM 50	CMPE 16	ECON 10A
	ECON 1	ECON 2	MATH 22 or 23A

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in technology and information management is satisfied by completing course 158.

Comprehensive Requirement

Students complete two project-intensive courses, Technology and Information Management 158 and Technology and Information Management 105, which constitute the comprehensive requirement for the technology and information management major, based on the dual aspects (technology of management and management of technology) of the program. Course 158 deals with the technology of management, and course 105 deals with the management of technology. Both courses involve a substantial amount of critical thinking and writing within the context of comprehensive projects.

Technology and Information Management 158, Business Strategy and Information Systems, requires that students understand and use a structured methodology to evaluate the competitive use of information systems within an enterprise. This is accomplished by a team project as well as by an individual project that involves researching and writing a comprehensive analytical term paper using a methodology taught as part of this course.

Technology and Information Management 105, Management of Technology I, requires that students understand and apply structured methodologies for the development, management, and commercialization of technologies and products. Students will work in teams on a comprehensive term project in the development, commercialization, and management of technologies such as computers, networks, semiconductors, mechatronics, and biotechnology.

Honors

The TIM program awards honors to students whose academic performance is excellent. Students with a GPA between 3.5 and 3.7 will be awarded honors. Students with a GPA of 3.7 receive highest honors. Students who have been found guilty of academic misconduct

are not eligible for either honors or highest honors.

Minor in Technology and Information Management (TIM)

Purpose

There is a growing need in today's increasingly complex socio-technological world for the fusion of information systems, technology, and business management for two important purposes: the use of information systems to solve business problems, and the management of technology, which includes new product development and enterprise management. The technology and information management (TIM) program therefore offers a minor in technology and information management (TIM) to provide undergraduates in the School of Engineering as well in other programs and divisions in the university, such as economics and business management economics, the physical and biological sciences, and arts, the opportunity to expand the breadth of their knowledge and training to include the management of information systems and the management of technology.

Rationale for the Courses

Courses for the technology and information management minor will include a combination of courses from the TIM program, computer engineering, computer science, and economics as well as the chains of prerequisites behind these courses. The TIM program courses for the technology and information management minor will include a mix of information systems and management of technology courses, providing students with a strong foundation in both the management of information systems and the management of technology.

Course Requirements

Requirements for the minor in technology and information management are the following:

Lower-Division Requirements

MATHEMATICS (2 COURSES)

Mathematics 19A, Calculus (or Applied Mathematics and Statistics 11A/Economics 11A, Mathematical Methods for Economists, or Mathematics 11A, Calculus, or Mathematics 20A, Honors Calculus)

Mathematics 19B, Calculus (or Applied Mathematics and Statistics 11B/Economics 11B, Mathematical Methods for Economists, or Mathematics 11B, Calculus, or Mathematics 20B, Honors Calculus)

COMPUTER SCIENCE (1 COURSE)

Computer Science 5J, Introduction to Programming in Java; or Computer Science 5C, Introduction to Programming in C/C++

TECHNOLOGY AND INFORMATION MANAGEMENT (2 COURSES)

Technology and Information Management 50, Business Information Systems; and

One of the following courses:

Technology and Information Management 58, Systems Analysis and Design; or

Technology and Information Management 80C, Starting a New Technology Company

Upper-Division Requirements

MATHEMATICS (1 COURSE)

One of the following courses:

Economics 113, Introduction to Econometrics; or

Computer Engineering 107, Mathematical Methods of Systems Analysis: Stochastic; or

Applied Mathematics and Statistics 131, Introduction to Probability Theory

Upper-Division Electives (4 courses)

Four upper -division courses selected from the following:

- Technology and Information Management 105, Management of Technology I
- Technology and Information Management 125, Management of Technology II
- Technology and Information Management 158, Business Strategy and Information Systems
- Computer Engineering 150/L, Introduction to Computer Networks/Laboratory
- Computer Science 180, Database Systems I or Computer Science 182, Introduction to Database Management Systems
- Economics 100A, Intermediate Microeconomics or 100M, Intermediate Microeconomics, Mathematics Intensive
- Economics 100B, Intermediate Macroeconomics or 100N, Intermediate Macroeconomics, Mathematics Intensive

With pre-approval from the technology and information management undergraduate director, up to two graduate technology and information management courses may be used to satisfy upper-division elective requirements.

Graduate Programs

Technology and Information Management Ph.D. and Master's Degrees

Technology and information management (TIM) is a new and distinct discipline within engineering, combining technology management, systems engineering, and information technology. TIM's research and academic programs, combining information technology with both knowledge management and systems management, address problems facing firms today as they deal with more complex decisions in a global environment, facing new business models (e.g., "services") and business practices. TIM places special emphasis on research arising from challenges faced in creation and management of knowledge-based services and enterprises. TIM themes include:

Management and optimization of enterprise systems, which is the integration of business, technology, and management perspectives to enable an entity to achieve enhanced growth and profitability through use of analytical methods including stochastic models, optimization, game theory and knowledge management.

New product, technology, and services management, which is the design and development of products and services, the design and risk management of product portfolios, and pricing.

Financial engineering, which addresses the management of rise, reward, and allocation of resources in technology development and deployment.

Information retrieval and knowledge management, which includes semantic mining and machine learning, linking business to knowledge management.

TIM offers a master of science (M.S.) degree as a terminal degree for engineers who wish to prepare for careers in management in high-tech enterprises, providing the appropriate breadth and depth of courses for preparation of theses engineering managers.

The TIM doctor of philosophy (Ph.D.) degree focuses on research, with emphasis on analytic methods for managing high-tech enterprises, including product, services, and business-process innovation and development; financial engineering for technology and enterprise management; entrepreneurship; operations and supply-chain management; costing and strategy; marketing engineering; data mining; and the applications of information technology to knowledge-management.

Base Requirement

Most entering students are expected to come from undergraduate engineering programs. Students with quantitative undergraduate preparation in the sciences, economics, or mathematics would also be prepared if they had significant industry experience in a technology field or if they are prepared to take extra courses and/or an internship in industry to obtain this background. The TIM M.S. attracts students now employed in

industry and also recent B.S. graduates who have not yet entered the workforce. For this latter group, industrial experience will be encouraged though internships with local companies. TIM M.S. students may take up to two upper-division, undergraduate, prerequisite courses and, with adviser approval, may count these as credit toward the M.S. degree. (These courses will not count as credit toward the Ph.D. degree.)

Mathematics

Probability and statistics (AMS 131)—Focus on probability models, random variables, maximum likelihood and Bayesian estimation

Linear algebra (AMS 10 or MATH 21)

Differential equations (AMS 10 or MATH 24)

Computer Science

Abstract Data Types (CMPS 101)—Focus on abstract data types and common algorithms Programming project (e.g., CMPS 104A, CMPS 115, CMPS 111)—Any upper-division, computer science course that involves a large programming project

Database systems (CMPS 180, 181)

Computer Engineering

Probability and Statistics for Engineers (CMPE 107)

Computer networks (CMPE 150, 151)

Computer Architecture (CMPE 110)

Applied Graph Theory and Algorithms (CMPE 177)

Economics

Microeconomics (ECON 100A)

Macroeconomics (ECON 100 B)

Managerial Economics (ECON 101)—Includes pricing schemes, non-price competition, and game theory

Field examinations and/or other pre-qualifying examinations

The graduate record examination (GRE) General Test is required for admission and a GRE subject advanced test—preferably in computer science, engineering, physics, or mathematics—is highly recommended. Chemistry and biology students with adequate training in mathematics and physics may also be considered. Student GPA of 3.5 or higher is recommended for admission into the program.

Relationship of Master's and Doctor's programs

The M.S. and Ph.D. programs have the same admission requirements. As in other SOE graduate programs, students admitted to the M.S. program may be subsequently admitted to the Ph.D. program by departmental approval. Ph.D. students may receive the M.S. degree upon fulfillment of the M.S. degree requirements.

Master's Requirements

Masters students must complete a minimum of 45 credits, comprised of the following:

Core Courses (4 required)

- TIM 204, Introduction to Optimization in Business (5 credits)
- TIM 205, Management of Technology I (5 credits)
- TIM 215, Organizations and Leadership (5 credits)
- TIM 245, Data Mining (5 credits)

With appropriate preparation and/or student interest, proposals will be accepted to allow substitution of another graduate course for one of the core courses. This proposal will require approval of the faculty adviser and the TIM graduate director.

Seminars (2 required)

- Two TIM graduate seminars (5 credits total)

Other Courses (15 credits minimum)

- A minimum of fifteen credits (three courses) must be from graduate elective courses approved by the adviser and the TIM graduate director. The program offers a wide variety of electives.
- One upper-division undergraduate course can be substituted for one of the three required graduate courses with the approval of the adviser and TIM graduate director.
- When necessary to strengthen students' preparation for graduate study, up to two additional upper-division undergraduate courses may be required by agreement of the adviser and TIM graduate director.
- Students serving as teaching assistants or who plan to pursue a Ph.D. must take Applied Mathematics and Statistics 200, Research and Teaching in AMS (3 credits), or Computer Science 200, Research and Teaching in Computer Science and Engineering (3 credits) before or during their first teaching-assistant (TA) assignment.

TIM Master's Project

TIM 297. This is a substantial applied research project carried out independently by the student under the guidance of a faculty member. The topic and completed project must be approved by the faculty adviser (5 credits).

Ph.D. Requirements

The research areas in TIM are varied, and each will require a different sequence of classes to develop appropriate depth in analytical methods and technology. The selection of graduate courses will be in consultation with the dissertation supervisor.

Although there is no teaching requirement, students will be encouraged to gain teaching experience by becoming teaching assistants (TAs).

Where appropriate, research internships with companies, government laboratories, or elsewhere are recognized (and may be required) as an integral part of the research leading to the dissertation.

Ph.D. students must complete a minimum of 62 credits, comprised of the following:

Four TIM core courses (same as TIM-MS Core). Up to two of these courses may be substituted with other 5-unit courses with approval of the faculty advisor and reported to the graduate director (20 credits);

Two TIM seminars (4 credits minimum);

Two elective graduate courses (10 credits) offered by TIM;

Three additional graduate electives (15 credits) chosen with approval of the adviser and TIM graduate director. Students may substitute other appropriate courses for the TIM core courses or electives with the approval of their adviser and TIM graduate director;

A minimum of 10 credits of dissertation research or independent study;

Applied Mathematics and Statistics 200, Research and Teaching in AMS (3 credits); or Computer Science 200, Research and Teaching in Computer Science and Engineering (3 credits)

Ph.D. Qualifying Examination and Dissertation

Each student writes a Ph.D. dissertation. The dissertation must show the results of in-depth research, be an original contribution of significant knowledge, and include material worthy of publication. As the first step, a student submits a written dissertation proposal to a TIM faculty member. By accepting the proposal, the faculty member becomes the dissertation

supervisor. The dissertation proposal is formally presented in an oral qualifying examination given by a qualifying exam committee approved by the graduate committee.* The student must submit his or her written dissertation proposal to all members of the committee and the graduate assistant one month in advance of the examination.
**Sentence revised on 12/5/14 to remove reference to "graduate council."*

Students are advanced to candidacy after they have completed the course requirements, passed the qualifying examination, cleared all incompletes from their records, have an appointed dissertation reading committee and have paid the advancement fee. Students who have not advanced to candidacy by the end of their fourth year will be placed on academic probation.

The appointment of the dissertation reading committee is made immediately after the qualifying examination and is necessary for advancing to candidacy. Each Ph.D. candidate submits the completed dissertation to a reading committee at least one month prior to the dissertation defense. The candidate presents his or her research results in a public seminar sponsored by the dissertation supervisor. The seminar is followed by a defense of the dissertation to the reading committee and attending faculty, who will then decide whether the dissertation is acceptable or requires revision. Successful completion of the dissertation fulfills the final academic requirement for the Ph.D. degree.

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Revised: 12/05/14

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Environmental Studies

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405 Interdisciplinary Sciences Building
(831) 459-2634
http://envs.ucsc.edu

Faculty | Course Descriptions

Program Description

The environmental studies major prepares students for meaningful lifetime engagement with the environmental challenges that are facing society. UCSC environmental studies graduates hold leadership positions as legislative and policy analysts, environmental lawyers, environmental managers, city and state planners, educators, restoration ecologists, organic farmers and agroecological specialists, conservation biologists, environmental engineers, museum curators, business consultants, and political advocates. In addition, many graduates go on to obtain professional, master's, or doctoral degrees at the nation's finest institutions.

Students pursue an interdisciplinary curriculum that combines coursework in the natural and social sciences. Introductory courses cover the ecological, political, and economic aspects of historic, current and future environmental issues. The core course, Environmental Studies 100/L, Ecology and Society builds on the skills acquired in the lower-division classes, and encourages students to apply ecological, economical and political skills toward environmental and ecosystem management. The remaining upper-division elective courses further emphasize the integration of ecological knowledge with an understanding of social institutions and policies. The program emphasizes active, interdisciplinary learning with the overall objective of instilling the necessary skills to conserve biodiversity and integrate the principles of sustainability with respect to management of complex environmental systems. Faculty work on these issues at local, regional, and global levels providing a unique, proactive, and progressive academic environment for students wishing to pursue a degree program within the Environmental Studies Department.

In addition to the single environmental studies major, students may choose to pursue one of three combined majors with biology, Earth sciences, or economics. The combined major curricula offer the unique integration of the underlying concepts of environmental studies with a focus on the application of these concepts in a closely related field (or vice versa).

As a complement to classroom instruction and research, many courses have field components. The Environmental Studies Internship Program helps qualified students find placements with government and educational agencies, community organizations, and private firms. Furthermore, faculty-directed, independent, or field-oriented research courses allow environmental studies students the opportunity to learn more about their specific academic career or personal interests, often while earning academic credit

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Declaration of the Major

Students wishing to declare within the Environmental Studies Department should visit the environmental studies web site and follow the steps listed there. Study plans may be downloaded from the environmental studies web site.

Major Qualification Policy

A. Environmental Studies Major

Students may petition to declare the Environmental Studies major once they have completed the following required courses: Environmental Studies 23; Environmental Studies 24 (or Biology: Ecology and Evolutionary Biology 20C); Environmental Studies 25; Applied Mathematics and Statistics 7/L. Students receiving an NP, D, or F in one of the courses required for admission to the major may only declare once they have passed the same or equivalent course with a grade of C or better. Students who receive two grades of NP, D, or F in the required courses are not eligible to declare the major.

B. Environmental Studies/Biology Combined Major

Students may petition to declare the Environmental Studies/Biology combined major once they have completed the following courses: Environmental Studies 25; Ecology and Evolutionary Biology 20C; Molecular, Cell, and Developmental Biology 20A Chemistry 1A; Applied Mathematics and Statistics 7/L.. Students receiving an NP, D, or F in one of the courses required for admission to the major may only declare once they have passed the same or equivalent course with a grade of C or better. Students who receive two grades of NP, D, or F in the required courses are not eligible to declare the major.

C. Environmental Studies/Earth Sciences Combined Major

Students may petition to declare the Environmental Studies/Earth Sciences combined major once they have completed the following courses: Environmental Studies 24 (or Biology: Ecology and Evolutionary Biology 20C); Environmental Studies 25; Chemistry 1A; Applied Mathematics and Statistics 7/L. Students receiving an NP, D, or F in one of the courses required for admission to the major may only declare once they have passed the same or equivalent course with a grade of C or better. Students who receive two grades of NP, D, or F in the required courses are not eligible to declare the major.

D. Environmental Studies/Economics Combined Major

Students may petition to declare the environmental studies/economics combined major once they have completed the following courses: Environmental Studies 23; Environmental Studies 24 (or Biology: Ecology and Evolutionary Biology 20C); Environmental Studies 25; Economics 1; Economics 11A; and either Applied Mathematics and Statistics 5 or 7/L. Students receiving an NP, D, or F in one of the courses required for admission to the major may only declare once they have passed the same or equivalent course with a grade of C or better. Students who receive two grades of NP, D, or F in the required courses are not eligible to declare the major.

Appeal Procedure

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the department chair within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

Requirements for the Environmental Studies Major

Prerequisites for the Single Major

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Continuing UCSC students are required to complete all six prerequisite courses before taking Environmental Studies 100/L. Five of the prerequisite courses are preset and are listed below. See the course descriptions for more specific information.

Environmental Studies 23, The Physical and Chemical Environment (offered in spring and summer quarters)

Environmental Studies 24, General Ecology (offered in fall and summer quarters). *

Environmental Studies 25, Environmental Policy and Economics. Offered in winter and summer quarters.

Applied Mathematics and Statistics 2, Prestatistics, or Applied Mathematics and 6, Precalculus for Statistics; or Applied Mathematics and Statistics 3, Precalculus for Science and Engineering; or Mathematics 3, Precalculus; or a score of 3 or higher on the College Board AP calculus examination, or equivalent. Check the catalog for the quarters offered.

Applied Mathematics and Statistics 7/L, Statistical Methods for the Biological and Environmental Studies. Check the catalog for the quarters offered. *

*Prerequisite for Environmental Studies 24 and Applied Mathematics and Statistics 7/L is Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3.

In addition, students choose one introductory course in sociology, cultural anthropology, or ethics. The acceptable courses are as follows:

Anthropology 2, Introduction to Cultural Anthropology

Sociology 1, Introduction to Sociology

Sociology 10, Issues and Problems in American Society

Sociology 15, World Society

Philosophy 22, Introduction to Ethical Theory

Philosophy 24, Introduction to Ethics: Contemporary Moral Issues

Philosophy 28, Environmental Ethics

Philosophy 80G, Bioethics in the 21st Century: Science, Business, and Society

The following are two recommend academic plans for pursuing the environmental studies single major. Plan One is for students who place into Mathematics 3, Precalculus, and Plan Two is for students who place out of Mathematics3, Precalculus.

Plan One for students placing into Mathematics 3

Year	Fall	Winter	Spring
1st (frsh)	MATH 3 or AMS 2 or 6 or 3	AMS 7/L or SOC/ANTH/Ethics ENVS 25	ENVS 23
2nd (soph)*	ENVS 24		ENVS 100/L
	AMS 7/L or SOC/ANTH/Ethics	ENVS 100/L or spring	
3rd (jr)			

Plan Two for students placing out of Mathematics 3

Year	Fall	Winter	Spring
1st		ENVS 25	ENVS 23

(frsh)		AMS 7/L or SOC/ANTH/Ethics	AMS 7/L or SOC/ANTH/Ethics
2nd (soph)	ENVS 24	ENVS 100/L or spring	ENVS 100/L

Transfer Students

Transfer students pursuing environmental studies majors are encouraged to transfer in the fall quarter. Students transferring to UCSC should complete as much of the lower-division curriculum as possible, with a grade of C or better, at another recognized institution before transferring to UCSC. Below is an outline of acceptable substitute courses for the lower-division environmental studies single major prerequisites. Please note that all students wishing to pursue a single environmental studies major must complete Applied Mathematics and Statistics 7/L (or Economics 113 for combined majors with economics) at UCSC to fulfill the statistics requirement needed to begin upper-level environmental studies coursework. It is recommended that transfer students plan to enroll in Applied Mathematics and Statistics 7/L or Economics 113, and any other missing prerequisite during the summer or fall quarter in order to take Environmental Studies 100/L in winter or spring quarter. Transfers can formally declare their major once qualifying courses are successfully completed (see Major Qualification Policy).

Completion of an introductory college chemistry course will substitute for Environmental Studies 23.

Completion of a general ecology course will substitute for Environmental Studies 24.

Two courses, one in politics, one in economics, will substitute for Environmental Studies 25.

A college-level precalculus course will substitute for Mathematics 3 or Applied Mathematics and Statistics 3 at UCSC.

Environmental Studies 23, 24, and 25 are offered during Summer Session at UCSC, and transfer students are encouraged to take them. If you are transferring, compare catalog descriptions, consult your current institution's adviser, and refer to the ASSIST web site to determine equivalency.

Upper-Division Requirements

In addition to lower-division coursework, students are required to complete nine upper-division courses:

Environmental Studies 100/L, Ecology and Society (environmental studies core course, offered twice yearly during the winter and spring quarters).

Seven upper-division electives (environmental studies courses numbered 101-179). One must be based in the social sciences and one course must be based in the natural sciences. List of these courses is available from the Environmental Studies Department.

See the senior comprehensive requirement below.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. A primary goal of the environmental studies major is to train students who are able to critically analyze interdisciplinary environmental problems, justify their position on an issue, and communicate that position to a range of audiences verbally and in writing. The DC Requirement in environmental studies is satisfied by completing Environmental Studies 100/L and one of the following courses: 183B, 190, 195A, 195B, or 196.

Comprehensive Requirement

The senior comprehensive may be satisfied by completing one of the options listed below. Before enrolling in the senior thesis or senior internship option, students must formally

apply to work with a particular faculty mentor very early in their thesis or project preparation. These courses require careful planning, additional independent research, and at least a two-quarter commitment.

Environmental Studies 183A and 183B, Senior Internship

Environmental Studies 190, Capstone Course: Environmental Problem Solving (offered spring quarter only)

Environmental Studies 195A or 195B, Senior Thesis

Environmental Studies 196 (one course from the series), Senior Seminar

Students with advanced skills in one of the graduate focal areas may also take a graduate seminar by invitation from the instructor.

Requirements for the Combined Majors

Environmental Studies/Biology

This course of study provides students with the basic tools of biological science and sufficient understanding of resource conservation, conservation biology, and concerns about environmental sustainability to apply these tools to environmental problems.

Lower-Division Requirements

All courses must be taken for a letter grade.

Biology and mathematics courses may require placement examinations. See course descriptions for prerequisite information.

Ecology and Evolutionary Biology 20A, 20B, and 20C

Environmental Studies 25

Anthropology 2; or Philosophy 21, 22, 24, 28, or 80G; or Sociology 1, 10 or 15

Applied Mathematics and Statistics 3, Precalculus, or Applied Mathematics and Statistics 2, Prestatistics, or Applied Mathematics and Statistics 6, Precalculus for Statistics; Mathematics 3; or a score on the math placement examination or the College Board AP calculus examination sufficient to be placed into calculus)

Applied Mathematics and Statistics 7 and 7L

Chemistry 1A, 1B, and 1C/N

Two courses in physics, Physics 1 and 2, or Physics 6A/L and 6B or 6C.

Upper-Division Requirements

Students are required to complete nine upper-division courses and the comprehensive requirement listed below.

Environmental Studies 100/L (prerequisites are: Chemistry 1A; Ecology and Evolutionary Biology 20C; Environmental Studies 25; Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3; Applied Mathematics and Statistics 7/L; and the cultural anthropology/sociology/philosophy option).

Biology 105, Genetics

Biology 109, Evolution

Six upper-division courses, three in biology and three in environmental studies. One of the six must be a laboratory course, and one of the three environmental studies courses must be based in the social sciences. Students wishing to pursue an advanced degree in the pure or applied sciences are strongly encouraged to complete the organic chemistry series as well. Chemistry 108A/L and 108B/M may be substituted to fulfill one of the upper-division biology elective requirements.

These upper-division elective courses should be selected in pursuit of a coherent plan of study, chosen in consultation with faculty sponsors from both the Biological Sciences and

Environmental Studies Departments. None of the three environmental studies upper-division courses can be an environmental studies internship, individual study, or substitution course.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC Requirement for the environmental studies/biology combined major is satisfied by completing Environmental Studies 100/L and one of the following courses:

Environmental Studies 183B, 190, 195A, 195B, or 196, or Biology: Ecology and Evolutionary Biology 109.

Comprehensive Requirement

Students satisfy the senior comprehensive requirement by completing either:

one of the options for environmental studies majors (see Comprehensive Requirement above); or

one of the approved internships, independent research or field course or a thesis

Environmental Studies/Earth Sciences

This course of study provides students with the basic tools of Earth sciences and environmental studies needed to address environmental problems.

Lower-Division Requirements

Applied Mathematics and Statistics 7 and 7L

Mathematics 11A-B (or 19A-B)

Chemistry 1A, 1B/M, and 1C/N

Physics 6A/L and 6B/M (or 5A/L and 5B/M)

Earth Sciences 20/L (or 5/L or 10/L)

Environmental Studies 24 and 25

Anthropology 2 or Philosophy 21, 22, 24, 28, or 80G or Sociology 1, 10, or 15.

Upper-Division Requirements

Earth Sciences 110A/L, 110B/M, or 110C/N

Environmental Studies 100/L (Prerequisites are: Chemistry 1A, Ecology and Evolutionary Biology 20C, Environmental Studies 25, Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3, Applied Mathematics and Statistics 7/L, and the cultural anthropology/sociology/philosophy option)

Three additional upper-division environmental studies courses, including at least one course based in the social sciences

Three additional upper-division Earth sciences courses

The upper-division courses should be selected in pursuit of a coherent plan of study, such as water policy-hydrology, restoration ecology-geochemistry, agroecology-soil physical processes, or environmental policy-climate change, among others, in consultation with faculty from both the Environmental Studies and Earth Sciences Departments. None of the three environmental studies upper-division courses can be an environmental studies internship, individual study or substitution course.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC Requirement for the environmental studies/Earth and planetary sciences combined major is satisfied by completing Environmental Studies 100/L and one of the following courses: Environmental Studies

183B, 190, 195A, 195B, or 196, or Earth Sciences 195 or 188A–B.

Comprehensive Requirement

Students satisfy their senior comprehensive requirement in environmental studies or Earth sciences by completing either:

- One of the senior comprehensive options for single environmental studies majors (see Comprehensive Requirement above) or
- one of the senior comprehensive options for Earth sciences majors (see Comprehensive Requirement under Earth Sciences).

Environmental Studies/Economics

This major provides students with the basic tools of economic analysis and an understanding of the mechanics of resource production, conservation, and use, in both ecological and economic terms.

Lower-Division Requirements

Economics 1, 2, 11A, 11B , AMS 5 or AMS 7/L

Environmental Studies 23, 24, 25

Anthropology 2; or Philosophy 21, 22, 24, 28, or 80G; or Sociology 1, 10 or 15.

Upper-Division Requirements

Economics 100A(100M), Intermediate Microeconomics

Economics 113, Econometrics

Environmental Studies 100/L

Six upper division elective courses, three in economics and three in environmental studies. Economics electives must be chosen from the following list: 100B(100N), 101, 114, 115, 120, 128, 130, 131, 133, 135, 136, 138, 139A, 139B, 140, 141, 142, 150, 156, 160A, 160B, 161A, 162,165, 169, 180, 183.

Environmental Studies electives must be chosen from those numbered 101–179, with at least one course based in the natural sciences. None of the three environmental studies upper-division courses can be an environmental studies internship, individual study or substitution course.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC Requirement in environmental studies/economics combined major is satisfied by completing Environmental Studies 100/L and one of the following courses: Environmental Studies 183B, 190, 195A, 195B, or 196.

Comprehensive Requirement

Students satisfy the senior comprehensive requirement by completing the following: one of the options for environmental studies majors (see Comprehensive Requirement above); and pass those portions of the economics comprehensive examination administered in Economics 100A(100M) and 113.

Honors

Senior Comprehensive Honors. Only applicable is senior thesis, internship, or individual work in a senior seminar. Honors must be awarded by the student's faculty sponsor, and a second faculty member (chosen by the student's advisor) must confer.

Departmental Honors. To be considered for departmental honors, students must have a grade point average (GPA) of 3.5 in upper-division environmental studies courses.

Highest Departmental Honors. To be considered for highest departmental honors, students must have a GPA of 3.75 in the major in upper-division environmental studies courses, and received honors on the senior comprehensive.

For combined majors, students must fulfill all requirements for honors from both departments.

Graduate Program

The doctor of philosophy (Ph.D.) program in Environmental Studies at UCSC is an interdisciplinary program that draws equally from ecology and social sciences. Our interests in ecology engage most strongly with conservation biology, agroecology, and global change. Our interests in the social sciences bridge political ecology, geography, environmental policy, and politics, law, and environmental economics. We aim to train doctoral students to work effectively in disciplinary and interdisciplinary environments within the academy, in government agencies, and in public interest organizations and businesses.

Graduates of the program are expected to engage as scholars across natural and social sciences, to have deep intellectual strength in their area of specialty, and to have made substantial contributions toward the understanding of an environmental problem. We expect our doctoral students to be as skilled and intellectually rigorous within their research emphases as are students emerging from more traditional disciplinary programs but also to possess the knowledge needed to understand, analyze, and communicate in different but relevant fields of study. This expectation of intellectual breadth as well as disciplinary depth is a central goal of our doctoral program.

Given the strong interdisciplinary focus of the environmental studies Ph.D. program, study in other fields is encouraged. Most environmental studies faculty have secondary affiliations with other departments on campus. Students have the option of pursuing a "designated emphasis," the equivalent of a graduate minor in another graduate program on campus. These provide a framework for in-depth study in specialized disciplinary fields and recognition of particular scholarly expertise. Designated Emphasis programs are available in numerous fields including ecology and evolutionary biology, anthropology, education, sociology, visual studies, statistics, politics, and Latin American and Latino studies.

General Requirements for the Doctorate

The typical duration of the doctoral program is five to six years.

A dissertation in environmental studies is expected to present an original contribution to the understanding of a significant environmental problem or issue. It should demonstrate a clear understanding of the relevant literature, careful and rigorous research design, and effective communication of the results within the context of the student's area of emphasis. The dissertation is guided by a committee that includes both natural and social scientists.

In addition to the dissertation, students are expected to complete required coursework and to serve as teaching assistants in undergraduate courses for two quarters.

The Environmental Studies Department does not offer a terminal master's degree, except for students who have been advanced to candidacy but who do not complete the Ph.D. dissertation.

Program Prerequisites

The interdisciplinary nature of the core curriculum requires rigorous preparation at the undergraduate level. All entering students are expected to have completed at least one upper-division course in the following areas: economics, ecology/genetics, statistics, and either anthropology, sociology, politics or political economy.

Committees and Examinations

A three-person interdisciplinary guidance committee works to ensure that each student's preparation is individually designed to meet particular needs and interests, to help ensure their success as scholars, and to help students fully engage interdisciplinary dimensions of their training and research. One committee member is the major professor and at least one

member needs to be from a complementary meta-discipline from the student's general research area. For instance, a student whose interests are in conservation biology may have two committee members who are ecologists and one who is a political scientist.

The committee helps guide the student in preparation for prequalifying examinations in three general areas of scholarly interest, and depending on the student's background, interests, and intentions, may require additional coursework, including courses from other departments. The prequalifying examination must be taken no later than winter quarter of the third year.

The qualifying examination committee includes an additional member from outside the environmental studies department, and helps guide the student to define and plan their dissertation research. This committee is responsible for certifying that the student is qualified to advance to candidacy for the Ph.D. degree. The qualifying examination must be completed by the end of the third year.

If the venue of a student's research is in a non-English-speaking country, certification of competence in the language of that country may be required before advancement to candidacy.

Required Courses

Environmental Studies 201A, Keywords and Concepts: Geography and Ecology

Environmental Studies 201B, Keywords and Concepts: Biogeochemistry and Environmental Policy

Environmental Studies 201M, Interdisciplinary Research Methods

Environmental Studies 201N, Interdisciplinary Research Design

An approved graduate course in quantitative methods that provides a basis in research design and analysis

Two of the following, one each from the social and natural sciences:

Social Sciences:

- Environmental Studies 210, Political Ecological Thought and the Environment or
- Environmental Studies 240, Public Policy and Conservation

Natural Sciences:

- Environmental Studies 220, Conservation Biology, or
- Environmental Studies 230, Agroecology and Sustainable Agriculture

These courses are designed to ensure that students acquire disciplinary depth in their chosen research fields; gain experience of their research communities; and refine the research skills necessary to perform successfully in their professional arena.

In addition, every quarter before advancement to candidacy, all students are required to participate in:

Environmental Studies 290, Interdisciplinary Research Seminar (2 credits)

Environmental Studies 290L, Graduate Research Seminar (2 credits)

Environmental Studies 292, Topics in Research in Environmental Studies (2 credits)

Graduate students are encouraged to participate in course Environmental Studies 291, Advanced Readings in Environmental Studies, in areas of interest.

Requirements for the Designated Emphasis in Environmental Studies

Doctoral students from other departments at UCSC may complete a designated emphasis in environmental studies by completing ENVS 201A, ENVS 201B, two advanced graduate courses in ENVS (from an approved list), and two quarters of ENVS 292. In addition,

students must have an environmental studies faculty member on their qualifying examination and thesis reading committees, complete a significant scholarly written component on an environmental topic, and complete the requirements for Ph.D. in their own department.

Application and Admission

For admission to the doctoral program, students must have completed a bachelor's degree or the equivalent in an area related to environmental studies. Most students entering the program either hold a master's degree or have several years work experience beyond the bachelor's.

Superior scholarship, capacity to carry out independent research, and commitment to scholarly work in an interdisciplinary context must be demonstrated in the statement of purpose, coursework, Graduate Record Examination (GRE) General Test, and letters of recommendation. Prospective students must contact faculty directly to inquire about sponsorship for admission to the program. Students are rarely accepted into the program without significant, early communications with potential faculty sponsors. See the faculty list for contact information.

Other considerations for admission include grades, evaluations, publications, professional or extramural experience, and more than one degree (second bachelor's or master's). Students are required to have completed coursework, or equivalent practical experience, in ecology, statistics, sociology/political science, and economics. Limited deficiencies in these areas can be remedied during the first year of graduate study. In addition to the application materials, students are strongly encouraged to submit a substantial written project (undergraduate or master's research project).

Admissions information and the online graduate application are at the UCSC Division of Graduate Studies.

Admission is only considered for the fall quarter. Completed applications are due by December 15th of the previous academic year.

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Feminist Studies

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http://feministstudies.ucsc.edu/

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Program Description

Feminist studies is an interdisciplinary field of analysis that investigates how relations of gender are embedded in social, political, and cultural formations. The undergraduate program in feminist studies provides students with a unique interdisciplinary and transnational perspective. The department emphasizes theories and practices derived from multiracial and multicultural contexts.

Feminist studies prepares undergraduates for a variety of careers. The bachelor of arts (B.A.) degree in feminist studies provides excellent grounding for undergraduates who have career aspirations in, for example, law, health, public administration, community organizations, and social services. Students wishing to pursue doctoral work will also find that interdisciplinary training in feminist studies equips them with theoretical and methodological strengths in most disciplines and applied research fields. Specialists in feminist studies are employed as consultants in industry, higher education, and human resources. State and federal government agencies employ people who have special training in understanding gender relations. Educational institutions need specialists to develop and administer feminist studies programs, women's centers, and other institutional structures designed specifically to study and assist women.

Requirements of the Major

Feminist studies majors must complete 11 courses including a senior comprehensive exit requirement in the feminist studies program. Students must choose one of the following concentrations within the major: Culture, Power, and Representation; Law, Politics, and Social Change; Science, Technology, and Medicine; or Sexuality Studies. Courses appropriate for each concentration are listed at http://feministstudies.ucsc.edu/courses/index.php.

A proposal for an independent concentration will be approved only when a student presents a clear, coherent, and rigorous plan of study that does not fit the existing concentrations. Both the student's adviser and the Feminist Studies Department chair must approve a proposal for an independent concentration.

Required courses include Feminist Studies 1, Feminist Studies: An Introduction; one Feminist Studies 10-, 20-, 30-, or 40-level course; Feminist Studies 100, Feminist Theories (these three core courses must be taken at UCSC); five upper-division, 5-credit courses in

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

the concentration; two upper-division, 5-credit electives; and an upper-division exit (comprehensive) requirement course. One independent study (course 199) may count toward the concentration or toward the elective requirements. Course 193 or 198 (internship) may be used to count toward the elective requirements.

Feminist studies is an interdisciplinary major and lists courses taught by affiliated faculty in other departments. However, feminist studies majors must take a minimum of five courses at UCSC taught directly in the Feminist Studies Department, i.e., courses designated FMST, not including course 193, 198, or 199. Two Education Abroad Program (EAP) courses may count towards the major; three transfer courses may count towards the major; and the total combined number of EAP and transfer courses that may count towards the major is a maximum of three.

Exit requirement options include a senior seminar (course 194) taught by core faculty, a senior thesis, or a senior project (course 195). Course 1, a lower-division 10-49 course, 100, and the composition (general education code C) requirement are prerequisites to course 194 and 195.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in feminist studies is satisfied by completing one course: 194A, 194D, 194E, 194F, 194G, 194H, 194I, 194J, 194K, 194M, 194N, 194O, 194P, 194Q, 194T, or 195.

Honors

Feminist studies awards honors and highest honors in the major. At the end of each quarter, a faculty committee meets to review graduating students' files. Students are considered for honors and highest honors based on their cumulative GPA, calculated from grades earned in coursework and senior exit requirement undertaken for completion of the major. For honors, students must earn a minimum GPA of 3.70 in the relevant courses, while for highest honors, the GPA must be 3.90 or higher. Writing a thesis is not a requirement for receiving honors or highest honors.

Letter Grade Requirement

Letter grades are required for 10 of the 11 courses applied toward the feminist studies major, including course 100 and the senior comprehensive course (194 or 195).

Transfer Students

Transfer students are encouraged to declare the major as soon as possible to be assured entrance into the required core courses. Feminist studies advisers or the chair determine which UC-transferrable courses from other institutions are acceptable. Course 1, one 10-49 lower-division course, and 100 must be completed in the junior year so that the exit requirement may be completed in the senior year.

Graduate Studies

Feminist Studies Ph.D.

The Department of Feminist Studies at the University of California, Santa Cruz welcomed its inaugural class of students who began studies toward a Ph.D. in Feminist Studies in fall 2013. The Ph.D. in Feminist Studies at UC Santa Cruz is an interdisciplinary program that investigates how relations of gender are embedded in social, political, racial, and cultural formations. The program emphasizes feminist modes of inquiry and provides students with advanced training in feminist methods. It fosters a rethinking of the relationships between knowledge, power, and expertise. Conceived as a collaborative, cross-divisional enterprise, this graduate program draws upon the strengths of a range of feminist scholars and their departments and programs across the University.

Ph.D. students will complete most of their coursework during their first two years, including the three required courses on Feminist Theories, Feminist Methodologies, and Disciplining Knowledge (FMST 200, 201, 202). Students focus on preparing their problem-based areas

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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of research and their dissertation prospectus during their third year. Students normally take the Ph.D. qualifying examination in their third year or early in their fourth year, when they also must demonstrate proficiency in a second language. Students write a dissertation that is approved by the Dissertation Committee to finish the program. Six years is the normative time toward completion of the Ph.D. degree.

Requirements for Ph. D. students

Ph.D. students must complete the three required courses and at least nine elective courses and three 2-credit classes. They will satisfy their language requirement by the end of the third year, and take their qualifying examination no later than their fourth year.

For Ph.D. Students by the end of the fourth year, or sooner:

- Twelve courses (of 5 credits each) and three 2-credit courses
- Language requirement satisfied
- Qualifying examination passed and dissertation prospectus approved
- After completion of qualifying examination, student takes courses in the 290 sequence until the dissertation is submitted.
- Students must teach three courses in feminist studies, or equivalent as instructor or research assistant

[See the Feminist Studies web site to learn more about the graduate program.]

Feminist Studies Designated Emphasis

Graduate students may work toward a doctor of philosophy (Ph.D.) degree that notes a designated emphasis in feminist studies on the graduation documents. Students wishing to pursue this option should consult with the chair of their respective Ph.D. program and are encouraged to apply in the first or second year of graduate study. The application and an annually updated list of regularly offered, approved graduate courses are available at http://feministstudies.ucsc.edu.

The following are required for the designated emphasis:

Committee composition. The student must have a designated graduate adviser from the feminist studies core or associate faculty who serves on the qualifying examination committee or in some other appropriate capacity.

Writing. The student must prepare a significant piece of writing in the area of feminist studies. This writing must be a master's essay or a chapter of the doctoral dissertation.

Course requirements. The student must take four graduate courses in feminist studies, two of which must be taught directly in the department. Two courses can be selected from among the graduate offerings of any UCSC department, as long as they are taught by core or affiliated feminist studies faculty.

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Film and Digital Media

2014-15 General Catalog

101 Communications Building
(831) 459-3204
film@ucsc.edu
http://film.ucsc.edu

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Program Description

The film and digital media major at UCSC offers an integrated curriculum involving theory, criticism, and cultural analysis, as well as a production program in the aesthetics and techniques of film and digital media. This bachelor of arts degree program provides students with the critical skills, theoretical concepts, and historical knowledge necessary to conduct informed analysis of cinema, television, video art, and new media, along with the up-to-date technical knowledge, practical skills, and artistic contexts needed for the production of film, video, and digital media. The major provides a course of study that develops an understanding of moving image and digital media as essential tools of communication and artistic practice.

Students in the general film and digital media major develop an understanding of major movements in world cinema and different aesthetic approaches to the medium, while studying the cultural impact of television and the rise of video and digital art in recent decades. The critical studies concentration is designed for film and digital media majors who have a special aptitude for and interest in the history and theory of film, television, video, and digital media. This rigorous program can help prepare undergraduates for graduate work in critical studies. Students in the highly selective production concentration are encouraged to demonstrate technical proficiency and creative vision in film and digital media production while also studying the histories and theories of these media. The integrated critical practice concentration will serve students currently enrolled in the major who have a special aptitude for and interest in combining work in critical studies and production. The concentration provides them with a more rigorous pathway through the major and, in their senior year, allows them to work on a senior project that integrates creative and intellectual work.

Students in all facets of the major acquire skills in media analysis while maintaining a broadly based, liberal arts perspective. The UCSC program is interdisciplinary, combining theory and practice in film, video, and digital media with study in other areas of the arts, humanities, and social sciences that help students understand the role these media play in society.

As the technologies of film and video have merged with digital computer-based moving images and interactive media, and as digital media continues to expand into everyday experience, students in the major are uniquely positioned to excel in these fields. Graduates of the UCSC film and digital media program have enjoyed considerable success both in the professional world and in gaining admission into top graduate schools in the

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

field.

Students enrolled in film and digital media production classes have access to audio, video, and digital production and postproduction equipment. Facilities include a digital media lab; audio recording studio; sound stage with green screen; digital nonlinear editing rooms; video format conversion rooms; a computerized sound effects library; and student equipment checkout. Additionally, computer laboratories equipped for digital image manipulation, web authoring, and interactive interface design and viewing rooms are available. The critical studies facilities include classrooms equipped for high-end film, video, and data projection. The library holdings in film and video history, theory, and literature are complemented by a large collection of films, videos, laser disks, and DVDs, including a diverse range of international feature films, experimental film and video work, animation, silent films, and documentaries.

Some courses offered by the Film and Digital Media Department are restricted in enrollment; admission is based on completion of prerequisites and other specific written application requirements. Admission to advanced production courses is generally restricted to third- and fourth-year students and is based on the submission of a portfolio of work produced in the introductory production class (FILM 170B for film production pathway, FILM 170A for digital media pathway) and other production workshops.

Upper-division digital media and production studio courses require coursework to be completed on computers. Instruction in and software for production courses utilizes the "Apple OX platform and primarily consists of Apple and Adobe video production software packages. Many UCSC students purchase laptop computers. Film and digital media students who are considering purchasing a laptop computer for production work are encouraged to consult with the department's operations staff. A list of recommended computer configurations and information regarding education pricing on software packages is available at slugfilm.ucsc.edu.

Declaration of the Film and Digital Media Pre-Major

Students who have completed one lower-division course (20A, 20B or 20C) with a grade of C or better may declare the film and digital media pre-major. Pre-majors are expected to complete the requirements to declare the major by the end of their second year. Transfer students must declare the pre-major no later than their second quarter in residence.

Declaration of the Film and Digital Media Major

Prior to declaring the film and digital media major, students must pass FILM 20A, and either 20B or 20C with a grade of C or better. Students may choose to take FILM 20P to fulfill the third lower-division requirement but this course does not count toward declaring the major.

Students need to complete the lower-division courses early in their studies so that the petition to major status is accomplished before the first quarter of the junior year. Acceptance into the film and digital media major does not constitute acceptance into any of the concentrations (production, critical studies, or integrated critical practice). Transfer students should consult the Transfer Student section for instructions about declaring the major.

Requirements of the Major

The general film and digital media major requires three lower-division and nine upper-division courses in residence and satisfaction of the senior comprehensive requirement. Students must include among these 13 courses at least one upper-division, 5-credit course that focuses on diversity (i.e., non-Western; underrepresented ethnicity, gender, or sexual orientation). A list of courses satisfying the department's diversity requirement is available at the department office. Students in the general film and digital media major may apply for admission to the critical studies concentration (see Critical Studies Concentration below), to the highly selective and competitive production concentration (see Production Concentration below), or the more rigorous integrated critical practice concentration (see Integrated Critical Practice Concentration below) within the major.

Lower-Division Requirements

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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20A Introduction to Film Studies

Two additional 20-level courses:

20B Introduction to Television Studies
20C Introduction to Digital Media
20P Introduction to Production Technique (cannot be used toward declaring the major)

General Film and Digital Media Major

Students in the general major complete the following required upper-division core curriculum:

120 Introduction to Film Theory and Criticism

One course from each of the following four groups:

130 Silent Cinema
132A International Cinema to 1960
132B International Cinema, 1960 to Present
132C Gender and Global Cinema

134A American Film, 1930-60
134B American Film, 1960-Present

136A Experimental Film and Video
136B History of Television
136C Visual Culture and Technology: History of New Media
136D Documentary Film and Video

194A Film Theory Seminar
194B Electronic Media Theory Seminar
194C New Media Theory Seminar
194D Film History Seminar
194E International Cinemas
194F Film and the Other Arts: Music and Dance
194G New(s) Media
194S Senior Seminar: Special Topics

And five upper-division elective courses are to be chosen from the following:

- up to five additional upper-division history/critical studies courses in film and digital media
- up to two upper-division courses in film and digital media production (150, 151, 170A, 170B, one from the 171 series, 172, 173, 175, 176, 177, or one from the 178 series)
- up to two upper-division courses offered by other departments or another institution; course substitutions must be pre-approved by the Film and Digital Media Department

Film and Digital Media Major Planners

The following are two recommended academic plans for students to complete during their first two years as preparation for the film and digital media major. Plan One is a guideline for students who are committed to the major early in their academic career; Plan Two is for students who are considering the major.

Students who are interested in the production concentration, the critical studies concentration, or the integrated critical practice concentration should consider Plan One to be better prepared for application to production studio classes or either the critical studies concentration or the integrated critical practice concentration in their junior year. However, four-year students following Plan Two should be able to pursue a concentration and still meet their expected graduation term. FILM 20A is not guaranteed to any incoming frosh and most four-year students will use Plan Two as a guideline.

Plan One

Year	Fall	Winter	Spring

	FILM 20A	low-div FILM req	low-div FILM req
1st (frsh)	college core	gen ed	gen ed
	gen ed	(declare pre-major)	(declare major)
2nd (soph)	FILM critical studies core	FILM 120	FILM critical studies core
	FILM elective	FILM elective	FILM elective
	gen ed	gen ed	gen ed

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	FILM 80A or 80M	low-div FILM req	low-div FILM req
	college core	gen ed	gen ed
	gen ed		(declare pre-major)
2nd (soph)	FILM 20A	FILM 120	FILM critical studies core
	gen ed	FILM elective	FILM elective
	(declare major)	gen ed	gen ed

Critical Studies Concentration

The critical studies concentration provides a more rigorous pathway through the film and digital media major and offers classes specifically reserved for seniors who have exceptional abilities. Students are eligible to apply for the critical studies concentration in spring quarter of their junior year, provided they have completed FILM 120 and at least three other upper-division critical studies classes. Applicants must already be declared film and digital media majors in good standing.

Students will be asked to submit the following application materials:

- a completed application form
- a one-page statement of purpose
- a sample essay
- a FDM faculty statement of support (submitted directly to the department)
- copies of all narrative evaluations provided by instructors of film and digital media courses

Application materials and instructions are available at the Film and Digital Media Department office. Applications are reviewed by a committee of film and digital media critical studies faculty. Admission to the critical studies concentration will be granted to students who have excellent grades in film and digital media courses, an outstanding writing sample, a clear statement of purpose, and a strong FDM faculty endorsement. Students may reapply a second time if not accepted, but not later than the first quarter of their senior year.

Requirements for the Critical Studies Concentration

The critical studies concentration curriculum adds the following requirements to those

already established for the film and digital media major. Students are required to take two upper-division electives, rather than the five electives currently required for the film and digital media major. Students complete their senior comprehensive requirement by taking FILM 194A, Film Theory Seminar; FILM 199, Tutorial; and either FILM 192, Student-Directed Seminar or FILM 195, Senior Thesis.

Students in the critical studies concentration complete the following required upper-division core curriculum:

120 Introduction to Film Theory and Criticism

One course from each of the following five groups:

130 Silent Cinema
132A International Cinema to 1960
132B International Cinema, 1960 to Present
132C Gender and Global Cinema

134A American Film, 1930–60
134B American Film, 1960–Present

136A Experimental Film and Video
136B History of Television
136C Visual Culture and Technology: History of New Media
136D Documentary Film and Video

165A Film, Video and Gender
165B Race on Screen
165C Lesbian, Gay and Queer Film and Video
165D Asian Americans in Media

187 Advanced Topics in Television Studies
189 Advanced Topics in Electronic and Digital Media Studies

Three courses to satisfy the senior comprehensive requirement:

194A Film Theory Seminar
199 Tutorial (supervised independent study for thesis or student-directed seminar preparation)
192 Student-Directed Seminar or
195 Senior Thesis

And two upper-division elective courses are to be chosen from the following:

- up to two additional upper-division history/critical studies courses in film and digital media
- one upper-division course in film and digital media production (150, 151, 170A, 170B, one from the 171 series, 172, 173, 175, 176, 177, or one from the 178 series)
- one upper-division course offered by other departments; course substitutions must be pre-approved by the Film and Digital Media Department

Production Concentration

Admission to the production concentration is highly selective, based on promise and accomplishment shown in the student's work. After completing FILM 170B (prerequisite for most film/video production courses) students may apply to the production concentration. Students who complete FILM 170A (prerequisite for most digital media production courses) with a B or better are also eligible to pursue the production concentration though they will aim to fulfill the requirements with digital media production courses and other production courses that do not require the FILM 170B prerequisite.

FILM 170B students apply by submitting works created in 170B to a portfolio review conducted at the end of each quarter. These student works are reviewed by a committee of film and digital media production faculty. Instructions for the portfolio review are available at the Film and Digital Media Department office. Students should note that production courses are in high demand and that faculty/student ratios and equipment resources limit

the number of applicants accepted into the production concentration. Students may reapply a second time if not accepted.

FILM 170A students who complete the course with a B or better apply by submitting a statement of intent to pursue the digital media pathway in production. Students are required to meet with the undergraduate adviser to discuss their digital media plan prior to submitting their statement of intent.

A student accepted into the production concentration who is unable to meet all the requirements for the concentration may instead be able to satisfy the graduation requirements of the general major. Application materials and instructions for all production courses are available each quarter online at https://slugfilm.ucsc.edu/secure/production_applications.

Requirements for the Production Concentration

Students in the production concentration complete the following required upper-division core curriculum:

120 Introduction to Film Theory and Criticism

170A Fundamentals of Digital Media Production (prerequisite for most digital media production courses) or
170B Fundamentals of Film and Video Production (prerequisite for most film/video production courses)

Two upper-division production courses from the following:

150 Screenwriting
151 Film Directing
170A Fundamentals of Digital Media Production
170B Fundamentals of Film and Video Production
171A Special Topics Workshop: Sound
171C Special Topics Workshop: Found Footage
171D Special Topics Workshop: Social Information Spaces
171F Special Topics Workshop: Autobiographical Film
171G Special Topics Workshop: Documentary Animation Workshop
172 Narrative Video Workshop
173 Narrative Digital Media Workshop
175 Documentary Video Workshop
176 Experimental Video Workshop
177 Digital Media Workshop: Computer as Medium
178A Personal Computers in Film and Video
178B Advanced Personal Computers in Film and Video

Two critical studies courses taken from two of the three following groups:

130 Silent Cinema
132A International Cinema to 1960
132B International Cinema, 1960 to Present
132C Gender and Global Cinema

134A American Film, 1930–60
134B American Film, 1960–Present

136A Experimental Film and Video
136B History of Television
136C Visual Culture and Technology: History of New Media
136D Documentary Film and Video

One course from the following:

194A Film Theory Seminar
194B Electronic Media Theory Seminar
194C New Media Seminar
194D Film History Seminar
194E International Cinemas

194F Film and the Other Arts: Music and Dance
194G New(s) Media
194S Senior Seminar: Special Topics
196A Senior Project in Film and Video Production
196B Senior Project in Screenwriting
196C Senior Documentary Workshop
197 Senior Digital Media Workshop

and four upper-division elective courses are to be chosen from the following:

- up to two upper-division courses in film and digital media production (150, 151, one from the 171 series, 172, 173, 175, 176, 177, or one from the 178 series)
- at least two upper-division film and digital media history/critical studies courses
- up to two upper-division critical studies elective courses from another department or another institution; course substitutions must be pre-approved by the Film and Digital Media Department.

Integrated Critical Practice Concentration

The integrated critical practice concentration provides a more rigorous pathway through the film and digital media major and offers classes specifically reserved for seniors with exceptional abilities in both critical studies and production who seek to combine creative and scholarly work. Students are eligible to apply for the integrated critical practice concentration in the last quarter of their junior year, provided they have completed FILM 120 and at least three other upper-division critical studies classes. Students not already admitted to the production concentration should apply simultaneously to the production concentration. Acceptance into the production concentration is a necessary pre-condition for acceptance into the integrated critical practice concentration. Applicants must already be declared film and digital media majors in good standing.

Students will be asked to submit the following application materials:

- a completed application form
- a one-page statement of purpose
- a sample essay
- a FDM faculty statement of support (submitted directly to the department)
- copies of all narrative evaluations provided by instructors of film and digital media courses

Application materials and instructions are available at the Film and Digital Media Department Office. Student application materials are reviewed by a committee of film and digital media faculty. Admission to the integrated critical practice concentration will be granted to students who have excellent grades in film and digital media courses, an outstanding writing sample, a clear statement of purpose outlining a senior project that integrates critical studies and production work, and a strong FDM faculty endorsement. Students may reapply a second time if not accepted, but not later than the first quarter of their senior year.

Requirements for the Integrated Critical Practice Concentration

The integrated critical practice concentration curriculum adds the following requirements to those already established for the film and digital media major. Students are required to take both 20A and 20P for their required lower-division courses, in addition to selecting a third lower-division class from either 20B or 20C. The minimum grade requirement for lower-division courses will apply (see Lower-Division Requirements). Students are required to take 170B as part of their core curriculum, and to complete six elective classes, rather than five. For the senior exit requirement students are required to complete one course (192, 195, 196A, 196B, 196C, or 197) which, combined with an independent study (FILM 199, Tutorial) taken either consecutively or simultaneously, will integrate critical studies and production work.

Students in the integrated critical practice concentration complete the following required

upper-division core curriculum:

120 Introduction to Film Theory and Criticism

One course from each of the following four groups:

130 Silent Cinema
132A International Cinema to 1960
132B International Cinema, 1960 to Present
132C Gender and Global Cinema

134A American Film, 1930–60
134B American Film, 1960–Present

136A Experimental Film and Video
136B History of Television
136C Visual Culture and Technology: History of New Media
136D Documentary Film and Video

170A Fundamentals of Digital Media Production
170B Fundamentals of Film/Video Production

Two courses to satisfy the senior comprehensive requirement:

199 Tutorial, and one of the following:
192 Student-Directed Seminar
195 Senior Thesis
196A Senior Project in Film and Video Production
196B Senior Project in Screenwriting
196C Senior Documentary Workshop
197 Senior Project in Digital Media

And six upper-division elective courses are to be chosen from the following:

- two upper-division history/critical studies course in film and digital media
- three upper-division courses in film and digital media production (150, 151, 170A, or 170B, one of the 171 series, 172, 173, 175, 176, 177, one of the 178 series)
- one senior seminar chosen from the 194 series
- graduate seminars, taken with permission of the faculty adviser, may substitute for one of the electives
- a maximum of two electives may be taken in another department or another institution if pre-approved by the Film and Digital Media Department

Courses from the above upper-division core curriculum in excess of requirements may NOT count as electives.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement will be met by completion of FILM 120, Introduction to Film Theory and Criticism. For detailed information on this major's DC requirement, consult your major adviser.

Comprehensive Requirement

All seniors in the general film and digital media major or in the production concentration may select one of three options to satisfy the campus exit requirement.

- Senior seminar: The senior seminars (courses in the 194 series) are restricted to majors in their senior year and are writing intensive. Students in the general major are required to complete one senior seminar. Students in the production concentration may complete the senior seminar to satisfy the senior exit requirement or as an elective.
- Senior thesis: (This option is restricted to students pursuing the Critical Studies or Integrated Critical Practice Concentration.) With prior faculty approval, a student may

elect to do a senior thesis (FILM 195). The student must contact a faculty member at least one quarter in advance to submit a proposal and to obtain faculty approval for a senior thesis. The proposal may involve writing a screenplay; expanding on a paper from a previously completed upper-division critical studies course in film and digital media; or writing an original paper in a particular area resulting in a work of substantial research.

- Senior project: A limited number of students in the production concentration may participate in the senior project (FILM 196A,196B, 196C, or 197) class. Admission is by application, with review of previous works and evaluation of the proposed final project by film and digital media production faculty.

Seniors in the critical studies concentration must complete the following to satisfy the campus exit requirement: FILM 194A, FILM 199, and either FILM 192 or 195.

Seniors in the integrated critical practice concentration must complete one course (192, 195, 196A, 196B, 196C, or 197) combined with an independent study course (199).

Transfer Students

All transfer students must enroll in at least one lower-division course (20A, 20B, or 20C) during their first quarter in residence. Transfer students are strongly encouraged to enroll in 20A during the Summer Session preceding their first quarter in residence. After completing one lower-division course (20A, 20B, or 20C) with a grade of C or better, transfer students may declare the film and digital media pre-major.

All transfer students must earn a C or higher in two 20-level courses, FILM 20A and either 20B or 20C (at least one must be taken at UCSC) to declare the major. Three lower-division and ten upper-division courses are required for completion of the general major. With some lower-division preparation, transfer students should be able to complete the upper-division coursework and the major within two years. As preparation, prospective transfer students are encouraged to complete FILM 20A through UCSC Summer Session prior to their transfer. Transfer students must petition the department to have equivalent lower-division courses taken at their current institution count toward their UCSC major requirements provided they have earned a C or higher in each course.

Students who have not completed a lower-division major requirement prior to transfer to UCSC, students who are interested in graduating with a double major, and students who must finish general education requirements may need additional time to complete their studies.

Transfer students are strongly advised to attend a UCSC Summer Orientation session for transfer students. Transfer students must consult with a film and digital media academic adviser prior to enrolling in classes to determine their status and to begin the declaration of major process as soon as possible.

Honors

Honors in film and digital media are awarded to graduating seniors whose academic performance in their major coursework is judged by a faculty committee to be consistently excellent to outstanding. Students must have at least a cumulative GPA of 3.5 in the major to be considered for Honors.

Minor

The minor in film and digital media offers a foundation in visual culture and contributes important scholarly techniques of value to other disciplines. Students earn a minor in film and digital media by completing eight courses: FILM 20A and 20B or 20C, and six upper-division courses including four from the core curriculum of the general major and two electives. There is no production component in the minor, nor is there a comprehensive requirement.

Declaring the Film and Digital Media Minor

Students who pass FILM 20A, 20B or 20C are eligible to declare the film and digital media minor.

Lower-Division Requirements

20A Introduction to Film Studies

and one of the following two courses:

20B Introduction to Television Studies

20C Introduction to Digital Media

Upper-Division Requirements

Students in the minor must complete the following upper-division core curriculum:

120 Introduction to Film Theory and Criticism

One course from each of the following three groups:

130 Silent Cinema
132A International Cinema to 1960
132B International Cinema, 1960 to Present
132C Gender and Global Cinema

134A American Film, 1930–60
134B American Film, 1960–Present

136A Experimental Film and Video
136B History of Television
136C Visual Culture and Technology: History of New Media
136D Documentary Film and Video

And two upper-division elective courses to be chosen from the following: any two additional upper-division film and digital media history/critical studies courses other than production studio courses (150, 151, 170A through 178B) that have not been used to satisfy the above upper-division core curriculum. One of the electives may be substituted from another department or institution. Course substitutions must be approved by the Film and Digital Media Department.

Film and Digital Media Ph.D.

The Doctor of Philosophy (Ph.D.) program in film and digital media challenges the traditionally conceived borders between creative and critical practice. The program enables dialogue between creative practice and theoretical knowledge as related forms of intellectual work and provides the conditions for students to realize a wide range of possible projects, including those that exist across the traditional divides of critical studies and production. Focusing on a diverse range of cultural production that includes cinema, television, video art, and Internet-based media, Ph.D. interrogate the historical, aesthetic, political, ideological, and technological aspects of these media forms across a range of international contexts, investigating their points of connection and convergence as well as their relationship to broader cultural and historical change. The program thus prepares students for intellectually informed creative practice as well as theoretical and critical production in a range of environments, not limited to traditional academic contexts.

Requirements

Coursework

- A minimum of 108 units of study in coursework at UCSC. Residence for a minimum of six quarters.
    - Applicants who already hold an M.A. or M.F.A. degree may petition to waive up to 30 credits of coursework; such a waiver is subject to the approval of the director of Graduate Studies.
- Residence for a minimum of six quarters.
- When in residence, students will take a minimum of 36 credits per year until advancement to candidacy.
- First year students will be required to take the three foundational courses (200A-B-C),

plus at least two film and digital media graduate elective courses.

- Second year students must then take at least four film and digital media graduate elective courses.
- Students are not permitted to enroll in 295 (Directed Reading) classes during their first year and are limited to one during their second year, unless they enter the program with an M.A. or M.F.A.
- Third year students arrange three Directed Readings (FILM 295) to prepare for the three topic areas of their qualifying examination.
- Prior to advancing to candidacy, students will continue to meet the minimum number of credits with other 2-5 credit elective courses as appropriate.
- A student will thus take at least nine film and digital media graduate courses over the degree, not including 295, 297 and 299 classes.
    - The remaining course units may be selected from film and digital media graduate courses or graduate courses other departments, subject to approval from the student's faculty adviser.
- Students must obtain permission from the Director of Graduate Studies, their faculty adviser to take advanced undergraduate courses.
- Students are expected to complete at least one year of supervised teaching as part of the degree requirements.

Foreign Language Requirement

Students must demonstrate proficiency in a language other than English. This may include a computer programming language instead of a natural language when such a language is integral to the student's field of study. The language requirement may be satisfied in one of two ways:

- by passing an upper-division course in a language related to the student's research
- by passing a reading proficiency test administered by a qualified person approved by the director of Graduate Studies.

A student must pass the language requirement before taking Ph.D. qualifying examinations. There are three exceptions. (Documentation for the exception must be received and approved by the director of Graduate Studies at least two months before the qualifying examination.)

- The "foreign" language requirement may be waived for a non-English native speaker who has passed the proficiency test in English required for admission.
- The requirement may be waived for a student who is a native speaker of another language in addition to English. The student must submit a statement to the director of Graduate Studies attesting to their proficiency in the additional native language.
- The requirement may be waived if a student has proof of proficiency in a language other than English in the form of a language major or minor from recent undergraduate or master's level education or equivalent. This must have been completed within the past five years at an accredited institution.

Timeline: Course Sequence, Examinations, and Dissertation

During the first year of study in FILM 200A-B-C classe, students will be introduced to the methodologies of developing a critical practice approach. This will occur while students simultaneously strengthen, with the appropriate elective classes, areas of theory or practice that pertain to their focus.

During the second year, the student will focus on selecting classes from the film and digital media elective series numbered 210-289. Students will also be encouraged to take electives from other graduate programs on campus.

At the end of the second year, undergo a second year review which functions as the master's examination. Students will submit four to five coursework projects for the exam. One of these must be the final project from 200C. Students will also submit a statement about that work and its contexts, which will form the basis for oral examination questions by faculty members.

Students may nominate faculty members to the committee. The student's faculty adviser and the Director of Graduate Studies will assemble the committee, taking into account the student's nominations. The committee will have a minimum of three faculty members, at least two of whom must be from the film and digital media faculty. One of those two must be the faculty adviser, who will chair the meeting. The committee must also include the Director of Graduate Studies. (The Director of Graduate Studies will not necessarily sit on the student's committee for future exams/reviews.) The exam is closed; only the student and the faculty committee will be present.

For students entering without a master's degree, the committee will recommend one of three grades for the M.A. examination: fail, pass, or pass with permission to proceed. Students who fail may retake the oral component of the examination one time. A student with a pass only may leave the program with the degree of master of arts. Students who pass with permission to proceed may enter the third year of coursework toward the Ph.D. For students entering with a master's degree, the committee will discuss the result of the review and its recommendations for further progress in the program, including the timeline to the Ph.D. qualifying exam (QE).

The third year will be spent developing three qualifying exam topics that will lead to the dissertation in close consultation with the student's faculty adviser. (This may occur earlier for students who enter with a master's degree.) Students work with three faculty members to develop three distinct topic areas with a corresponding bibliography/mediagraphy in 295 (Directed Reading). Topic areas must be pre-approved by the director of Graduate Studies who will ensure that the breadth requirement is met.

Students will also begin assembling a qualifying exam committee. The QE committee will be comprised of four faculty members, at least one of whom must be from another discipline at UCSC or from another campus. Students will also nominate a faculty member to chair the examination committee. The chair should be a tenured faculty member from the Film and Digital Media Department, holding a Ph.D., but should not be the student's primary faculty adviser or the person who will chair the dissertation. The composition of the QE committee must be approved by the Graduate Division and must be submitted to the director of Graduate Studies at least five weeks prior to the written examination.

The qualifying exam will typically be scheduled for the fall of the fourth year and no later than the end of the fourth year. (Students who enter with a master's degree may be eligible to take the qualifying exam before their fourth year.) The QE will consist of a written examination and an oral examination. A student who fails the Ph.D. Qualifying Exam will be permitted to re-take it one time. During the qualifying exam quarter, students may enroll in up to two 299 (Thesis Research) classes with members of their committee.

No later than two academic quarters after successfully passing the qualifying examination, students submit a Dissertation Prospectus. The candidate's qualifying exam committee must approve this prospectus. After the dissertation prospectus has been approved, the student will participate in a dissertation colloquium open to all film and digital media faculty and graduate students.

Students will advance to candidacy once they have successfully:

- Completed all required coursework with satisfactory grade
- Satisfied the language requirement
- Passed the Ph.D. qualifying exam
- Submitted a dissertation prospectus approved by their dissertation committee
- Participated in a dissertation colloquium.
- Organize an approved dissertation committee, through the dissertation nomination form.

Completion of the Degree

Upon successful advancement to candidacy, students must then complete the following requirements for the Ph.D.

Dissertation: The dissertation, or Ph.D. thesis, is to be an original contribution of high quality to the field of film and digital media. If a student's thesis contains a substantial creative component, the thesis project must also include a written component of no less than 75 pages. The dissertation must be approved by a committee consisting of a minimum of three faculty members, at least two must be from the film and digital media faculty. If the dissertation director does not hold a Ph.D. degree, then the majority of the remaining committee members must hold Ph.D.s. When the student has submitted the dissertation and the committee has approved it, the student is ready for the oral defense.

Oral Defense: Once the dissertation is approved, the student will present an oral summary before their dissertation committee and invited members of the academic community. The student will then answer questions posed by the faculty.

Sample Student Program for Each Year (Years 1-4)

Year 1: three core film and digital media courses; three electives, at least two of which are film and digital media courses

Fall

FILM 200A, Introduction to Graduate Study
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)

Winter

FILM 200B, Theory and Praxis of Film and Digital Media, Part 1
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)

Spring

FILM 200C, Theory and Praxis of Film and Digital Media, Part 2
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)

Year 2:at least four film and digital media electives; two other electives from Film and Digital Media or another department

Fall

Film and digital media elective
Film and Digital media elective
Foreign language/other elective (at least 2 credits)

Winter

Film and digital media elective
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)
Student suggests M.A. examination committee; prepares for examination.

Spring

Film and digital media elective
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)
Student takes M.A. examination. If successful, advances to third year.

Year 3: three required film and digital media courses, three electives from Film and Digital Media or another department

Fall

FILM 295, Directed Reading
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)

Winter

FILM 295, Directed Reading
Elective (from Film and Digital Media or another department)
Foreign language/colloquium study/other elective (at least 2 credits)
Student develops three topic areas for Ph.D. qualifying exam

Spring

FILM 295, Directed Reading
Elective (from Film and Digital Media or another department)
Foreign language/other elective (at least 2 credits)
Student assembles Ph.D. dissertation committee, nominates Ph.D. qualifying examination committee.

Year 4

Student takes Ph.D. qualifying examinatio, registering for FILM 299, Thesis Researchn. If successful, advances to candidacy and continues research and writing of dissertation.

Designated Emphasis

UC Santa Cruz graduate students enrolled in doctoral programs may obtain a designated emphasis in film and digital media as part of their Ph.D. degree. Students must meet the following requirements in order to obtain the designated emphasis:

- Secure approval from a member of the film and digital media core faculty to serve as the adviser for the designated emphasis.
- Submit a significant piece of writing, or a project that includes both writing and creative practice, that demonstrates competence in the field of film and digital media. A writing submission could take the form of
- a seminar paper or dissertation chapter. A writing/creative project may be constituted from a range of possible media such as film, video, web-based or other digital media. The submitted project must meet the approval of the student's film and digital media adviser.
- Successfully complete four graduate courses (not independent studies) taught by either core or affiliated faculty of the film and digital media Ph.D. program. The courses must be pre-approved by the student's designated emphasis adviser.

Social Documentation M.A.

(See Social Documentation)

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French

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in French can enroll in language courses from beginning to advanced levels. In addition, students may select from among the following programs: a major in language studies, a major in literature with an emphasis in French literature, or a major in global economics.

Lower-division courses 1-6 are taught entirely in French and prepare students for advanced study either on campus or abroad. They are designed to help students develop proficiency in aural comprehension, speaking, reading, and writing skills, and to introduce student to French and Francophone cultures.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

The Office of International Education (OIE) offers both semester and one-year programs in many regions of France, including Bordeaux, Lyon, Grenoble, Toulouse, and Paris. With the approval of an adviser, some French courses taken abroad may be applied to major requirements. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu.

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German

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in German can enroll in language courses from beginning to advanced levels. In addition, students may select from among the following programs: a major or minor in language studies, a major in German studies, a major in literature with an emphasis in German literature, or a major in global economics.

The sequence of lower-division courses 1-6 is aimed at helping students to develop listening and reading comprehension, as well as speaking, reading, and writing skills. Another sequence of lower-division courses, equivalent to levels 1, 2, and 3, consists of courses 1A and 1B, which offer accelerated German language instruction. Courses 1A and 1B are taught sequentially, winter and spring quarters. Instruction takes place almost exclusively in German.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

The Office of International (OIE) offers study abroad opportunities in Berlin, Potsdam, and Göttingen. Students may spend fall or spring semesters or a full academic year in Berlin (Berlin European Studies (BEST) or regular course of study), a spring semester in Potsdam (beginning German language program or intermediate German language and culture program), or a semester or year in Göttingen (graduate study). Language requirements for admission to these programs range from little or no German required (BEST program in Berlin and beginning German program in Potsdam) to one year of college-level German required (intermediate German language and culture program in Potsdam) to two years of college-level German required (regular course of study in Berlin). The Potsdam program courses may also be used to fulfill the language requirement for the year-long program in Berlin. Selected students may continue directly from the spring semester in Potsdam to the one-year program in Berlin. Academic and professional internship opportunities are also available to all students on study abroad in Germany.

Students may apply to any of these programs at any point in their student career. For the

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

year-long programs, students generally apply in their sophomore year for a junior year abroad. As an exception, some students apply in their junior year for a senior year abroad; such students must sometimes spend an additional quarter at UCSC in order to satisfy all requirements for their major. Courses taken abroad can, with approval of an adviser, be applied to major requirements.

For a list of current programs and requirements, visit the OIE web site, http://oie.ucsc.edu. For information on credit applied to a major, contact the appropriate department.

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German Studies

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Department of History
201 Humanities
(831) 459-2982
http://germanstudies.ucsc.edu/

Faculty

Program Description

German studies is a transnational and transdisciplinary major that deals with the various German-speaking regions of central Europe. Whether one thinks of philosophy, music, art, education, religion, or political and social history, German culture has exercised a profound and often decisive influence on Europe. Some of the most important ideological debates in Western culture have arisen in the German-speaking area, and changes in German culture and society have sometimes had devastating effects on world history. Events and political developments of recent years-such as the unification of East and West Germany and the emergence of the German-speaking region of Europe as a major player in world affairs have had important impacts.

A German studies major provides students with an intellectually diverse program covering history, history of art and visual culture, literature, and philosophy-in which students and faculty come together in exciting and demanding pursuits.

The German studies major is administered by the Department of History. For additional information on curriculum and advising, go to http://germanstudies.ucsc.edu.

Requirements for the Major

German language level 5 or the equivalent is a prerequisite for the German studies major and all upper-division courses taught in German. Students are encouraged to take German 1 through German 5 as early as possible in their academic program. The major requires a total of 11 courses, including the comprehensive requirement. No more than two of the 11 required courses may be lower-division. A minimum of 40 upper-division units must be completed within the German studies course requirements. In consultation with a faculty adviser, students will plan a program of study to fulfill the following distribution of courses:

I. Five courses in German literature and history:

- two core courses in German literature
- one core course in German history
- one core course in either German literature or German history depending upon the student's chosen area of emphasis
- one comprehensive exit requirement (see below).

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
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- German Studies
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- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
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- Music
- Oakes College
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- Politics
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- Porter College
- Psychology

II. Three additional core courses, including EAP courses

III. Three additional core courses or courses from the Germany in a European or World Context list.

Distribution requirements. A minimum of five of the 11 required courses must be taught in German or principally through German-language texts. No more than three courses may come from the Germany in a European or World Context list.

Comprehensive requirement. All German studies majors must satisfy the comprehensive exit requirement by completing an approved exit seminar in either German literature or German history: History 196G, History 196P, History 196X, or Modern Literary Studies (LTMO) 190Z. The senior seminar is one of the 11 courses required for the major. Please consult the German studies web site for a more detailed description of these courses at http://germanstudies.ucsc.edu.

UC Education Abroad Program. It is strongly recommended that students spend time in residence in Germany through the University of California Education Abroad Program (EAP) or one of its affiliate programs to further enrich their program of study and ensure a command of the language. Students are allowed to transfer up to five courses taken at German universities toward the requirements for the major. However, the four required core courses in German literature and history and the comprehensive requirement must be taken at UCSC.

Disciplinary Communication (DC) requirement. Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in German studies is fulfilled by completing History 196G, History 196P, History 196X, or Modern Literary Studies (LTMO) 190Z. Please refer to updated information at Disciplinary Communication Chart.

Honors in the German Studies major. All students who announce candidacy during the academic year are reviewed for honors or highest honors in the major. The German studies faculty advisers determine honors based upon courses applied towards the German studies major. Performance in courses taken elsewhere and being transferred toward the major will be considered when applicable. The minimum standard applied is excellence in most courses for honors, and excellence in all courses for highest honors. Summer, fall, and winter graduates will be reviewed at the end of each of their respective quarters. Spring graduates will be reviewed as of the spring announcement of candidacy deadline.

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Greek

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History Department
201 Humanities
(831) 459-2982
http://history.ucsc.edu/

Faculty | Course Descriptions

Program Description

The History Department offers instruction in elementary ancient Greek. It consists of a two-course sequence, Greek 1 and Greek 2, that begins in the fall quarter only. Students interested in Greek literature should see the course listings under Literature. Those interested in classical studies should see the program description for classical studies.

Campus Language Laboratories and Placement Exams

No placement exam is required for entry into Greek 1. Contact the History Department for more information about these topics.

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Hebrew

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in modern Hebrew can enroll in language courses from beginning to intermediate levels. In addition, credits from these courses may be counted toward the major or minor in Jewish studies. Lower-division courses are aimed at enabling students to gain proficiency in aural comprehension, speaking, reading, and writing. Attention is also given to developing an understanding of the culture, history, and religion that have been expressed through the Hebrew language from antiquity until today. Some instruction takes place in Hebrew from the beginning level. Students interested in learning the basic lexicon and grammatical structures of biblical Hebrew can enroll in Hebrew 80. Hebrew 1, Hebrew 2, and Hebrew 3 (or equivalency) are required for the major in Jewish studies, and other Hebrew courses are encouraged. In addition, credits from modern or biblical Hebrew courses may be counted toward the minor in Jewish studies.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

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History

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201 Humanities
(831) 459-2982
http://history.ucsc.edu/

Faculty | Course Descriptions

Program Description

History is the attempt to understand the meanings of the human life experience, not generally and abstractly, but in terms of specific individuals, events, and circumstances. Consequently, of all academic pursuits, it is the one best equipped to help us locate phenomena in their specific contexts, whether we are concerned with political events, social changes, the production of art, the development of technologies, scientific discoveries, or life stories. In this sense, the study of history can also be an invaluable complement to any other major.

The history program at UCSC is designed to bring about an understanding of the ideas, experiences, and events that have shaped this country and the world at large. The program's main emphases are in social and cultural history, with additional strengths in intellectual and political history.

A degree in history opens up a wide range of career possibilities. Some careers fall within the historical profession, including teaching at the university, college, and high school levels and working in various areas of public and applied history, such as historic preservation, archives, libraries, and museums. For careers in fields as diverse as law, business, government, foreign service, publishing, journalism, and communications, a degree in history lays the foundation in research, analytic, and writing skills upon which later professional training can be built.

Requirements for the Major

A minimum of 12 courses is required for the major. No more than four of the minimum 12 courses may be lower division. A minimum of 40 upper-division units must be completed within the history major course requirements. The history major does not require an examination for entrance and does not limit the number of students accepted into the program. It is strongly advised that students complete at least one introductory history course before declaring the major.

At UCSC, the history curriculum offers three broad, geographically defined regions of concentration:

- the Americas and Africa
- Asia and the Islamic World

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Europe

Each history major selects one of the three regions of concentration listed above as their area of emphasis. In consultation with the history undergraduate program coordinator, the student plans a program of study that will also fulfill the following distribution of courses:

Course Requirements

Region of Concentration (5 courses, plus 1 comprehensive requirement)

I. At least one lower-division survey course within their chosen region of concentration.

- Americas/Africa:History 10A, 10B, 11A, 11B, or 30
- Asia/Islamic World: History 40A, 40B, 41, or 44
- Europe: History 65A, 70A, or 70B

Transfer coursework may or may not apply toward the survey course requirement; consult the history undergraduate program coordinator.

II. Four additional courses in the region of concentration, three of which must be upper-division

III. One comprehensive (exit) requirement: All students must complete either a research/readings seminar (HIS 190, 194, or 196), or a senior thesis (HIS 195A and 195B) in their area of concentration. Detailed information on the comprehensive exit requirement can be found below.

Breadth Requirements (4 courses)

IV. Two courses from each of the remaining two regions of concentration.

Electives (2 courses)

V. Two upper-division history electives from any of the three regions of concentration.

Students often choose to satisfy the history major course requirements listed above according to some general theme of special interest to them. Faculty and staff advisers will assist the students who choose this option with their course selection.

Distribution requirements. Among the 12 courses required for the major, at least three must meet chronological distribution requirements. One must be set before 600 A.D., and two must be set in periods prior to the year 1800 A.D.

Interdisciplinary coursework. The History Department encourages its majors to take upper-division courses in disciplines related to history, including sociology, literature, community studies, American studies, politics, Latin American and Latino studies, and others. Students who wish to substitute one or two such appropriate upper-division courses for history electives must obtain approval from the History Department. These courses are subject to the limitations described below under the "Transfer credits and substitutions" section.

Comprehensive requirement. A comprehensive exit requirement in the student's chosen region of concentration can be fulfilled by completing an exit seminar (one quarter: 190-series, 194-series, or 196-series) or a thesis (two quarters: courses 195A and 195B). Please consult the department web site for a more detailed description of these courses.

Disciplinary Communication (DC) requirement. Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. History students fulfill the upper-division Disciplinary Communication (DC) requirement by completing a comprehensive exit requirement in their chosen region of concentration. Students may complete an exit seminar (one quarter: 190 series, 194 series, or 196 series) or a thesis (two quarters: courses 195A and 195B). Please consult the department web site for a more detailed description of these courses and refer to updated DC information at Disciplinary Communication Chart.

In addition to all coursework, history majors must complete a senior check and exit survey in the first quarter of their senior year. Students who do not submit their senior check for review may have their graduation date delayed. Please consult the department web site for a more detailed description.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Honors in the history major. Honors are awarded to the top 10–15 percent of graduating students per quarter; highest honors may be granted to approximately the top five percent. Honors are determined by the Undergraduate Education Committee in consultation with the History Department faculty. The department considers each student's GPA in the history major, supplemented when appropriate by an assessment of work in the senior capstone course or honors thesis preparation. The history major GPA is calculated based upon all history courses attempted at UCSC; grades from courses taken outside of the department will not be calculated into a student's history major GPA, even in cases when the student is allowed to use said courses toward their history major degree requirements. Summer, fall, and winter graduates will be reviewed at the end of each of their respective quarters. Spring graduates will be reviewed using their earned history major GPAs as of the spring announcement of candidacy deadline.

Language recommendation. Proficiency in a foreign language is strongly recommended for all history students and is essential for those who plan to pursue graduate studies in history. Many Ph.D. programs in history require applicants to read one or two languages besides English. The University of California Education Abroad Program (EAP) is appropriate for history majors as a means to both enhance language skills and take history courses elsewhere.

UC Education Abroad Program. All history students are encouraged to consider studying abroad. UCEAP offers students an opportunity to study abroad in 40 countries with more than 300 program options. A variety of academic programs are available: language and culture programs facilitate language acquisition; "focus" programs allow students to concentrate on a plan of study applicable to their major. More than half of all EAP programs are in English, and there are traditional semester and year-long program options. Subject to the limitations described below under "Transfer credits and substitutions," up to three courses in history completed through EAP may be applied toward major requirements. Consult the History Department web site, and speak with the undergraduate program coordinator for further details.

Transfer credits and substitutions. A minimum of five regularly scheduled history courses plus the comprehensive requirement must be taken from members of the UCSC history faculty. Subject to the limits indicated in parentheses, courses from the following categories may also be applied to the history major:

- Transfer courses taken at another institution (limit of 3)
- Education Abroad Program (limit of 3)
- UCDC (limit of 2)
- UC in Sacramento (limit of 2)
- Related upper-division courses taken in another UCSC department (limit of 2)
- Independent and field studies (limit of 2)

Requirements for the Minor

Students whose major area of interest is not history may nonetheless find that a minor in history makes an invaluable contribution to their studies. For the minor in history, eight history courses, five of which must be upper division, are required. There is no senior comprehensive requirement for the minor.

Graduate Program

The Ph.D. program in history at UCSC emphasizes an interdisciplinary and cross-cultural approach to historical studies. The History Department offers a rigorous program of instruction and independent work that trains students in the techniques of original historical research and equips them to teach university-level courses in history. The department only admits those highly motivated students who are most qualified to pursue advanced studies in history. The department also only admits those applicants who can best benefit from the specific strengths of our faculty. Just as the work of most professional historians centers around research and teaching, training in these areas

constitutes the two essential poles of the graduate program in history.

Research and Teaching

In preparing graduate students for research and teaching at the university level, the department offers training in four geographically and chronologically defined fields: U.S. history, European history since 1500, East Asian history since 1600, and world history since 1500. U.S., European, and East Asian history are defined as primary teaching fields; each graduate student is required to choose one. Students of U.S. history may incorporate Latin American history in their coursework. Every year the faculty in each field offer introductory readings seminars and classes on more specific topics (see below for information about course offerings). Each graduate student also prepares a second teaching field different from the primary field and can choose from among U.S., European, East Asian, or world history. Ph.D. students may also petition the graduate committee to prepare a secondary teaching field in African or Latin American history.

Research Centers and Clusters

The History Department has created a series of thematic research clusters to coordinate the training of graduate students in historical research. Each research cluster is composed of History Department faculty and graduate students as well as faculty outside the department who share broad scholarly interests. The clusters serve as a way to coordinate the research of faculty and graduate students whose work encompasses different geographic regions and chronological periods. Although the nature and number of the research clusters may change over time, the department currently offers two basic groupings: 1) colonialism; 2) gender and history.

These clusters are complemented by scholarly activities sponsored by various UCSC Centers. Centers that are currently directed by UCSC History faculty are: the Center for Jewish Studies, , the Center for the Study of Pacific War Memories, and the Working Group on the Study of Children. For information on current research clusters, please visit the Institute for Humanities Research web site, ihr.ucsc.edu.

The faculty of each cluster provide at least one research seminar every other year in addition to readings courses. All the affiliated graduate students must take at least one research seminar during their first two years; they are encouraged to take more than one. Faculty and graduate students also participate in interdisciplinary forums outside the department.

These include programs sponsored by the Chicano/Latino Research Center, the Center for Cultural Studies, and the UCSC Institute for Humanities Research. Advanced graduate students may also have the opportunity to work in programs sponsored by the University of California Humanities Research Institute at UC Irvine. Finally, multi-campus groups in which students and faculty are involved include the Bay Area Seminar in Early American Studies, the Bay Area Pre- and Early Modern Studies Group at UC Berkeley, and the French Studies Group at Stanford.

Courses

Until they pass the qualifying examination and are formally advanced to candidacy for the Ph.D. degree, students must be in residence at UCSC and are expected to complete a minimum of 12 credits each quarter to maintain normal academic progress. Completion of a minimum of 12 courses of 5 credits each (in addition to History 280A, 280B, and 280C) is required for advancement to candidacy. Courses taken are graduate seminars, independent study courses, and most upper-division undergraduate courses.

Students are required to take the following before advancing to candidacy:

- History 200 (year 1, fall quarter); History 201 (year 2, winter quarter); History 202 (year 1 or 2); History 280A (year 1, fall quarter) 280B (year 1 or 2), 280C (year 1 or 2);
- one research seminar during the first four quarters: History 204A, or 204C, or 204E;
- second teaching field: two courses in American, European, East Asian, or world history;
- outside courses: two quarters of graduate coursework outside the History Department;
- readings courses in the appropriate field: East Asia—History 230A, 230B, 230C (China) or

History 242, 243, 244 (Japan); Europe—History 251A, 251B; U.S.—History 210A, 210B.

Graduate students in East Asian history specialize in either modern Chinese or modern Japanese history, but all students in the East Asian program will be prepared to teach both. The core curriculum for East Asian history consists of three China reading seminars (courses 230A, 230B, 230C) and three Japan reading seminars (courses 242, 243, 244) taught in sequence over three years, covering such topics as foundational historiographies, gender, social movements, and transnational circulation of people, commodities, and ideas. Over the course of the three years to the qualifying examination, China students will be expected to take all three China seminars and at least two of the three Japan seminars. Japan students will be expected to take all three Japan seminars and at least two of the three China seminars. Additional coursework in research methods as well as occasional independent studies will also be available, and students are encouraged to take classes that have a wide range of faculty in other departments across the campus.

Foreign Language Requirement

No prior foreign language preparation is required for admission with a primary teaching field in U.S. history. Two to three years of college work, or its equivalent, in at least one foreign language is required for admission to the European program. Students who choose East Asian history as their primary teaching field will be required to have completed at least three years of college-level Chinese or Japanese prior to admission; more years are recommended. Depending upon the student's intended field of research, Japanese language study may also be required of China specialists as part of the graduate program of study.

Students with a primary teaching field in U.S. history are expected to demonstrate a reading competency in at least one foreign language prior to taking the Ph.D. qualifying examination. Students in all other teaching fields must demonstrate a reading competency in at least two foreign languages prior to taking the Ph.D. qualifying examination; competency in one of the languages must be demonstrated by the end of the sixth quarter of enrollment. Usually, competency will be demonstrated by passing a reading examination administered by a member of the history faculty. Students who believe that they have already demonstrated competency through previous coursework or through their performance on a standardized test should petition the graduate director.

M.A. Degree

The master of arts (M.A.) degree is awarded to all Ph.D. students after two years in residence, successful completion of 12 courses of 5 credits each and 6 courses of 2 credits each, demonstrated competency in one foreign language (for those in primary teaching fields other than U.S. history), removal of all Incomplete notations (I) on record, and approval of a M.A. essay of 25–30 pages.

The M.A. Essay

Students are required to produce a substantial research essay grounded in original research in primary historical documents. A successful essay will reflect a general understanding of the field of inquiry along with a critical grasp of the scholarship that currently defines the field; deep knowledge of the specific subject under investigation; the application of appropriate analytical models; and a well-supported interpretation of the materials explored. This essay could (but need not) be a segment of a larger project; but it must be a complete, self-contained essay in and of itself.

Students enroll in course 201, Directed Research Colloquium, the winter quarter of their second year. While taking course 201, students work intensively with a faculty reader in the preparation, crafting, and revising of the essay. The final draft, approved by the reader, must be submitted to the graduate committee by the spring quarter deadline (usually mid-April). The deadline will be noted in the department's call for M.A. essays.

Qualifying Examination

The qualifying examination (QE) emphasizes field mastery, integration of material from different fields, and focused preparation for dissertation research. The QE is a three-hour meeting during which a student presents and discusses a dossier that has been submitted to the student's committee at least three weeks in advance. The examination is normally taken by the spring quarter of the third year, but no later than the end of the 11th quarter

of residency. Prior to taking the QE, all incomplete notations (I) must be cleared from the student's record. Additionally, the student must be registered the quarter the examination is taken.

The four examination fields are designed in consultation with the student's QE committee members. Students prepare for the examination through regularly offered courses and independent readings courses sponsored by the examiners. Students are required to take at least two courses in each of the four fields. The fields are as follows:

- Primary Field of Concentration. One of three fields: American history; European history 1500 to the present; East Asian history 1600 to the present.
- Research Field. Normally a subfield of the primary field with a focus on the student's specific area of research interests. This field is most closely connected to the student's work in a specific research cluster.
- Second Teaching Field. Chosen from the above list of primary fields, with the addition of world history, or, where appropriate, a comparative, thematic field such as gender, colonialism, Latin American, or African.
- Outside Field. One field outside history, such as anthropology, feminist studies, history of art and visual culture, Latin American and Latino studies, literature, philosophy, politics, sociology, or history of consciousness. Students select a field of topical, thematic, or methodological relevance to their dissertation. The student's faculty adviser must approve the outside field.

The four examination fields must be defined and preliminary reading lists (see below) filed with the department no later than the student's eighth quarter of residency.

A pass or fail will be given after the examination based on the student's knowledge and research preparation as demonstrated by his or her dossier. All areas must receive passing marks from all members of the committee. Immediately following the exam, the QE committee will complete and submit to the History Department the Report on Qualifying Examination form. If a student does not pass the QE the first time, they may retake only those sections not passed. No one will be permitted to take the QE more than twice.

Qualifying Examination Dossier Requirements

The QE dossier includes four parts, each of which should be prepared in consultation with the student's primary academic adviser and with the advice of the examiners. The examination will focus upon the dossier. All examiners, including the examiner from outside the department, will participate in all segments of the examination.

The dossier includes:

1. An essay (15-20-pages) reviewing the state of the scholarship in the student's primary field of concentration. This essay should reflect the student's general, broad competence in his or her field as well as a mastery of the theoretical issues and historiographic debates in four to five areas that represent their primary area of expertise. The essay may reflect the thematic focus of a research cluster as well as work completed in an outside field (literature, anthropology, etc.).

2. One syllabus or, at most, two syllabi (the number to be decided in discussion with the student's primary adviser) that demonstrates the student's preparation to teach across the breadth of their primary field at the introductory level. The syllabus should be annotated to show how each class session would be prepared: principal sources for lectures, principal questions for discussion, reasons for assigning particular readings, etc.

3. A syllabus (annotated in the same fashion as described in section number 2 above) in the student's second teaching field, accompanied by a brief (three- to five-page) statement of principal issues. The exact content of these items will be decided in consultation with the examiner in the secondary teaching field.

4. A 10-15 page dissertation prospectus that includes an evaluative survey of the literature relevant to the student's proposed research topic, a detailed discussion of the archival resources, and a consideration of the theoretical issues to be engaged. The prospectus lays out, in reasonable detail, the direction of research the student intends to pursue for the

dissertation. The prospectus includes the following information:

- three- to four-page description of the overall argument of the project, including a discussion of the research base and the appropriate methodological/theoretic models;
- a detailed discussion of the archival resources;
- two- to three-page outline, tracking the research and analysis chapter by chapter;
- substantive bibliography with complete citations.

Note:

- Although no specific segment of the dossier focuses upon the coursework completed outside the History Department, it is expected that this work will be incorporated into different sections of the portfolio, particularly the research prospectus.
- Complete bibliographies must be appended to each piece of the QE dossier.

Dissertation

The dissertation represents an extensive, book-length project grounded in research in original historical documents. A successful dissertation will reflect a broad and deep understanding of the field of inquiry, a mastery of the scholarship that currently defines the field, detailed knowledge of the subject of study growing out of dedicated research, and the incorporation (and explicit rejection of) appropriate interpretive models.

M.A. in History (Terminal)

The Department of History offers an M.A. degree in history for those individuals who are interested in postgraduate work, but who are not planning to complete a Ph.D. It is a degree program that can fulfill in-service education requirements for current teachers as well as for future teachers earning a single-subject credential in social studies. Part-time enrollment is allowed.

Each student will be required to choose one of four areas of specialization (U.S., Europe, East Asia, world). To complete the degree, each student must pass a total of 12 courses of 5 credits each and six courses of 2 credits each including courses 280A, 280B, and 280C. Students must also write an M.A. paper of 25-30 pages. For students specializing in Europe, U.S., and East Asia, the curriculum will be nearly identical to that taken by Ph.D. students in their first two years, except that there will be no language requirement. Those specializing in world history will take History 202 and two other courses from the world history list instead of the corresponding courses in other fields. Otherwise their curriculum will be the same as that of a typical incoming Ph.D. student.

Course Requirements

- History 200 (year 1, fall quarter); History 201 (year 2, winter quarter)
- one research seminar during the first four quarters: History 204A, 204C, or 204E.
- six courses of 2 credits each including History 280 (year 1), 280B (year 1 or 2), 280C (year 1 or 2)
- seven electives of 5 credits each, two of which can be taken outside the History Department. Courses taken are graduate seminars, most upper-division undergraduate courses, and independent study courses.
- two reading seminars in the area of specialization:
- U.S.: History 210A, 210B
- Europe: History 251A, 251B
- World: History 202 and two other courses from the world history list
- East Asia: History 230A, 230B; 230C, 242

Further details about the graduate program are available from the Department of History web site: http://history.ucsc.edu.

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History of Art and Visual Culture

2014-15 General Catalog

D-201 Porter College
(831) 459-4564
havc@ucsc.edu
http://havc.ucsc.edu

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Program Description

In the History of Art and Visual Culture (HAVC) Department, students study the production, use, form, and reception of visual artifacts past and present. Objects of study include paintings, sculptures, and architecture, which are within the traditional purview of art history, as well as low art and non-art objects, which sit beyond its boundaries. The HAVC Department offers courses covering a wide variety of representations from the cultures of Africa, the Americas, Asia, Europe, and the Pacific Islands, including media as diverse as ritual, performative expression, bodily adornment, oil painting, installation art, textiles, architecture, and photography.

HAVC students at UC Santa Cruz (UCSC) investigate complex questions concerning the social, political, economic, religious, and psychological impact of images from the perspective of their producers, users, and viewers. Visual objects play a central role in the formation of values and beliefs, including the perception of gender, sexuality, ethnicity, race, and class. Through attentive historical study and close analysis, students are taught to recognize and assess these systems of value, and are introduced to theoretical and methodological frameworks for future research. Students also have the opportunity to take independent study courses and write senior theses.

The HAVC curriculum guides students in acquiring skill in critical thinking about art and visual culture, leading to a bachelor of arts (B.A.) degree. Each student who chooses to major or minor in HAVC devises an individual study plan with a faculty adviser. The lower-division courses, numbered 1-99, intended for general education students and prospective majors, provide an introduction to the field of visual culture according to geographic areas and visual traditions within those areas. Upper-division courses numbered 100-189 cover a broad range of issues in various aspects of world culture from earliest times to the present. Advanced upper-division courses focus on selected fields, topics, and methods. The most advanced courses, numbered 190 and 191, are taught in seminar format.

Declaration of the Major

To declare the major, students must complete two of the required four lower-division HAVC courses chosen from two different geographical regions:

10s Africa and its Diaspora;

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

20s Asia and its Diaspora;

30s–40s Europe and the Americas;

50s Mediterranean;

60s Native Americas;

70s Oceania and its Diaspora

Students considering this major are encouraged to complete these courses early in their studies and consult with the HAVC undergraduate adviser to develop a plan of study. Transfer students should consult the Transfer Student/Transfer Credit section.

Requirements of the Major

The HAVC major requires four lower-division and nine upper-division courses including the satisfactory completion of the senior comprehensive requirement. Students must take courses in each of the different cultural settings to ensure methodological and disciplinary breadth.

Lower-Division Requirements

Four courses from three different geographical regions listed above.

HAVC 80 may be used to fulfill the lower-division regional breadth requirement for regions 10 (Africa), 60 (Native Americas), or 70 (Oceania).

Upper-Division Requirements

Nine courses, as follows:

- 100A recommended during sophomore year. Because 100A is a prerequisite for other courses, if it is not completed by the end of the junior year, students may have difficulty enrolling in required courses and graduation may be delayed.
- 101–191: eight courses required, including a seminar (190s and 191s) to satisfy the senior comprehensive (see Comprehensive Requirement below).

In completing upper-division course work, students must complete three upper-division courses (courses 101–191) from three different regions. Two of those regions must be a geographical area not studied at the lower-division level.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. Students in HAVC meet the DC requirement by completing course 100A.

Senior Comprehensive Requirement

All seniors must complete one seminar, 190–191, as their "senior exit" course to satisfy the senior comprehensive requirement. Seminars can be taken for senior exit credit only by permission of the instructor. Within the context of this advanced seminar, students will work under the close supervision of their professor to produce a written project that demonstrates a high level of achievement in research, writing, and critical thinking. Students whose performance is outstanding are eligible for honors in the senior comprehensive requirement.

Concentration in Religion and Visual Culture

This program is for students who wish to pursue the study of religion in conjunction with studies of visual culture. A student enters the concentration by proposing, in consultation with their faculty adviser, a sequence of upper-division courses to fulfill the religion and visual culture requirements. The declaration of major requirements for the religion and visual culture concentration are the same as those listed in the Declaration of Major section. The faculty adviser for the religion and visual culture concentration is Raoul Birnbaum.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Requirements for the Religion and Visual Culture Concentration

Fifteen courses, as follows:

- Four lower-division courses (each from a different geographical area)
- 100A recommended during sophomore year. Because 100A is a prerequisite for other courses, if it is not completed by the end of the junior year, students may have difficulty enrolling in required courses and graduation may be delayed.
- 101–191: five courses that focus on the study of religion
- 190–191: one seminar (190s and 191s) to satisfy the senior comprehensive (see Comprehensive Requirement above).
- Four relevant upper-division courses in the study of religion from programs on campus such as anthropology, history, literature, and philosophy. (For a complete list of approved courses, please see the departmental web site http://havc.ucsc.edu/program/religion.)

Minor Requirements

Nine courses, as follows:

- lower-division: three courses from three different geographical regions;
- upper-division: six courses planned in consultation with a faculty adviser.

Department Advising

Undergraduate Adviser

The undergraduate adviser offers specific information about navigating through the program and the curriculum and assists students with requirements, prerequisites, policies and procedures, learning support, scholarships, and special opportunities for undergraduate research.

Faculty Advisers

Faculty are the best resource for learning about the philosophies and foundations of history of art and visual culture. Faculty advisers work individually with students to develop a specific course of study, recommend additional courses of interest, and discuss long-term career goals including education beyond the baccalaureate. A faculty adviser is assigned to each student by the undergraduate adviser during the declaration of major meeting.

Languages

All majors are encouraged to study at least one foreign language. Graduate programs in visual culture, art history, and other related disciplines generally require competence in one or more languages beyond English. Students are encouraged to consult with their faculty adviser to discuss an appropriate course of language study.

Transfer Preparation and Transfer Credit

Transfer students are encouraged to fulfill history of art and visual culture requirements prior to transfer. Refer to the ASSIST articulation agreements at www.assist.org for approved lower-division courses offered at community colleges. Transfer credit for lower- or upper-division courses from four-year institutions or community colleges not included in the ASSIST system is evaluated on a case-by-case basis; students must submit a Course Transfer/Substitution Petition and course syllabus to the HAVC Department for review. A student may transfer up to five art history courses toward the major, only two of which may be upper-division. For the minor, a student may transfer up to three lower-division courses. HAVC majors must take a minimum of eight regularly scheduled HAVC courses from members of the HAVC faculty and HAVC minors must take a minimum of six regularly scheduled HAVC courses from members of the HAVC faculty. Transfer students are strongly encouraged to contact the HAVC Department for advisement before enrolling at UCSC.

Education Abroad Program (EAP) Courses

The University of California's Education Abroad Program provides an excellent opportunity to take courses related to the history of art and visual culture in a range of locations. The department strongly encourages HAVC majors and minors to take advantage of this educational opportunity. Successfully completed EAP courses count as in-residence UC credit.

Upon return, you must submit a Course Substitution Petition to seek the approval of your adviser and department chair to substitute EAP courses for HAVC major and minor requirements (EAP courses do not automatically satisfy major and minor requirements). Petitions are evaluated on a case-by-case basis. We look for evidence that the course(s) provided critical analysis of the class material in its social and cultural context, as well as significant reading and writing requirements. We recommend you retain all relevant documentation (syllabi, reading lists, papers written, etc.) to support your case. We also suggest you consult with your HAVC adviser to plan your EAP courses in advance.

For additional information, see: http://ieo.ucsc.edu/programs-abroad/academic-planning/major-minor-credit.html and http://ieo.ucsc.edu/programs-abroad/academic-planning/uc-vs-transfer-credit.html. (Also refer below to the "Residency Requirement for the Major and Minor.")

Careers

The preparation students receive from the baccalaureate of arts degree in HAVC provides skills that can lead to successful careers in education, law, business, and social services, in addition to more disciplinary-specific careers in museum curating, art restoration, studies in architecture, and studies in art history leading to a graduate degree.

Graduate Study

There are many graduate programs that lead to the master of arts (M.A.) and doctor of philosophy (Ph.D.) degrees in fields such as art history, visual studies, cultural studies, history of religions, theory and criticism of art, etc. Most graduate programs require a reading knowledge of one or two languages other than English (see Languages above). Students who contemplate graduate study should consult with their faculty advisers as early as possible in their undergraduate careers.

Graduate Program

The History of Art and Visual Culture Department offers a course of study leading to the Ph.D. in visual studies. The Ph.D. is designed to steep our graduates in the most theoretically relevant methodologies for understanding the significance of visual artifacts and the social and cultural qualities of human vision (termed visuality); provide students with exposure to a range of cultural perspectives and visual artifacts drawn from around the world; and cultivate in our graduates the necessary skills and knowledge to secure and excel in academic and curatorial positions. The program is both interdisciplinary and flexible. Students work closely with their advisers and the director of graduate studies to craft personalized courses of study that advance their intellectual and professional goals.

The program employs a wide range of visual evidence for examination, without being constrained by traditional hierarchies of art. Fine arts, architecture, photography, film, performances, utilitarian objects, and popular entertainments all are primary source material for scholars in the field. The program at UCSC is particularly adept at illustrating significant differences in how disparate cultural groups interpret their visual worlds, given the breadth of cultural perspectives taught by our faculty. With scholars focusing on cultures in Africa, the Americas, Asia, Europe, and the Pacific Islands, visual studies at UCSC offers students an unparalleled opportunity to consider the role of social and cultural forces in guiding how and what their members see.

Graduate Program Requirements

Students take a minimum of twelve 5-credit graduate courses during their first two years of study, comprised of four core courses and eight electives.

The four core courses must be taken within the first two years: HAVC 201, Introduction to Visual Studies (fall); HAVC 202, Critical Theory (winter); and HAVC 203, Theories and Histories of Seeing (spring, taken twice).

Those entering with an M.A. are eligible to petition to exempt courses. In general, a student entering with a non-visual studies M.A. may petition to waive up to four electives, and a student entering with an M.A. in visual studies may also petition to waive the fourth core course (the second Theories and Histories of Seeing). The petition to exempt courses may be submitted any time after a student is accepted into the program, but first should be discussed with the assigned faculty adviser and the director of graduate studies. To receive exemption, the petition must be approved by the visual studies graduate committee.

Of the eight elective courses, at least four must have a visual studies designation (i.e., taught by core or affiliated faculty), and at least three must be drawn from departments outside of visual studies. For students entering with an M.A. who have successfully petitioned to have four elective courses waived, the distribution between visual studies courses and courses outside the department will be decided in consultation with the academic adviser and the director of graduate studies as part of the petition for course waiver.

Field Clusters/Field Specialties

Appreciating that most of our graduates will be required to fit themselves back into traditional disciplinary structures once they enter the academic job market, the program is designed to provide students with both new means of interpreting visual evidence and suitable depth of understanding in older disciplinary traditions. While all graduates will acquire a shared foundation in theories of visuality (attained through our core course requirements), individual student programs vary considerably depending on the type of department in which the student hopes to secure employment after graduation. In addition to completion of the core courses required of all students, each student will develop a cluster of individualized field courses in consultation with their adviser based on her/his particular professional goals.

To provide our students with the disciplinary background to facilitate employment within curatorial departments in museums and non-visual studies departments at colleges and universities, each student is required to take a minimum of four 5-credit courses in a disciplinary cluster (beyond the core course requirements). This requirement pertains both to students entering with a B.A. and an M.A. Acceptable field cluster courses might center around a medium (i.e., painting or architecture), a temporal/stylistic category (i.e., Early Modern or Postmodernism), a cultural, national, or social group (i.e., Pacific Islanders or China), or a disciplinary approach (i.e., cultural anthropology or gender studies). Field clusters are developed in consultation with the student's adviser based on the student's intellectual and professional goals. To count toward the degree, field clusters must receive prior approval from the visual studies graduate committee.

Language Requirement

Students must demonstrate reading knowledge of one foreign language prior to the start of their second year (either through attainment of a score of 550 or higher on the Educational Testing Service Graduate Student Foreign Language Test or through passage of a reading examination administered by the department).

Students are encouraged to master a second foreign language. Based on a student's area of interest, and the joint assessment of the student's adviser and the director of graduate studies, proof of proficiency in an additional language or languages may be required prior to the student being admitted to candidacy for the Ph.D. Should proficiency in additional languages be required, it must be demonstrated prior to the close of the student's third year of study.

Qualifying Examination

After completing all course work and passing one language examination, students are required to pass a qualifying examination prior to the close of the winter quarter of their third year, unless a petition for an extension, demonstrating reasonable cause, is approved by the visual studies graduate program committee. The qualifying examination is divided into three topic areas, with each one including a written and an oral component. Each topic area should display historical breadth and variety of media. Two of the topic areas should ideally relate to the future dissertation topic, while one of the remaining must constitute an outside area, examining a topic that is chronologically, geographically, and/or

methodologically distinct from the other two.

Prior to the end of his/her second year, a student should consult with his/her adviser to assemble a group of four faculty members who will serve as examiners and aid the student in assembling the necessary topic areas, compiling the needed reading lists, and preparing for the written and oral components of the examination in each area. The examination will have two parts. In part one, each student will respond in writing to three general questions, posed by three of their examiners in the pre-arranged topic areas. In part two, each student will gather together with his/her examiners to field questions probing and clarifying the previously submitted written component of the qualifying examination. In order to pass the qualifying examinations, the student must receive the unanimous endorsement of the committee members.

Dissertation Prospectus and Colloquium

After passing the qualifying examination, a student must complete an approved dissertation prospectus and a colloquium. The written dissertation prospectus is due no later than the end of the second quarter following the student's completion of the qualifying examination. The prospectus is a brief, concise essay of approximately 25 pages (with bibliography) that defines the scope, methodology, and rationale for the proposed dissertation. It is prepared in consultation with the student's dissertation director, who must approve of the document prior to sending it to the colloquium committee. The prospectus must be sent to the colloquium committee at least one month before the colloquium.

The dissertation director, in consultation with the student and director of graduate studies, will invite four to five faculty members, in appropriate fields, to be on the colloquium committee, attend the colloquium, provide input on the prospectus, and assess the student's preparedness to begin researching and writing the dissertation. Faculty participating in the colloquium may or may not have been members of the QE committee, and should represent faculty whose expertise has bearing on the student's project. A student will pass the colloquium after having demonstrated to the satisfaction of all colloquium committee members adequate preparation to begin researching and writing the dissertation.

Advancing to Candidacy

Advancement to candidacy follows and is contingent upon passing the qualifying examination, all needed language examinations, completing an approved dissertation prospectus, passing the colloquium, and the subsequent appointment of a dissertation reading committee of at least three members. The requirements for advancement to candidacy must be completed no later than the end of the winter quarter of the fourth year.

Dissertation and Final Examination

The dissertation must make a significant and original contribution to the field of visual studies, as judged by each dissertation committee member.

An oral defense of the dissertation is the only final examination requirement, unless a petition to waive the oral defense, demonstrating reasonable cause, is approved by the student's primary adviser and the visual studies graduate program committee. The student's dissertation committee, under the supervision of the director of graduate studies, will conduct the examination. In the event that the director of graduate studies serves on the dissertation committee, the chair of History of Art and Visual Culture will oversee the defense. Interested faculty and students in the visual studies program will have the opportunity to observe the defense.

Normative Time from Matriculation to Degree

The visual studies Ph.D. program at UCSC is designed to require six years for students matriculating with a B.A. and five to six years (depending on advanced standing granted) for those entering with an M.A. During the pre-candidacy period students will devote themselves to coursework, completion of the language examination, some teaching, preparation for and completion of qualifying examinations, completion of an approved version of their prospectus, passing their colloquium and selecting their dissertation committee. Requirements for advancing to candidacy must be completed by the end of winter quarter of the fourth year. Students will finish their dissertation and successfully

defend it before the end of their sixth year.

Designated Emphasis

Graduate students enrolled in doctoral programs at Santa Cruz may obtain a Designated Emphasis in visual studies on their Ph.D. degree by meeting the following requirements:

- Secure approval from a core member of the visual studies faculty to serve as an adviser for their Designated Emphasis.
- Have at least one core member of the visual studies faculty serve on either their qualifying examination or dissertation committee.
- Submit a significant piece of writing that demonstrates competency in the field. The writing could take the form of a seminar paper or dissertation chapter. The essay must meet the approval of the student's visual studies adviser.
- Successfully complete four graduate courses taught by either core or affiliated members of the visual studies program. The courses must form a coherent cluster in visual studies and be pre-approved by the student's Designated Emphasis adviser.

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History of Consciousness

2014-15 General Catalog

415 Humanities 1
(831) 459-2757
http://histcon.ucsc.edu/

Faculty | Course Descriptions

Program Description

History of consciousness is an interdisciplinary graduate program (including a small selection of undergraduate courses) centered in the humanities, with links to the social sciences and the arts. It is concerned with forms of expression and social action as they are manifested in specific historical, cultural, and political contexts. The program stresses flexibility and originality. Interest is focused on problems rather than disciplines. Although students are prepared to teach in particular fields, the emphasis is on questions that span a number of different approaches.

Over more than 30 years of existence, the history of consciousness graduate program has become widely recognized as a leader of interdisciplinary scholarship. Program graduates are influential scholars at prominent universities, and their dissertations have been published by important trade and academic presses. Graduates currently find academic employment in a wide range of disciplines, including literature, feminist studies, science studies, anthropology, sociology, American studies, cultural studies, ethnic studies, communications, the study of religion, and philosophy. In addition, history of consciousness graduates work as filmmakers, museum researchers, free-lance writers, postdoctoral researchers, and academic administrators.

Since the curriculum concentrates on theoretical and methodological issues and is concerned with the integration of disciplines, candidates for admission are expected to have a relatively clear idea of the project they wish to pursue. Experience of advanced work in one or more fields is preferred, but not required.

History of consciousness emphasizes a variety of topics in its seminars and research pursuits. These areas of research include studies at the intersection of race, sexuality, and gender; global capitalism and cultural processes; psychoanalytic and semiotic theories of the image; science and technology studies; theories and histories of religion; social movements; and literary studies and poetics. Seminars are regularly offered in these and other areas of ongoing faculty research.

History of consciousness has strong cooperative relations with associated faculty from other campus programs, scholars who offer seminars and participate in advising, qualifying exams, and dissertation committees. The formal list of associated faculty is a non-exhaustive indication of advising possibilities beyond the program's core faculty. Campus research organizations, such as the UCSC Center for Cultural Studies, the Institute for Humanities Research, Critical Race and Ethnic Studies, the Science and Justice Working

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Group, and the Chicano/Latino Research Center, also provide venues for collaborative work.

History of consciousness has developed a new vision for its graduate program involving the creation of projects (called concentrations) as part of a two-year admissions cycle.

The department admits outstanding students regardless, and students may change the foci of their study as their intellectual interests develop. Students already enrolled in other UCSC departments and all students in history of consciousness are eligible to take the graduate courses offered within a specific concentration. A given concentration topic will be in effect for two admissions cycles; after that, the focus of the concentration changes. Students may choose to participate in the concentration at any time during their first two years of coursework; colloquia and other research projects may continue to be offered in a given concentration for up to two years beyond the concentration admissions cycle.

This approach seeks to foster the problem-driven research vital to new forms of knowledge and intelligibility and to meet the challenges of imagining new modes of scholarship for the arts, social sciences, and humanities. The project concentration approach to graduate education formalizes that goal through an expanded inclusion of faculty and students from other UCSC departments engaged as a consortium in related endeavors. Each sequential concentration invites the participation of faculty from other departments.

The first concentration, beginning in 2013, is called “Crisis in the Cultures of Capitalism,” a two-year, interdisciplinary selection of courses, colloquia and study groups. “Crisis in the Cultures of Capitalism” seeks to provide a forum for the consideration of the economic, political and cultural dimensions of this global crisis. The objectives are: 1) to promote graduate student scholarship, and 2) to encourage faculty collaboration and intellectual community within this emerging area of critical inquiry. The requirements for students concentrating in the project do not differ from the regular program requirements, except in course content. Guidelines may be obtained at the department office or on the web site.

Requirements

Students are required to enroll in a minimum of two courses per quarter until advancement to candidacy. Students are expected to take the Qualifying Examination during the third year, but no later than the beginning of the fourth year.

Incoming students are required to take a minimum of five history of consciousness graduate seminars during the first two years. In the first year, students are required to take the introductory seminar, course 203A, Approaches to History of Consciousness, writing intensive “B” seminar, either 203B, Approaches, or a “B” seminar following another seminar the student has taken. By the end of the first year, students are expected to complete a full seminar paper. “B” courses do not count toward the five seminars selected to fulfill the basic department requirement (under special circumstances exceptions may be approved). The remainder of the courses taken to fulfill university enrollment requirements may include not only history of consciousness seminars but also independent study with specific faculty or graduate seminars offered in other departments.

Advancement to candidacy depends on the general quality of a student’s work; demonstration of proficiency in a foreign language relevant to the student’s area of work, either by passing a written examination administered by the department or successfully completing a language course approved by the department; success in the qualifying examination; and proposal of an acceptable dissertation topic. The qualifying examination is centered on a qualifying essay that demonstrates the candidate’s ability to do extended, dissertation-level research and analysis relevant to the proposed thesis topic and dissertation plan. The examination focuses on the student’s research project and on the fields of scholarship it presupposes.

After advancement to candidacy, required by the end of the fourth year, students concentrate on dissertation writing. The current normative time to degree limit of seven years means that a student usually has at least three years after advancement to candidacy for completion of the dissertation.

Students also have the option of doing advanced work in a traditional discipline and receiving a designated emphasis of this specialization. In such cases, students must satisfy

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

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the appropriate department's criteria (see departmental web sites for information). Students are expected to complete at least one year of supervised teaching as part of the degree requirements.

Applications

The deadline for applications to the History of Consciousness program is December 10 of each year. Admissions information and application materials are available online at graddiv.ucsc.edu. Applications are invited from students with backgrounds and interests in the humanities, arts, and social sciences and are especially encouraged from individuals with a clear idea of the project they wish to undertake. Strong preference is given to applicants working in areas for which the faculty resources in history of consciousness are appropriate and available. Graduate Record Examination (GRE) scores are required as is a writing sample of no more than 10 pages. Admission is for the fall quarter only.

It is important to note that in light of California's elimination of affirmative action as an admissions criterion, the History of Consciousness Department reaffirms its commitment to the principles of affirmative action. These principles mean a commitment to diversity, equal opportunity, and outreach to underrepresented communities. Further, this commitment underlines our understanding that the very fabric and quality of our scholarship depends on the representation and interplay of diverse experience and perspectives. So defined, affirmative action is reflected in every aspect of the history of consciousness program, including scholarship, teaching, admissions, hiring, and the process of departmental governance.

Designated Emphasis

To receive a designated emphasis in history of consciousness, graduate students from other departments must complete the following requirements in addition to degree requirements for the doctorate in their home department.

Guidelines and application forms are available in the History of Consciousness Department office.

The following are required for the emphasis:

1. The student must have a faculty graduate adviser from core or affiliate faculty in history of consciousness, who serves both on the qualifying exam committee and the dissertation reading committee.
2. The student must take four graduate courses in history of consciousness. With the approval of the history of consciousness adviser, one of the four required graduate courses may be an independent study.

To obtain the designated emphasis in History of Consciousness:

1. The request for a designated emphasis must originate in the degree-granting department.
2. Student should complete an application, obtain the history of consciousness adviser's signature and submit with supporting documentation (copies of the QE and Dissertation Committee Nomination forms) to the History of Consciousness Department office.
3. The History of Consciousness Department will notify the student and the home department of approval for the designated emphasis.

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Humanities

2014-15 General Catalog

503 Humanities I
(831) 459-2696
http://humanities.ucsc.edu/

Faculty

Program Description

The Humanities Division at UCSC includes the traditional humanistic disciplines of history, literature, and philosophy as well as an interdisciplinary program in feminist studies. The Humanities Division is also the home for linguistics, languages, and writing. The Humanities Division offers a range of courses in support of the campus' general education requirements.

At the undergraduate level, the following majors are offered: classical studies, critical race and ethnic studies, feminist studies, German studies, history, Italian studies, Jewish studies, language studies, linguistics, literature, philosophy, and Spanish studies. Several undergraduate minors are offered including the following: classical studies, East Asian studies, history, Italian studies, Jewish studies, language studies, linguistics, literature, and philosophy. Undergraduate students may also pursue individual majors. At the graduate level, the Ph.D. and M.A. are offered by programs in feminist studies, history, history of consciousness, linguistics, literature, and philosophy. Instruction and assessment to satisfy the campus' writing requirements is offered through the Writing Program.

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Italian

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in Italian can enroll in language courses from beginning to advanced levels. In addition, students may select from among the following programs: a major or minor in Italian studies, a major or minor in language studies, a major in literature with an emphasis in Italian literature, a major in global economics

The sequence of lower-division courses 1-6 is aimed at enabling students to gain proficiency in aural comprehension, speaking, reading, and writing. Courses 1A and 1B offer lower-division intensive Italian language instruction equivalent to levels 1, 2, 3. The 1, 2, 3 sequence starts once a year in the fall quarter, while the 1A-1B sequence starts once a year in the winter quarter. Classes are taught in Italian from the beginning level.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

The Office of International Education (OIE) sponsors programs of study in Italy. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu.

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Italian Studies

2014-15 General Catalog

Department of Literature
303 Humanities 1
(831) 459-4778

Faculty

Program Description

Students interested in an interdisciplinary approach to Italian culture through the combined study of language, literature, history, art history, and other subjects may pursue a major or minor in Italian studies. The guidelines for the completion of the major may be obtained from Professor Deanna Shemek of the Literature Department or Professor Cynthia Polecritti of the History Department. There are several options for study in Italy through the UC Education Abroad Program (EAP), either for a year (Bologna, Milan, Padova), for an intensive semester (Bologna, Florence, Milan, Padova, Rome), or for the summer (Florence). Students may also divide their time between Italy and Spain for one semester or one quarter. The Italian studies program is administered by the Literature Department.

Requirements of the Major

Each student must complete the lower-division language sequence (Italian 1-6, or equivalent). In addition, students are required to take 10 five-credit courses (one of which may be lower division), including a core unit of five courses which must be taken at UCSC: two Italian literature courses, Italian 106 (Italian Culture Through Film), one course in Italian history, and one course in Italian art history. A course featuring the work of Dante is recommended. A minimum of five courses must be taught substantially in Italian. Five may be approved elective courses, which may feature Italy in a European or global context. Up to five elective courses may be approved from UC EAP's yearlong study abroad in Italy. All students in the major must satisfy the Italian Studies senior exit requirement by writing a senior essay focused on Italian literature, history, or visual culture. This essay may be produced within an approved seminar, or (with faculty permission) by enrolling in a one-credit Italian Literature 191 course in conjunction with another upper-division course in Italian literature, history, or history of art and visual culture. This combination must be approved by a faculty adviser in Italian Studies.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. Italian Studies majors satisfy the DC Requirement through satisfactory completion of the senior essay, as described above. Please refer to updated information at http://registrar.ucsc.edu/catalog/html/disciplinarycommunicationchart.html.

- Community Studies
- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
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- Kresge College
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- Latin American and Latino Studies
- Legal Studies
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- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese

Minor Requirements

Each student must complete the lower-division language sequence (Italian 1-6, or equivalent). Students must also complete five upper-division courses in Italian studies: two Italian literature courses, Italian 106 (Italian Culture Through Film), one course in Italian history, and one course in Italian art history. A course featuring the work of Dante is recommended. Three of the five upper-division courses must be completed at UCSC; three must be taught substantially in Italian. A maximum of two courses may be transferred from EAP.

Honors

Honors in the Italian studies major are awarded to graduating seniors who have earned a 3.70 to 3.89 grade point average in their upper-division Italian studies courses. Highest honors in the Italian studies major are awarded to graduating seniors who have earned a 3.90 or higher grade point average in their upper-division Italian Studies courses. Honors are not awarded in the minor.

2014-15 Tentative Italian Studies Curriculum

Fall 2014

ITAL 1, First-Year Italian 1 (Prencipe; Centineo)
ITAL 4, Second-Year Italian (Centineo)
LTPR 150D, Orlando Furioso (Shemek)
LTIT 170B, Petrarca (in Italian) (Shemek)

Winter 2015

HAVC 137D, Art of the Venetian Renaissance (Langdale)
HAVC 155, Constructing Cleopatra: Power, Sexuality, and Femininity Across the Ages (Evangelatou)
HIS 164A, Late-Medieval Italy, c. 1200-1400 (Polecritti)
HIS 196D, City of Rome (Polecritti)
ITAL 1A, Accelerated Italian (Centineo)
ITAL 2, First-Year Italian (Prencipe)
ITAL 5, Second-Year Italian (Centineo)
LTIT 164 Literature and Fascism (in Italian) (Shemek)

Spring 2015

HAVC 31, Nude in the Western Tradition (Hunter)
HIS 164B, Renaissance Italy, c. 1400-1600 (Polecritti)
ITAL 1B, Accelerated Italian (Prencipe)
ITAL 3, First-Year Italian (Prencipe)
ITAL 6, Second-Year Italian (Centineo)
LAAD 80D, Italian Culture through Cinema/ITAL 106, Italian Culture through Film (in Italian) (Centineo)
LTIT 130D Dante's Divine Comedy (in Italian) (Staff)

Please note: Courses in bold require completion of Italian 6 or equivalent proficiency.

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Japanese

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in Japanese can enroll in language courses from beginning to advanced levels. Instruction takes place mostly in Japanese from the second half of the first quarter. The curriculum aims to build a solid foundation in all four aspects of linguistic skills (speaking, listening, reading, and writing) as well as sociolinguistic competence and cultural knowledge.

Students may use Japanese courses for the following majors and minors: a major in language studies: a major in linguistics; an East Asian minor or (individual major); a major in global economics; or a major in literature.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

The Office of International Education (OIE) has information on study in Japan. There are study abroad centers in Yokohama, Tsuru, Kyoto, Tokyo, Sendai, Tsukuba, and Tohoku. Courses taken abroad can, with approval of an adviser, be applied to major requirements. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu. For information on credit applied to a major, contact the appropriate department.

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Jewish Studies

2014–15 General Catalog

Department of History
201 Humanities
(831) 459–2982
http://jewishstudies.ucsc.edu

Faculty | Course Descriptions

Program Description

The interdisciplinary program in Jewish studies introduces students to the study of classical, medieval, and modern Jewish cultures and to the range of disciplines that bear upon the field.

The Jewish studies major and minor offer students the chance to gain knowledge and skills in a variety of contexts in various aspects of Jewish culture, with special reference (though not limited) to modern issues. The major and minor will help them prepare to move successfully into graduate programs in a variety of disciplines, especially in humanities, social sciences, and pre-professional programs, and will provide students with a grounding in materials fundamental to western culture and liberal education. This program connects with a range of disciplines and programs on the UCSC campus that explore the meanings of modernity; at the same time, this program will help students develop analytical tools, methodological versatility, and critical literacy.

Note that modernity here is not defined as Europe or North America; the Jewish studies program intends to speak to modernity as a global phenomenon, dealing with sites where Jews lived. In the 19th and 20th centuries Jews were widely spread across the globe and often played active and influential roles in their communities. These include such places as Shanghai, Tianjin, Harbin, India, Latin America, Egypt, Iran, and of course throughout Europe, Great Britain, and North America.

Students, especially those who plan to continue their studies in graduate school, may wish to gain proficiency in Yiddish, German, or Spanish, depending on their area of interest. The upper-division course Hebrew Bible (Pre- and Early-Modern Literature (LTPR) 144B) is strongly recommended, as is developing language proficiency in Yiddish and/or Hebrew.

Jewish studies is administered by the Department of History. For additional information on curriculum and advising, go to http://jewishstudies.ucsc.edu.

Requirements for the Major

In consultation with a faculty adviser, students will plan a program of study to fulfill the following distribution of courses:

Language

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
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- Politics
- Portuguese
- Porter College
- Psychology

Three quarters of lower-division instruction in a Jewish language in any combination of the student's choosing: elementary Hebrew (Hebrew 1, Hebrew 2, Hebrew 3); Hebrew 80, Introduction to Biblical Hebrew; elementary Yiddish (Yiddish 1, Yiddish 2); or equivalent. Students with prior knowledge of Hebrew or Yiddish are advised to complete a language placement exam to determine if they have satisfied any of the elementary language course requirements. Instructions for the placement exam can be found on the Languages and Applied Linguistics web site: http://language.ucsc.edu.

Course Requirements

The major requires a minimum of 11 courses, including the comprehensive requirement. A minimum of 40 upper-division cresits must be completed within the Jewish studies major course requirements.

History 74, An Introduction to Jewish History and Culture, or Literature 61J, An Introduction to Jewish Literature and Culture

Literature 80L, The Holocaust: The Destruction of European Jewry, or History 75, Film and the Holocaust

two upper-division history core courses

two upper-division literature core courses

four additional core or elective courses, three of which must be upper-division

one comprehensive exit requirement (see below)

among the 11 courses required for the major, one course must satisfy the Disciplinary Communications (DC) Requirement (see below)

Distribution Requirements. Among the 11 courses required for the major, at least three must meet the following chronological distribution requirements:

one course must satisfy the classical chronological distribution requirement

one course must satisfy the modern chronological distribution requirement

one course must satisfy the Holocaust chronological distribution requirement, which is accomplished by completing Literature 80L, The Holocaust: The Destruction of European Jewry or History 75, Film and the Holocaust.

Please consult the Jewish studies web site for a more detailed description of these courses.

Comprehensive Requirement. Students may satisfy the Jewish studies comprehensive exit requirement by completing an approved exit seminar (one quarter: History 196G, 196M, 196N, 196P, 196R, History of Consciousness 190A/Jewish Studies 190A, Modern Literary Studies 190Y or Pre- and Early Modern Literature 190Y) or a senior thesis (Jewish Studies 195A and 195B). Please consult the Jewish studies web site for a more detailed description of these courses.

Disciplinary Communication (DC) Requirement. Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in Jewish studies is satisfied by completing an exit seminar (one quarter: History 196G, 196M, 196N, 196P, 196R, History of Consciousness 190A/Jewish Studies 190A, Modern Literary Studies 190Y, or Pre- and Early Modern Literature 190Y) or a thesis (two quarters: Jewish Studies 195A and 195B.)

Honors in the Jewish Studies Major. All students who announce candidacy during the academic year are reviewed for honors or highest honors in the major. The Jewish studies faculty advisers determine honors based upon courses applied toward the Jewish studies major. Performance in courses taken elsewhere and being transferred toward the major will be considered when applicable. The minimum standard applied is excellence in most courses for honors, and excellence in all courses for highest honors. Summer, fall, and winter graduates will be reviewed at the end of each of their respective quarters. Spring graduates will be reviewed as of the spring announcement of candidacy deadline.

UC Education Abroad Program. Jewish studies encourages students to take advantage of the

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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UC Education Abroad Program (EAP). The University of California has developed educational opportunities abroad in conjunction with the Jerusalem Study Center at The Hebrew University of Jerusalem. Subject to the limitations described below under "Transfer credits and substitutions," up to three courses from EAP may be applied toward the Jewish studies major requirements.

Transfer Credits and Substitutions. Jewish studies majors must take a minimum of five regularly scheduled Jewish studies courses plus the comprehensive/DC requirement from members of the UCSC Jewish studies faculty. Subject to the limits indicated, courses from the following categories may be applied to the Jewish studies major:

Courses taken at another institution (limit of 3)

Education Abroad Program (limit of 3)

Related courses not currently on the pre-approved Jewish studies course list (limit of 2)

Independent and field studies (limit of 1)

Requirements for the Minor

Students whose major area of interest is not Jewish studies may nonetheless find that a minor in Jewish studies makes an invaluable contribution to their studies. This introduction to Jewish studies is helpful for students who plan to do graduate work in Jewish studies, whether through regular disciplines or in Jewish studies programs, and also for students who plan to attend rabbinical schools or to find work with Jewish communities. For others with an interest in Jewish topics, but without such plans, a minor in Jewish studies offers intellectual enrichment and a focus within the student's chosen field.

The minor requires a minimum of eight courses. A minimum of 25 upper-division credits must be completed within the Jewish studies minor course requirements. In consultation with a faculty adviser, students will plan a program of study to fulfill the following distribution of courses:

one of the following courses:

History 74, An Introduction to Jewish History and Culture; Literature 61J, An Introduction to Jewish Literature and Culture; Literature 80L, The Holocaust: The Destruction of European Jewry; or History 75, Film and the Holocaust;

three upper-division core courses from the Jewish studies curriculum;

four additional core or elective courses from the Jewish studies curriculum, two of which must be upper-division.

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Kresge College

2014–15 General Catalog

College Office
(831) 459–2071
http://kresge.ucsc.edu/

Course Descriptions

For college description and list of faculty, see Colleges.

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Languages and Applied Linguistics

2014-15 General Catalog

Department of the Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Languages Course Descriptions | Academic English Course Descriptions | Applied Linguistics Course Descriptions

Program Description

Understanding how language works is a crucial part of comprehending human interaction. Language is an intellectual tool basic to all disciplines. In today's communities, multicultural and global, learning a second language is not a refinement but a necessity—the key to understanding and communicating with others near and far. The goal of the Language Program at UCSC is to allow students to achieve a substantial level of proficiency in languages other than English. Since such proficiency always includes cultural as well as linguistic comprehension, the program includes investigating the complex relationship between language and culture.

The Department of Languages and Applied Linguistics offers rigorous training by professional instructors. Most courses are taught in the target language from the very beginning. Currently, we offer courses in Chinese, French, German, Hebrew, Italian, Japanese, Portuguese, Russian, Spanish, Spanish for Heritage speakers, and Yiddish.

Students with previous language preparation who wish to continue in that language take a placement examination to determine the course level appropriate for them. Each language's placement examination format is described in the quarterly Schedule of Classes, along with the time, date, and location of the examination.

McHenry Library houses an abundance of print and audiovisual material in the languages taught at UCSC, including music recordings and videos. Television programs are received from countries around the world. Faculty in the Language Program are incorporating new technologies into their teaching on an ongoing basis, including web-based resources.

Our upper-division courses further expand students' understanding of language in its social contexts, focusing on linguistic, historical, literary, sociological and cultural issues, among others.

Currently the Department of the Languages and Applied Linguistics also offers courses in applied linguistics that fulfill requirements toward the language studies and linguistics majors: language and gender, language teaching, and intercultural communication.

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- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
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- Politics
- Portuguese
- Porter College
- Psychology

The Department of the Languages and Applied Linguistics houses the Spanish Studies major, which enables students to learn in depth about the languages, histories and cultures of the Spanish speaking world.

Students of language interested in theater have the opportunity to participate in the annual International Playhouse, which presents highly successful programs every spring. To date, pieces have been performed in Chinese, French, German, Italian, Japanese, Latin, Portuguese, Russian, and Spanish.

Everyone taking a language course is also encouraged to participate in foreign film series (e.g., Chinese, French, Italian, Japanese, Portuguese, Russian, Spanish), international music and dance festivals, and conferences on intercultural or international topics.

If a student wishes to study a specific language in depth, language studies is an ideal major that combines courses in language proficiency and culture with general and applied linguistics. Students may also use language courses for the following majors and minors that have a language requirement: classical studies, East Asian studies, German studies, global economics, health sciences, human biology, Italian studies, Jewish studies, Latin American and Latino studies, linguistics, and literature. The History Department encourages students of Asian, Latin American, European, and classical history to study a second language and provides a variety of opportunities to make use of language skills in their studies.

Study abroad is an important component of language study at UCSC. Language students have various opportunities to study abroad, for a summer, quarter, semester, or year. Students may choose to study abroad through the Office of International Education (OIE), through the UCSC Summer Abroad Program, or through affiliate programs around the globe. OIE offers programs in Argentina, Australia, Barbados, Botswana, Brazil, Canada, Chile, China, Costa Rica, Denmark, Egypt, France, Germany, Ghana, Hong Kong, India, Ireland, Israel, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Russia, Singapore, South Africa, Spain, Sweden, Taiwan, Tanzania, Thailand, Turkey, United Kingdom, and Vietnam. There are programs available for students of all levels of language ability, including Language and Culture programs for beginner or intermediate speakers, to full immersion programs for students with advanced language skills. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu.

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Language Studies

2014-15 General Catalog

Linguistics Department
241 and 243 Stevenson College
(831) 459-4988
http://linguistics.ucsc.edu

Program Description

Language studies is an interdisciplinary major offered by the Linguistics Department. It is designed to equip students with competence in a foreign language and, at the same time, provide them with an understanding of the general nature of human language—its structure and use. It requires (1) acquisition of demonstrable competence in a language other than English, (2) grounding in linguistics, and (3) completion of a series of linguistics or cultural context courses related to the language. Currently, majors may choose a concentration in Chinese, French, German, Italian, Japanese, or Spanish. Interested students should contact the Linguistics Department office early in their college career to obtain essential information about requirements.

Students interested in spending a portion of a year or a full year in study abroad should review the UCSC Programs Abroad web site at http://ieo.ucsc.edu/programs-abroad/index.html. A senior year abroad is approved only when all of the language proficiency requirements have been satisfied and when it is clear that any remaining courses can be satisfactorily completed abroad. Courses taken abroad may be used to satisfy major requirements only if approved by the undergraduate program director or a designated advisor.

Requirements of the Language Studies Major

Early Declaration

It is important that prospective students declare the major as early as possible so that they can complete the language, linguistics, and context requirements within the allowed period of enrollment.

Students who wish to include a study abroad experience in their course of study will have to coordinate their choice of time abroad with the scheduling of UCSC courses. Transfer students who have not made significant progress with the language requirements before entering UCSC may find it difficult to include a time abroad before completion of graduation requirements.

Qualification Policy for the Language Studies Major

The Linguistics Department has adopted a major qualification policy for linguistics and language studies majors that is intended to encourage students to take their performance in the gateway courses seriously and to help them lay a solid foundation for further course

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- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
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- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

work in the major.

In order to declare the linguistics or language studies major, a student must pass each of the gateway courses, Linguistics 50, Introduction to Linguistics, and Linguistics 53, Semantics 1, with a grade of C+ or better.

Students who are informed that they are not eligible to declare the major may appeal the decision within 15 days from the date the notification was mailed. They should do this by submitting a formal letter, addressed to the department undergraduate program director, to the Linguistics Department office (Stevenson 241 and 243). This letter should explain any extenuating circumstances that influenced their performance in the gateway courses. Within 15 days of receipt of the appeal, the department will notify the student, the college, and the Office of the Registrar of the decision.

Course Requirements

Language studies majors must satisfy course requirements in languages, linguistics, and cultural context.

Language component: Language studies majors (in French, German, Italian, and Spanish) must achieve a level equivalent to six quarters in the language of concentration. One advanced language course after level 6 is also required. Majors in Chinese and Japanese must achieve a level equivalent to eight quarters of language study.

Linguistics component: The major requires six foundation courses in linguistics:

- 50, Introduction to Linguistics
- 53, Semantics 1
- 101, Phonology 1
- 112, Syntax 1; or 111, Syntactic Structures
- Two upper-division linguistics courses

Cultural context or linguistics component: The major also requires five upper-division elective courses in linguistics or the cultural context of the language of concentration. Linguistics courses include any upper-division course offered by the Linguistics Department. Cultural context courses are to be selected from disciplines such as literature, history, and politics, subject to departmental approval.

Senior exit requirement: In their senior year, language studies majors must satisfy the senior exit requirement in one of two ways:

Option 1. Successful completion of a capstone course— an appropriate upper-division linguistics course. Students must have senior standing and must have completed Linguistics 53, Semantics I; 101, Phonology I; and 111, Syntactic Structures or 112, Syntax I. This course can be one of the two linguistics electives required for the major.

Option 2. Senior thesis supervised by a faculty member. The proposal for a senior thesis must be submitted for approval by the department faculty at least three quarters prior to the quarter of graduation.

Students enroll in Linguistics 195, Senior Thesis, with the approval of the faculty adviser. The senior thesis is an original investigation of the major language in some relevant way, such as the linguistic structure or history of the language or its historical, literary, cultural, sociological, ethnographic, or political context.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in language studies is satisfied by completing courses 101 and either 111 or 112.

Requirements of the Minor

The minor requires completion of two years (six quarters) of language study (or

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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demonstration of an equivalent level of ability) and eight additional linguistics and cultural context courses as follows:

- 50, Introduction to Linguistics
- 101, Phonology I
- 112, Syntax I; or 111, Syntactic Structures
- Two upper-division linguistics courses
- Three electives in linguistics or in the cultural context of the language of concentration to be selected from disciplines such as literature, history, and politics, subject to departmental approval. One of the courses taken must have a prerequisite of Level 6 in the student's designated language.

There is no senior exit requirement for the minor.

Honors

Students who wish to be considered for honors should meet the deadline posted by the Office of the Registrar for declaring the intent to graduate. Determination of honors is based on the student's grades and narrative evaluations for all courses relevant to the major and other factors relevant to an assessment of academic excellence, such as research papers of professional quality. Generally, honors in the major are awarded only to the top 10 percent of those graduating in the major. Only those students whose performance in coursework is excellent will qualify. Highest honors are rarely awarded, and then only to students whose performance in coursework is outstanding and who have completed an outstanding senior thesis.

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Latin

2014-15 General Catalog

History Department
201 Humanities
(831) 459-2982
http://history.ucsc.edu/

Faculty | Course Descriptions

Program Description

The History Department offers instruction in elementary Latin. It consists of a two-course sequence, Latin 1 and Latin 2, that begins in the fall quarter only. Students interested in Latin literature should see the course listings under Literature. Those interested in classical studies should see the program description for classical studies.

Campus Language Laboratories and Placement Exams

No placement exam is required for entry into Latin 1. Contact the History Department for more information about these topics.

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Latin American and Latino Studies

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32 Merrill College
(831) 459-4284
http://lals.ucsc.edu

Faculty | Course Descriptions

Program Description

The Latin American and Latino Studies (LALS) Department prepares students for bilingual and multicultural participation in a rapidly changing and globalized world. LALS integrates the study of Chicano/a and Latino/a communities in the U.S. with analysis of the histories, politics, cultures, and societies of Latin America and the Caribbean. The field is inherently interdisciplinary, drawing on sociology, history, anthropology, political science, media studies, communications, cultural studies, economics, environmental studies, and literature.

LALS courses deal with changing political, social, economic, and cultural realities among Latin American and U.S. Latino and Latina communities in ways that recognize cross-cultural and transnational processes. Key concepts and processes studied include: immigration and transnational migration; gender, racial, sexual, and ethnic identities; social movements; diverse forms of cultural expression and cultural politics; ongoing political and economic restructuring in Latin America; and the challenges of political and economic empowerment for Latino/a communities in the U.S. Students learn to formulate thoughtful, critical and clear arguments and to communicate effectively in more than one language.

In addition to academic knowledge, LALS also provides opportunities for students to acquire practical, real-world skills. Through program-related internship and field-study experiences, students can acquire useful, pre-professional skills in key areas including: community development/advocacy, public policy, education, journalism, media, legal services, performance, and research/writing.

Latin American and Latino studies courses span a number of disciplines and are augmented by courses taught by participating faculty in other departments. The Latin American and Latino Studies Department compiles a quarterly list of the courses offered by other departments that are pre-approved and count toward the major; this list appears on the department's web site under "courses" and is frequently updated.

Graduates of the LALS major have made careers in a wide variety of fields, including teaching, community organizing, community and government service, journalism and the media, environmental science, global economics, health care, legal services, library science, music, publishing, and research. Many have gone on to pursue advanced degrees in the U.S. or abroad in fields such as anthropology, bilingual education, media, communications, cultural studies, ecology, economics, geography, history, law, literature, educational

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counseling, public health, and sociology.

Declaration of the Major

Students need to complete LALS 1, Introduction to Latin American and Latino Studies, and one additional lower-division Latin American and Latino Studies course prior to declaring the major. A junior transfer student may petition the department to satisfy the lower-division requirements with equivalent courses from a qualified institution. These courses must appear on the UCSC Transfer Credit Summary. See the LALS department for more information.

Requirements of the Major

Two lower-division courses are required for the major: LALS 1, Introduction to Latin American and Latino Studies, and one additional lower-division Latin American and Latino Studies course. (See the LALS web site for a listing of lower-division courses).

Other departments' courses numbered 1-80 on Latin American and/or Latino/a subjects may be substituted with approval in advance from the Latin American and Latino Studies Department.

Courses with similar content taken at other institutions may be substituted with approval from the Latin American and Latino Studies Department.

In addition, all majors must complete 10 upper-division courses, including three required core courses, (no substitutions):

Latin American and Latino Studies Core Courses

100 Concepts and Theories in Latin American and Latina/o Studies

100A Social Science Analytics

100B Cultural Theory in the Americas

The remaining seven electives must meet the following criteria:

- A student-defined cluster of three LALS-related courses must be taken in a variety of areas of concentration.
- These may be LALS courses or courses from affiliated/participating departments.
- At least one course must concentrate on pre-WWII topics
- At least one course must concentrate on Chicano/a-Latino/a issues
- At least two upper-division courses with a methods training emphasis
- At least two LALS upper-division courses must be taken in Spanish or Portuguese***

***Upper-division courses in Portuguese are currently not taught at UCSC and must be taken elsewhere.

See the LALS department website (http://lals.ucsc.edu) for an updated list of additional lower-division and upper-division courses that meet LALS requirements

Language Requirements

All Latin American and Latino studies majors are expected to learn to speak, read, and write Spanish or Portuguese and to make use of these skills on a regular basis in their upper-division academic work.

Majors must take at least two upper-division courses taught in Spanish or Portuguese. Before taking upper-division course work taught in the language, students must demonstrate proficiency in Spanish equivalent to the completion of Spanish 6 or Spanish for Heritage Speakers 6. Students who wish to pursue Portuguese may take the Portuguese 1A/1B or 60A/60B series.

Students who have achieved fluency in Spanish or Portuguese through life experience may be exempt from this recommended preparatory course work after demonstration of their

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
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proficiency. In addition to Latin American and Latino studies and affiliated department course offerings, the required two upper-division courses taught in Spanish or Portuguese*** may be fulfilled through study abroad with approval by the LALS Department. Students may also pursue internship or field study opportunities to satisfy one of the two required upper-division courses taught in Spanish or Portuguese; however, at least one of the two courses must be fulfilled in a classroom setting.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in Latin American and Latino studies and the combined majors with global economics, literature, politics, and sociology are met by completing courses 100A and 100B.

Senior Comprehensive Requirement

Every major must complete a senior exit requirement in order to graduate. The preparation and completion of this requirement is structured into the senior year. There are four options to choose from:

1. Passing a Latin American and Latino Studies senior seminar (194 series). In these courses, students must write at least 30 pages cumulatively during the quarter. The final paper is based on independent scholarly research, demonstrates advanced skills in critical analysis, and which has undergone revisions. Senior standing and completion of LALS 100A and 100B are required before taking a LALS 194 course for fulfillment of the senior exit requirement.

2. An expanded research paper, a minimum of 20 pages in length. This paper often builds on related course work and requires approval from the relevant faculty adviser before the end of the winter quarter of the senior year. Students must be enrolled in an independent study tutorial to complete this paper.

3. A senior thesis, generally between 40–60 pages, based on two or more quarters of sustained independent research under the supervision of the faculty adviser while enrolled in an independent study (done by petition to LALS, and with the approval of the faculty adviser). If the thesis option is selected by a combined major, it should be planned in consultation with an adviser from each department, completed under the supervision of a faculty member from either department, and read and approved by both advisers; one adviser is sufficient if this faculty member is affiliated with both departments.

4. A senior project, which can be either a creative project or a community-action project. Creative projects include web site design, video, performance, slide show, photo exhibit, or other media work. A short written analysis of the student's experience in conducting the project is required. Community-action projects often involve sustained research and/or activity conducted in a community organization or public interest group, usually stemming from an internship. The required short written analysis has to be 10 pages minimum.

Note: some combined majors have fewer options for exit requirements (see below)

Field-Study and Internship Opportunities

All majors are encouraged to undertake either a field study in Latin America, the Caribbean, a Latino/a community in the U.S., or formal academic study abroad through the Education Abroad Program (EAP). These paths are the best ways to improve language skills, to explore the nature and direction of specific academic and career interests in relation to Latin American and Latino studies, and to deepen cross-cultural understanding and relationships.

Field studies are independent, community-based study projects for academic credit, done under faculty sponsorship and arranged on an individual basis. Local opportunities for internships and field study in Latino/a communities on California's Central Coast are numerous. Credit for up to three upper-division courses may be applied toward the major from field study; however, course credit from field study and study abroad combined may not exceed three upper-division courses. Students should check the Latin American and

Latino Studies Department web site for further information regarding the field-study process and course credit. A listing of local field-study programs and petition forms are available at the Latin American and Latino Studies Department office, 32 Merrill.

Study Abroad

Students may study abroad through the Education Abroad Program (EAP), through UC Summer & Quarter Abroad Programs, or through independent programs. EAP offers opportunities for students to study in Buenos Aires, Argentina; Mexico City, Mexico; Santiago, Chile; Rio de Janeiro, Brazil; and Madrid, Córdoba, Granada, and Barcelona in Spain. In addition to language and culture and university immersion programs, EAP also offers a Field Research Program in Mexico, which is an experiential program geared toward juniors and seniors who want to explore the "real" Mexico outside the classroom and at the same time receive undergraduate research training. The program has research sites in states such as Jalisco, Yucatán, Oaxaca, and Michoacán (final site choice depends on the research topic). Application deadlines are generally about one year in advance of the program, so students should visit the UCSC International Education Office early to plan for study abroad and to begin the application process. The department will consider by petition the approval of courses taken abroad, whether through EAP or through independent programs, that cover topics appropriate to the LALS curriculum for upper-division credit toward the major. All credit for EAP classes is fully incorporated into students' UCSC transcripts; students receive transfer credit for independent study abroad programs. Financial aid applies to all EAP programs and takes into account airfare and living costs in addition to tuition and fees; financial aid is not available for students who study abroad independently. Before departure, student should present an academic plan for courses abroad to the department advisor for review. Credit for up to three EAP courses can be applied toward the major. (A maximum of three courses of field study and EAP combined can be applied toward the major requirements.)

Latin American and Latino Studies Major Planners

The following are two recommended academic plans for undertaking basic preparation for the Latin American and Latino studies major. Plan One is a guideline for students who commit to the major early in their academic career. Plan Two is for transfer students.

Plan One—Frosh

Year	Fall	Winter	Spring
1st (frsh)	SPAN 1	SPAN 2	SPAN 3
	LALS 1	LALS lower-division	LALS lower-division
2nd (soph)	SPAN 4 or SPHS 4	SPAN 5 or SPHS 5	SPAN 6 or SPHS 6
	LALS 100	LALS 100A	LALS 100B
3rd (jr)	LALS upper-division course	LALS upper-division course	LALS upper-division course
4th (sr)	LALS upper-division course	LALS upper-division course	LALS 194 (Senior-Exit Requirement)
	LALS upper-division course	LALS upper-division course	LALS upper-division course

Plan Two—Junior Transfers

Year	Fall	Winter	Spring
	SPAN 4 or SPHS 4	SPAN 5 or SPHS 5	SPAN 6 or SPHS 6

3rd (jr)	LALS 100	LALS 100A	LALS 100B
	LALS 1	LALS lower-division	LALS upper-division course
4th (sr)	LALS upper-division course	LALS upper-division course	LALS upper-division course
	LALS upper-division course	LALS upper-division course	LALS 194 (Senior-Exit Requirement)

Combined Majors

The combined major options, requiring fewer courses than a double major, are established with the global economics, literature, politics, and sociology programs.

Latin American and Latino Studies/Global Economics

Students are required to take a total of 18 courses and to satisfy the senior comprehensive requirement. For the combined major in Latin American and Latino studies/global economics, students complete a total of seven lower-division course requirements for both the Latin American and Latino studies and global economics majors. Students work with a faculty adviser from each department. Lower-division requirements include Economics 1, 2, 11A, 11B, Applied Mathematics and Statistics 5, LALS 1 and one additional LALS lower-division course. Upper-division course requirements include Economics 100A/ (100M), 100B/ (100N), and 113; LALS 100, 100A, and 100B; and five additional elective courses, two from economics (114, 120, 125, 126, 128, 130, 137, 140, 141, 142, 148, 149, 150, 156, 160A, 160B, 165, 169, 170, 171, 175, 183, 184, 189, 195 or 199) and three from Latin American and Latino studies. Two of the upper-division courses must be taught in Spanish or Portuguese*** and two to four (at least one quarter) must be courses of academic study abroad, internship, or field study in a Spanish- or Portuguese-speaking country. The comprehensive requirement is met by the completion of a senior thesis on a topic suitable to both global economics and Latin American and Latino studies, supervised by a faculty member from either department and read and approved by the student's advisers from both departments.

Latin American and Latino Studies/Literature

Students are required to take a total of 13 courses and to satisfy a senior comprehensive requirement. Students complete a total of two lower-division course requirements, LALS 1 and either Spanish Literature 60 or a Literature 80 series course in a relevant area of study. For transfer students, a petition can be submitted to replace the LALS 1 and/or Spanish Literature 60 or a Literature 80 series course with an appropriate course in a relevant area of study from another institution.

Upper-division requirements include five core courses, LALS 100, 100A, 100B, Spanish Literature 102A, and Spanish Literature 102B; and six additional elective courses, three from Spanish Literature and three from LALS. At least four of the upper-division courses must be taught in Spanish or Portuguese*** (with at least one taught by LALS core or participating faculty), and at least one of the Literature courses must address theoretical concerns. Up to three relevant courses taken through study abroad programs from which credits are transferable to UCSC may be credited toward the major when the content is deemed appropriate by both departments. To complete the comprehensive requirement, students can write a senior thesis (by petition), enroll in an appropriate LALS Seminar (194 series), or enroll in an appropriate Literature Senior Seminar in the area of concentration. If the thesis option is selected, it should be planned in consultation with an adviser from each department, completed under the supervision of a faculty member from either department, and read and approved by both advisers; one adviser is sufficient if this faculty member belongs to both departments. Both departments must approve a study plan before the major can be declared.

Latin American and Latino Studies/Politics

Students are required to take a total of 13 courses and to satisfy a senior comprehensive requirement. For the combined major in Latin American and Latino studies/politics, students complete two lower-division course requirements, LALS 1 and one course from Politics 1-79. Transfer students may petition to substitute LALS 1 or one course from Politics 1-79 with appropriate course work from another institution. The 11 upper-division courses include three core course from LALS (LALS 100, 100A and 100B), one from Politics (140C) and seven upper-division electives, five from politics (three politics core courses from the 105, 120, 140, and 160 series) and two from LALS (one must be taught in Spanish or Portuguese*** and the other must be on Chicano/a-Latino/a issues).

To complete the senior comprehensive requirement, students may take either a Politics (190) or LALS (194) senior seminar.

Latin American and Latino Studies/Sociology

Students are required to take a total of 13 courses and to satisfy a senior comprehensive requirement. There are three lower-division course requirements, two from the Sociology Department and one from Latin American and Latino Studies Department. The lower-division LALS course must be LALS 1; transfer students may petition to replace the LALS 1 with an appropriate course from another institution. Upper-division requirements include six core courses: LALS 100, 100A, 100B; Sociology 103B, 105A, and 105B; and four additional elective courses, two from sociology and two from Latin American and Latino studies. At least one of the Latin American and Latino studies upper-division courses must be taught in Spanish or Portuguese***, and at least one course in the sociology/Latin American and Latino studies combined major must be on Chicano/a-Latino/a issues. Up to three relevant courses taken through study abroad programs from which credits are transferable to UCSC may be credited toward the major, when the content is deemed appropriate by the faculty advisers of both Sociology and Latin American and Latino studies. Students can satisfy the comprehensive requirement in one of three ways: (1) writing a senior thesis, (2) passing an appropriate LALS Senior Seminar (194 series), or (3) completing two additional sociology upper-division courses in the area of Inequality and Social Change (refer to the sociology undergraduate adviser for the specific list of courses). If the thesis option is selected, it should be planned in consultation with an adviser from each department, completed under the supervision of a faculty member from either department, and read and approved by both advisers. See Sociology program statement on admission to the LALS/Sociology major.

***Upper-division courses in Portuguese are currently not taught at UCSC and must be taken elsewhere.

Honors in the Major

The LALS faculty considers awarding honors in the major based on overall student academic performance in courses that count towards the major. To receive the strongest consideration for honors in the major the following grade point average (GPA) criteria must be met: highest honors, 4.0; honors, 3.7. Students with a 3.5-3.7 GPA in the major will also be considered, and a decision is made based on their grades in core courses and improvement over time. For combined majors, student work must be considered to be honors-level in both departments; the LALS faculty cannot award honors in the major unless the other department also confers honors.

LALS also awards honors for the thesis, creative or community action projects, or student taught seminars, by the recommendation of the faculty adviser. Note that a thesis, a creative/community project, or a student-taught seminar are the only senior exit requirement options that qualify for this distinct honors designation. Expanded papers and senior seminars do not qualify for a separate honors designation, but students who choose these options may still qualify for honors in the major.

Program Learning Objectives

We expect that all graduating LALS seniors will have gained proficiency or competency in the following five areas: Critical Thinking, Research Methods, Communication, Language, and Lifelong Learning Skills.

1. Critical Thinking: Ability to analyze from a transnational/transborder/translocal

perspective – to see the interconnections between Latin American and Latino issues, people, ideas, problems and solutions. This includes key skills such as understanding sources, comparing arguments, analysis and historical perspective.

2. Research Methods: Working knowledge of social scientific and/or humanistic approaches to LALS relevant topics. This includes key skills such as: quantitative skills, conduct statistical analysis, gather/obtain research data, finding/using primary sources, qualitative research, other research methods.

3. Communication: Key communication skills, including: written, oral presentation, digital, including an understanding of media sources and ability to apply media literacy to cross-cultural analysis.

4. Language: Fluency in English, Spanish, and/or Portuguese.

5. Lifelong Learning Skills: Acquisition of practical hands-on skills in community engagement, cross-cultural fluency, familiarity with Latin America, familiarity with Latino experience, acquired through experiential learning working with community and civic organizations.

Minor Requirements

The minor in Latin American and Latino studies consists of seven courses, including two lower-division courses (LALS or pre-approved courses from other departments) and five upper-division courses (including LALS 100 or LALS 100A or 100B and any other four upper-division courses that count towards the major). Knowledge of Spanish and/or Portuguese is highly recommended, but not required for the minor.

Graduate Studies

The Ph.D. program in Latin American and Latino Studies at UCSC offers an innovative transnational and interdisciplinary approach to the study of the peoples, cultures, societies and institutions of the Americas. The program is designed to educate students in this new field of study and train them to develop the conceptual and analytical skills necessary for understanding the dynamics of hemispheric change. This is the first doctoral program in Latin American and Latino Studies.

In preparing students for research and teaching at the university level, the department offers four thematic clusters in the emerging field of Latin American and Latino Studies: 1) transnational migrations within the Americas; 2) social inequalities; 3) cultural politics and cultural flows; and 4) collective action and social movements. Doctoral students specialize in one of these four substantive themes, as well as a focus area of their own design.

1. Transnational Migrations. While transnational migrations are the subject of research in multiple disciplines, this program analyzes these transformative processes through an interdisciplinary lens. A transnational approach examines links between regions in the Americas, analyzing the social and historical foundations of economic dynamics such as remittances from the United States or the dollarization of Latin American countries. A transnational approach to the study of migratory processes explores the dynamics of bi-national communities, bilingualism and multilingualism, immigrant integration into host societies, and North-South exchanges of ideas and cultures.

2. Social Inequalities. This program's research in the Americas foregrounds the study of transnational social inequalities formed by power relations based on race, ethnicity, nationality, citizenship, class, territory, gender and/or sexuality. These social hierarchies are analyzed as institutions, historical processes, discourses, or symbols with multiple meanings, and are examined in terms of how they have been mobilized to build, transform, or challenge identities, communities, and social movements in local, national, and global contexts over time.

3. Cultural Politics and Cultural Flows. Another distinctive area of inquiry in the Americas is the study of cultural politics and cultural flows that shape everyday life, institutions, social identities, discourses, meanings, and cultural forms and practices, in global, regional, and local contexts in an increasingly interconnected and integrated world. The transnational analysis of culture focuses on the ways in which cultural forces and cross-cultural communication and media are contributing to the formation of new

transnational imaginaries, as well as how these cultural processes are transforming and redefining national and local cultures.

4. Collective Action and Social Movements. This area of research addresses collective action and social movements at local, national and international levels viewed through transnational lenses. As migrants engage in public life, both in their communities of residence and in their communities of origin, they construct diverse practices of political participation, including "civic binationality." These processes are crucial for understanding the largest wave of immigration in a century, including how migrants relate to US society.

The doctoral program provides rigorous training in both disciplinary and interdisciplinary approaches to the study of transnational processes that link the Americas. The program educates doctoral students in the theories and research methods based in disciplines of the social sciences and the humanities.

The deadline for applications to the doctoral program is December 15 in the preceding year. The program only accepts students for admission in fall quarter.

Coursework requirements

The program requires a total of 13 courses with LALS Graduate Program Affiliated Faculty, including the definition of two areas of concentration. Of the required courses, up to three may be independent studies with LALS faculty. Of the 13 required courses, students may take up to four regular graduate courses offered in other departments and the Graduate Advisor will determine whether these courses count for the LALS program requirements. Before advancement to candidacy, a full-time course load is two or three courses at the graduate seminar level. The following are the course requirements:

LALS 200 Bridging Latin American and Latino Studies

LALS 200A Politics and Society (pending approval)

LALS 200B Culture and Society (pending approval)

Two methodology courses (taught in LALS or in a disciplinary department)

Seven additional 5-unit courses leading to the definition of two areas of concentration, taken in consultation with the advisor

LALS 201 two-unit pedagogy course with the Graduate Director (pending approval)

In addition, students may enroll in LALS 291 (a two-unit advising course; pending approval) each quarter until advanced to candidacy as per their advisor's instructions. Students are encouraged to enroll in a grant-writing course, which may be taken outside the department. If students take the Graduate Summer Language course(s), they will not count as part of the seven additional courses. If a student enters with a Master's Degree from another university, s/he may petition to the Graduate Director to request that some of the graduate courses fulfill LALS course requirements.

Language Requirement

The program requires significant reading, writing and speaking abilities in both English and Spanish, unless the student plans to work in Brazil or with Brazilian migrants, in which case they must demonstrate proficiency in English and Portuguese. Students are required to demonstrate their proficiency in a language other than English before the completion of the Qualifying Examination. Some students' research projects may require command of a third language, such as an indigenous language. These students will have to demonstrate proficiency in a third language by completing language instruction at another institution or by an examination with an LALS principal faculty member.

The Qualifying Examination Process

Doctoral students will be required to submit two Qualifying Essays, and a Qualifying Examination, as described below. A Qualifying Exam Committee, composed of four faculty members, will approve both the scope of the field statements constituting the Qualifying Essays and the final written products, and conduct the oral examination. This committee must include at least two principal faculty members--one LALS Core faculty member and

one LALS Graduate Program Affiliate faculty member, one of whom chairs the committee--and one tenured faculty from outside the LALS department. The Qualifying Exam Committee must be approved in advance by the Graduate Division. Students should take their exams by spring of the third year.

1. Qualifying Essays. Students are required to complete two Qualifying Essays. The Qualifying Essay topics should address broad non-overlapping fields and review the literatures related to the proposed dissertation questions. Students should consult with their qualifying exam committee early in the process, regarding the appropriate scope and content of their essays.

   One of the Qualifying Essays must focus on one of the department's four themes: transnational migrations, social inequalities, cultural flows and cultural politics, or collective action and social movements. The qualifying essay should demonstrate command of the methodology relevant to the student's specialized research interests (e.g. ethnographic field methods, textual analysis, archival research methods, statistics, media analysis, and/or comparative methods) and include relevant texts in the second language. The committee chair must approve these essays at least one month prior to the oral examination.

   In addition, the essays must be accompanied by two proposed course syllabi for potential undergraduate courses.

2. Qualifying Examination. An oral examination will follow the approval of the Qualifying Essays.

   After successfully completing the Qualifying Examination, students are expected to assemble a Dissertation Committee chaired by a LALS principal faculty member chosen from the LALS core or LALS graduate program affiliate faculty lists.

   Course-work and the Qualifying process should be completed by the end of the third year. Students may petition for a non-terminal Master's Degree after advancing to candidacy.

Dissertation

Students will be expected to complete the dissertation prospectus and secure approval from the Dissertation Committee by the last day of the quarter after the Qualifying Examination. In the prospectus, students should clearly articulate the logic of an interdisciplinary, transnational approach, as well as the methodologies to be used for addressing the research questions.

The dissertation must demonstrate in-depth research, make a significant and original scholarly contribution, and include material worthy of publication.

Designated Emphasis in Latin American and Latino studies

Graduate students may work toward a doctor of philosophy (Ph.D.) degree that notes a designated emphasis in Latin American and Latino studies on the graduation documents. Students wishing to pursue this option should consult with the chairs of their respective Ph.D. programs and are encouraged to apply in the first or second year of graduate study. The application and an annually updated list of regularly offered, approved graduate courses are available at : http://lals.ucsc.edu.

The following are required for the designated emphasis:

Committee Composition. The student must have a designated graduate adviser from among the Latin American and Latino studies core, participating, or affiliated faculty. This adviser will be in addition to the graduate adviser from the student's home department. The Latin American and Latino studies adviser must serve on the student's qualifying examination committee and/or on the student's dissertation committee.

Course requirements. The student must take five graduate courses in Latin American and Latino studies, including the required LALS 200 and LALS 297. The remainder can be selected from appropriate graduate offerings of any UCSC department, as long as they are taught by core, participating, or affiliated Latin American and Latino studies faculty.

Courses. Graduate course work in Latin American and Latino studies is available both in the

Latin American and Latino Studies Department and in other UCSC departments.

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Legal Studies

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(831) 459-2056
legalstudies@ucsc.edu
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Program Description

Legal studies is an interdisciplinary major offered under the auspices of the Politics Department. It is designed for students who wish to use the methods and perspectives of various academic disciplines to study legal issues and to use the conceptual framework of the law to illuminate empirical and theoretical concerns in the various disciplines. For example, a student might use approaches from psychology and philosophy to study the legal problem of punishment; or draw on doctrinal categories from public and private law to study the changing historical role of market and nonmarket relations within ongoing institutions; or use approaches from critical race theory and feminist studies to better understand matters of civil rights and privacy.

To complete the major, students are required to take courses in legal institutions, constitutional law, and international law, as well as take courses in each of three broad themes: legal theory and philosophy, the role of law in society, and legal institutions. Each of these themes is intentionally broadly defined. Within legal theory, students may take courses in legal jurisprudence, logic, and theories of crime and punishment; within law and society, courses range from feminism and race to psychology and economics; within public law and institutions, courses range from environmental law to human rights law to an introduction to litigation. Students are also expected to take an introductory course in philosophy. To fulfill the senior exit requirement, students have the option to write a senior thesis or take a senior capstone seminar. The seminar topic changes quarterly.

Legal studies is intended to appeal to students who wish to take a concentration of courses on the law from a variety of disciplinary and methodological perspectives. The major is not intended as a substitute or preparation for any part of a law school curriculum but rather as a full field of study within the liberal arts curriculum. As such, it is a good preparation for a variety of future activities. Students graduating in legal studies are particularly well qualified to pursue graduate work on legal topics in humanities and social science disciplines or to attend professional school in fields such as public policy, business administration, social work, and law. Students are also encouraged to participate in field work and law-related internships in the community, and to develop their own extensive independent research projects.

Declaring the major in legal studies is a two-step process: 1) complete and pass course 10 with a grade of C or better; 2) attend a declaration orientation workshop.

The legal studies program offers a minor degree as well as the major degree.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Requirements of the Major

Lower-Division Course Requirements—2 courses

Legal Studies 10, *Introduction to Legal Process*. All students are required to complete and pass legal studies 10 as a prerequisite to upper-division courses in legal studies and prior to declaring the major.

A student who has not been able to satisfy the pre-declaration requirement (a passing grade in Legal Studies 10) may petition the department for an exception. The letter of petition must explain and document the circumstances that might justify an exception. The department will consider the request and notify the student of its decision within two weeks of receiving the petition or within 10 days of the start of the following quarter, whichever is later.

Philosophy 9, 22, or 24. All legal studies majors are required to take one of the three listed

Philosophy courses. (See the Philosophy section in this catalog for course descriptions.)

Upper-Division Course Requirements—2 courses

111A Constitutional Law or

111B Civil Liberties

160B International Law

Core Course Requirements—6 courses

Students are required to take six core courses, two in each of three concentrations: theory, public law and institutions, and law and society.

THEORY

103 Feminist Interventions (Politics course)

105A Ancient Political Thought

105B Early Modern Political Thought

105C Modern Political Thought

106 Marxism as a Method

107 Political Morality of Survivorship and Recovery

109 Legal Theory

109 Orientalism (Politics course)

115 Law and the Holocaust

128J The World Jury on Trial

144 Social and Political Philosophy

146 Philosophy of Law

155 Topics in American Legal History

157 Political Jurisprudence

PUBLIC LAW AND INSTITUTIONS

111A Constitutional Law

111C Issues in Constitutional Law

115 Law and the Holocaust

116 Comparative Law

120A Congress, President, and the Court in American Politics

120C State and Capitalism in American Political Development

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
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147A Psychology and Law

147B Psychology and Law

150 Children and the Law

151 Politics of Law

154 The Legal Profession

155 Topics in American Legal History

160A Industrial Organization

162 Legal Environment of Business

169 Economic Analysis of the Law

180 Power, Politics, and Protest

183 Women in the Economy

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in legal studies is satisfied by completing one of the following three paths:

1. Completion of Legal Studies 111A and Legal Studies 160B or
2. Completion of Legal Studies 196 or
3. Completion of a senior thesis, Legal Studies 195A, B, C.

Comprehensive Requirement—1 course

Students can satisfy the comprehensive requirement in the legal studies major by successfully completing one of the following:

195ABC, *Senior Thesis.* Completion of a senior thesis project of a minimum of 50 pages with a substantial research content, supervised by a legal studies faculty member.

196, *Senior Capstone*. The capstone course is designed to provide an interdisciplinary integration of themes related to the study of law and includes a substantial writing requirement.

Honors

Honors in the legal studies major are awarded to graduating seniors, based primarily on a review of grades and to a lesser extent narrative evaluations, whose academic performance is judged to be consistently excellent by a faculty committee. Highest honors in the major are reserved for students with consistently outstanding academic performance.

Transfer Students

A student transferring to UCSC must meet with the legal studies undergraduate adviser as early as possible to discuss declaring the major and course enrollment. This ensures a smooth transition. Students should bring a copy of their UCSC Transfer Credit Summary, which may be printed from the student portal.

Requirements for the Minor

To complete a minor in legal studies, a student must take Legal Studies 10 and any five upper-division legal studies core courses numbered 101–190.

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Linguistics

2014-15 General Catalog

241 and 243 Stevenson College
(831) 459-2905
(831) 459-4988
http://linguistics.ucsc.edu

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Program Description

Linguistics is an exact and structured discipline that examines human language. It has connections to many other fields in the humanities (philosophy, literature), the social sciences (anthropology, psychology, sociology), the natural sciences (biology, neuroscience, acoustics), computer science, computer engineering, and artificial intelligence.

The central areas of linguistics investigate the knowledge that speakers of a language acquire about its structure. Syntax is concerned with the rules that combine words into larger units of phrases and sentences. Semantics is the study of the meanings of linguistic units and how they are combined to form the meanings of sentences. Phonetics deals with the physical properties of language sounds. Phonology investigates the sound systems of particular languages. Morphology investigates the ways in which words are formed from prefixes, roots, and suffixes. Pragmatics is the study of language use. Psycholinguistics is concerned with the cognitive mechanisms by which language is put to use in producing and perceiving speech.

The faculty in the Linguistics Department have primary research and teaching interests in one or more of these areas. Other perspectives on language study represented include sociolinguistics, the study of poetic language, and the study of language change.

The programs offered by the Linguistics Department are designed to acquaint students with the central aspects of linguistic structure and the methodologies and perspectives of the field. The department offers two undergraduate majors, linguistics and language studies, and a graduate program in theoretical linguistics. The linguistics major leads to a bachelor of arts (B.A.) degree in linguistics; the language studies major leads to a B.A. degree in language studies (see Language Studies). The graduate program leads to the master of arts (M.A.) and doctor of philosophy (Ph.D.) degrees in linguistics.

The department also offers a combined B.A./M.A. program which makes it possible for certain well-qualified, highly motivated students to complete the requirements for both degrees in five years rather than the usual six.

Qualification Policy for the Linguistics Major

The Linguistics Department has adopted a major qualification policy for linguistics and

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
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- Humanities
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- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

language studies majors that is intended to encourage students to take their performance in the gateway courses seriously and to help them lay a solid foundation for further course work in the major.

In order to declare the linguistics or language studies major, a student must pass each of the gateway courses, Linguistics 50, Introduction to Linguistics, and Linguistics 53, Semantics 1, with a grade of C+ or better.

Students who are informed that they are not eligible to declare the major may appeal the decision within 15 days from the date the notification was mailed. They should do this by submitting a formal letter, addressed to the department undergraduate program director, to the Linguistics Department office (Stevenson 241 and 243). This letter should explain any extenuating circumstances that influenced their performance in the gateway courses. Within 15 days of receipt of the appeal, the department will notify the student, a college, and the Office of the Registrar of the decision.

Requirements of the Linguistics Major

Students in the linguistics major are required to complete 12 courses in linguistics and related disciplines. Seven of these are named courses in linguistics:

- 50, Introduction to Linguistics
- 53, Semantics I
- 101, Phonology I
- 102, Phonology II
- 112, Syntax I
- 113, Syntax II
- 116, Semantics II

Five upper-division elective courses in linguistics.

Students may petition the department to have elective courses offered through other institutions or other UC programs applied toward the major requirements. At most three such courses can be applied toward the major. These courses must be upper-division and clearly fit into a coherent program of study in linguistics.

Foreign language/mathematics competency requirement: Linguistics majors are required to demonstrate either foreign-language or mathematics competency as follows:

- Foreign-language competency: students must successfully complete five quarters of language study at UCSC or demonstrate an equivalent level of competence through a recognized language test or evidence of credit from another institution. In cases where five quarters of instruction for a language are not being offered at UCSC, students may opt to complete (or demonstrate equivalent level of competence for) three quarters of one language and three quarters of a second language. For Latin and Greek, two quarters will be considered equivalent to three quarters.
- Mathematics competency: alternatively, students with a strong formal background can choose to satisfy the mathematics competency requirement by demonstrating sufficient preparation in mathematics for advanced formal work in linguistics. This requirement is satisfied by passing two courses chosen from the following list: Applied Mathematics and Statistics 7 or 131; Computer Engineering 16; Computer Science 5C, 5J, 5P, 10, 11, 12A, 12B, 140, or 148; Mathematics 30, 100, 115, 160, or 161; Philosophy 9; or any course which has one of these courses as a prerequisite.

Senior exit requirement: In their senior year, linguistics majors must satisfy the senior exit requirement in one of two ways:

- Option 1: Successful completion of a capstone course (an appropriate upper-division linguistics course). Students must have senior standing and must have completed Linguistics 53, Semantics I; 101, Phonology I; and 112, Syntax I.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
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- Technology and Information Management
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Option 2: Successful completion of a senior thesis supervised by a linguistics faculty member.

The proposal for a senior thesis must be submitted for approval by the department faculty at least three quarters prior to the quarter of graduation. Students enroll in Linguistics 195, Senior Thesis.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in linguistics is satisfied by completing courses 101 and 112.

Requirements of the Minor

To graduate with a minor in linguistics, students must complete eight linguistics courses:

- 50, Introduction to Linguistics
- 53, Semantics I
- 101, Phonology I
- 112, Syntax I
- Four upper-division elective courses in linguistics

There is no senior exit requirement and no foreign language/mathematics competency requirement for the minor.

Courses

The 80-level courses have no prerequisites. They are intended to introduce the concepts of linguistics through their relation to other areas of general interest.

Course 50, Introduction to Linguistics, introduces the subfields of the discipline. Courses 53, Semantics I; 101, Phonology I; and 112, Syntax I, serve as entry courses to the specialized upper-division sequences. Upper-division courses generally have at least one of these courses as a prerequisite.

Several upper-division elective courses are offered each quarter. For a list of these courses, visit the department's web site at linguistics.ucsc.edu.

To enroll in the graduate (200-level) courses, undergraduates need special permission from the instructor. Permission is usually granted only to especially motivated undergraduates who have completed all the named requirements for the major with excellent performance.

Honors

Students who wish to be considered for honors should meet the deadline posted by the Office of the Registrar for declaring the intent to graduate. Determination of honors is based on the student's grades and narrative evaluations for all courses relevant to the major and other factors relevant to an assessment of academic excellence, such as research papers of professional quality. Generally, honors in the major are awarded only to the top 10 percent of those graduating in the major. Only those students whose performance in coursework is excellent will qualify. Highest honors are rarely awarded, and then only to students whose performance in coursework is outstanding and who have completed an outstanding senior thesis.

Preparation for the UCSC Master's Degree

Every year, UCSC students who have the B.A. in linguistics or language studies can apply to be admitted into the graduate program to pursue the M.A. in theoretical linguistics. Interested students should discuss the possibility with one or more faculty members and formally apply online to the graduate program during the fall quarter of the senior year. For up-to-date information about the application process, consult our web site (http://linguistics.ucsc.edu); and see the Linguistics Department manager. The combined B.A./M.A. program (see below) provides another pathway to the M.A. program.

The B.A./M.A. Program

The B.A./M.A. program in linguistics is a demanding, selective option that allows students who are well prepared and well motivated to complete the requirements for both degrees in five years rather than the usual six.

Admission to the program has two stages. In the first stage, interested students first consult with the undergraduate program director and one or more faculty members, and then apply to be admitted to the program by the sixth week of the first quarter of their junior year. Transfer students should consult with the undergraduate program director if they are contemplating this program. In order to be accepted at this first stage, students must have demonstrated excellence in the undergraduate major in at least three courses that are named requirements for the linguistics major.

Students accepted at this initial stage are assigned a faculty mentor who monitors their progress closely.

At the second stage of the admission procedure, students apply in their senior year to be admitted to the M.A. program through UCSC's normal graduate admissions process. If accepted, ideally they complete the course requirements for the M.A. and complete and defend the M.A. thesis by the end of the fifth year.

Students in the B.A./M.A. program take a number of graduate courses in their senior year, which are selected in close consultation with the faculty mentor. Performance in these courses forms a central part of the ongoing evaluation process. If a student's performance does not meet the standards set for the program, he or she completes the B.A. at the end of the senior year in the normal way and does not proceed to the M.A.

Graduate courses required for the M.A. are taken partly in the senior year and partly in the fifth year. The M.A. thesis is written in the fifth year. Thus, by the end of their fifth year, the students in the program will have fulfilled the requirements for both the B.A. and the M.A. degrees. Students who need additional time may remain in the program until the M.A. thesis is completed and defended.

Graduate Program

The graduate program in linguistics at UCSC is a small, focused program in linguistic theory leading to doctor of philosophy (Ph.D.) or master of arts (M.A.) degrees. The research interests of faculty and students draw mostly on the framework of generative grammar, with a primary focus on theoretical and experimental approaches to phonetics, phonology, psycholinguistics, semantics, and syntax. Research strengths also include the study of various languages, theoretical and computational morphology, mathematical foundations, and the philosophy of linguistics.

Each year the department admits approximately five new students to the doctoral program and a smaller number of new students to the M.A. program. The master's degree can be completed in one or two years, depending on the student's previous background in linguistics.

While committed to training in theoretical depth, the program makes possible an unusual breadth of theoretical and experimental understanding. Research in syntax focuses on ways in which generative theory and language-particular analysis inform one another. Faculty expertise covers principles and parameters theory, minimalism, and experimental syntax. Research in phonetics and phonology is pursued in various current frameworks, including optimality theory and dispersion theory. The issues covered range from phonetics and the phonetics-phonology interface to prosodic theory, prosodic morphology and the syntax-phonology interface. Research in semantics applies formal, model-theoretic techniques to illuminate the interface between syntactic structure and interpretation and the role of semantic competence in the pragmatics of utterance interpretation. Experimental research in these areas reaches out to a broad range of issues in psycholinguistics and cognitive science.

The faculty have expertise in a diverse range of languages, including Chamorro, German, Hindi, Hungarian, Irish, Japanese, Latin, Nez Perce, Northern Paiute, Persian, Romanian, Russian, Spanish, and Turkish.

From the beginning of their studies, students are engaged in original research and critical evaluation since the aim of the program is to provide sophisticated training as a foundation for a career in academic research and teaching. The program begins with a sequence of foundation courses in phonetics, phonology, syntax, semantics, and psycholinguistics, addressing both formal and experimental approaches. Subsequent coursework emphasizes depth; it is increasingly centered around the doctoral student's independent research, culminating in the completion of a dissertation.

Undergraduate Preparation

Applications are invited from students who have completed an undergraduate linguistics major or who have demonstrated excellence in some related discipline (psychology, mathematics, computer science, anthropology) and have the equivalent of a minor in linguistics. A student applying for admission to this program should, at a minimum, have a good foundation in at least one of the following: phonetics, phonology, psycholinguistics, morphology, semantics, or syntax. Students entering the program with a deficiency in one or more areas may need to take appropriate undergraduate courses at UCSC during the first year of graduate study.

Requirements for the M.A.

Courses. A minimum of 45 credits of graduate-level work. This must include foundation courses in phonetics, phonology, psycholinguistics, semantics, and syntax. Electives are typically chosen from upper-division or graduate courses offered by linguistics and related disciplines, and independent study with linguistics faculty.

Languages. Reading competence in one foreign language, to be demonstrated by examination.

Master's thesis. Submission of a master's thesis in a core area of theoretical linguistics approved by a committee of three faculty members.

Requirements for the Ph.D.

Courses. A minimum of 65 credits of graduate-level work. This includes foundation sequences in phonetics, phonology, psycholinguistics, semantics, syntax, and experimental or field methods.

Languages. Reading competence in one foreign language, to be demonstrated by examination.

Qualifying papers and examination. By the end of the third year, two research papers, each in a distinct area, are to be presented as part of the requirements for admission to candidacy. At this time, the prospective candidate is examined by the faculty on topics related to the student's major area of research, as part of the qualifying examination. The student is expected to defend a dissertation prospectus in the fourth year.

Dissertation. The final requirement for the Ph.D. degree is the completion of a dissertation representing a significant contribution in some central area of linguistic research.

Application and Admission

To apply, please consult the Department of Linguistics web site (http://linguistics.ucsc.edu).

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Literature

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303 Humanities 1
(831) 459–4778
http://literature.ucsc.edu/

Faculty | Course Descriptions

Program Description

The study of literature at UCSC is organized as an interdisciplinary field coordinated through a single Department of Literature, rather than through separate departments of English, modern languages, and classics. This structure fosters innovative and comparative approaches to literature among both faculty and students. Courses in the major encompass traditional literary history and interpretation as well as cross-cultural inquiry and current theoretical debates.

The literature major permits focused work in national literary traditions. Students may concentrate in English-language literatures; in French, German, or Italian; in Latin and/or Greek; or in Spanish/Latin American/Latino literatures. Alternatively, students may organize their studies by historical period. Students who choose pre- and early modern studies focus on early literary traditions from antiquity through the Middle Ages, the Renaissance, and the neo-classical period, while those engaged in modern literary studies concentrate on literature of the 18th, 19th, 20th, and 21st centuries. In addition, the world literature and cultural studies concentration emphasizes non-Western literatures, literature in a global context, as well as non-literary forms of cultural production. Finally, the Literature Department also offers a concentration in creative writing in which, in addition to studying literature, students work with faculty in upper-division workshops to improve their own creative writing skills.

Literature majors at UCSC are trained in critical reading, writing, and thinking, as well as in literary interpretation. These skills have wide applicability: they may lead to careers in other media such as film, theater, video, the visual arts, and electronic media; and they offer avenues into related disciplines such as history, philosophy, psychology, sociology, anthropology, politics, and history of art and visual culture. Literature majors traditionally enter a wide variety of careers ranging from law and journalism to management, government, international studies, publishing, technical writing, and teaching at all levels.

The Literature Department faculty requires that all literature majors have proficiency in a second language. Proficiency in more than one language enhances understanding of any literature and culture. Graduate programs in literature and other humanities disciplines generally require competence in a language other than English.

Letter Grade Requirement

Letter grades are required for 75 percent of courses applied toward the literature major,

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

including the senior seminar or thesis, which must be taken for a letter grade.

Declaration of the Major or Minor

Students must complete Literature 1 or its equivalent prior to declaring the major or minor. Students declare a major or minor in literature by completing and submitting a Proposed Study Plan and Declaration of Major/Minor petition. All students considering a literature major or minor should consult with staff and/or faculty advisers as early as possible and declare the major or minor before the end of their sophomore year. Transfer students are urged to declare their major or minor in their first quarter at UCSC.

Requirements of the Major

Literature Major Options

Students wishing to major in literature may choose either the standard literature major or the intensive literature major. The intensive literature major is recommended particularly for students who plan to continue their studies in graduate school. The requirements for the intensive major include the study of literature in two languages; proficiency in a second language is therefore required.

The Standard Literature Major

The literature major requires: (1) basic proficiency in a second language; and (2) 12 courses in literature.

- Basic language proficiency: One year (three quarters or equivalent) of college level study of a non-English language or demonstrated reading ability at this level.
- The 12 required courses must include two lower-division and 10 upper-division courses.

Lower-Division Courses

Lower-division courses are introductions to critical reading and writing. Students should complete their lower-division coursework before beginning upper-division work.

Two lower-division courses are required:

- Literature 1, Literary Interpretation: close reading and analysis of literary texts
- One Literature 61-series course: categories, methodologies, and problems of literary study, or one Literature 80-series course: topical, thematic, and comparative studies of literary texts

Upper-Division Courses

Upper-division courses provide more detailed treatment of literary and theoretical problems, themes, and periods. Students are strongly encouraged to take courses across chronological periods and national boundaries. Students must successfully complete the language proficiency requirement before enrolling in Literature 102.

Ten upper-division courses are required:

- Literature 101, Theory and Interpretation: approaches to literary and cultural theories
- Literature 102, Translation Theory: approaches to literary and cultural translation, or one upper-division non-English literature course studied in the original language. Students must successfully complete the language proficiency requirement before enrolling in Literature 102
- Six upper-division courses in an area of concentration (described below)
- Two upper-division electives in literature

Distribution requirements. Among the 10 upper-division courses, at least two must focus on literature written prior to the year 1750; one course must focus on non-Western literature or literature in a global perspective; and one course must focus on poetry. One of the upper-division courses may be a senior seminar, which can be used to satisfy the campus comprehensive (exit) requirement. Some courses fulfill more than one distribution

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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requirement. A list of annual course offerings indicating distribution codes for each course is available in the department office and on the Literature Department web page at http://literature.ucsc.edu/.

With prior permission from the literature undergraduate program director, one upper-division literature elective may be replaced by an upper-division course related to the student's area of concentration and chosen from another program in the humanities, arts, or social sciences.

The Intensive Literature Major

The Intensive Literature major requires (1) advanced proficiency in a second language, and (2) 14 courses in literature.

- Advanced language proficiency: in addition to the Standard Literature major requirement of one-year (three quarters or equivalent) of college-level study of a non-English language, or demonstrated reading ability at this level, students must complete at least two upper-division courses in a second-language literature studied in the original language. In many languages, two years of college-level study (or comparable ability) are needed before a student is prepared to enter an upper-division course. In a few languages (Greek, Latin, Middle Egyptian Hieroglyphs), less time is needed for this purpose.
- The 14 required courses must include two lower-division and 12 upper-division courses.

Lower-Division Courses

The same requirements apply as for the standard literature major. Students who choose the intensive literature major are required to achieve competence in a second-language literature. Upper-division literature coursework requires completion of a lower-division language sequence or the equivalent.

Upper-Division Courses

The intensive major requires 12 upper-division courses. Distribution requirements for the intensive major are the same as those for the standard literature major. In addition, students must complete at least two courses in a second-language literature studied in the original language. As in the standard major, with prior permission from the literature undergraduate program director, one upper-division literature elective may be replaced by an upper-division course related to the student's area of concentration and chosen from another program in the humanities, arts, or social sciences.

The Concentrations

The purpose of the upper-division area of concentration is to help students shape a coherent program of study. The department provides several defined concentrations, described below. For all concentrations except national/transnational literatures, texts may be read in the original or in translation.

National/Transnational Literatures

These concentrations examine literature within the frameworks of particular languages or national and regional traditions. National/transnational concentrations require that texts be read in the original language.

- English-language literatures
  The study of American and British literature, as well as literatures of other English-speaking peoples around the world.
- French literature
  The study of French and Francophone literatures, languages, and cultural practices of France, Africa, and the Caribbean.
- German literature
  The study of the literature, language, and cultural practices of the German-speaking areas of central Europe including Germany, Austria, and Switzerland.
- Greek and Latin literature

The study of the literature, languages, and cultural practices of ancient Greece and Rome. Students may choose to concentrate in Greek or Latin or both.

- Italian literature
  The study of Italian literature, language, and cultural practices from the Middle Ages to the present.

- Spanish/Latin American/Latino literatures
  The study of literatures, language, and cultural practices of Spain, Latin America, and Latino populations in the United States.

Creative Writing

The Department of Literature offers a sequence of workshops from introductory through advanced levels in both poetry and fiction. Other activities available to interested students include participation in the production of literary journals on campus, attendance at readings by visiting writers, and use of a creative writing reading room.

Admission to this concentration is selective. Interested students are required to take one lower-division creative writing workshop at UCSC before applying to the creative writing concentration; however, students are strongly encouraged to complete two lower-division workshops (at least one at UCSC) before applying.

Students accepted into the concentration must complete three advanced writing workshops and a senior project (e.g., a group of stories, a significant portion of a novel, a collection of poems). To apply for admission to the creative writing concentration, students should submit a completed application form (available at the Literature Department office and at http://creativewriting.ucsc.edu/for-students/apply.html) and a thoughtful selection from their work (8–10 pages of poetry or fiction). Once accepted into the concentration, students are required to declare (or redeclare) the major in literature. At that time, students should meet with their adviser to discuss plans for a senior project.

Pre- and Early Modern Studies

The interdisciplinary study of literatures and cultures from antiquity through the early eighteenth century, especially in Europe. This concentration includes the study of popular culture and everyday life as well as readings in masterpieces of classical, medieval, early modern (Renaissance), and neo-classical literature.

Modern Literary Studies

The study of literature of the eighteenth, nineteenth, twentieth, and twenty-first centuries. This concentration examines ways in which modernity in general and literary modernism and postmodernism in particular emerge and develop in different countries and cultures.

World Literature and Cultural Studies

The study of literature and cultural production both within a global context and within specific histories and economies. Courses move beyond the literary text to include nonverbal forms of representation such as social movements and everyday life practices.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. Literature majors must satisfy the Disciplinary Communication requirement by passing Literature 101.

Comprehensive Requirement

Students must successfully complete Literature 101 before taking any comprehensive requirement.

Seniors must select one of the following options to satisfy the campus exit requirement:

- Senior seminar. The senior seminar may be counted as one of the required upper-division courses. The senior seminar need not be in the student's area of concentration.

Several senior seminars are offered each quarter; extensive writing is required in all seminars.

- Senior thesis. A student who wishes to propose a senior thesis (30–40 pages) must apply to a Literature Department faculty sponsor at least two quarters before the projected date of graduation. The application must include a proposed subject, a brief outline, a bibliography, and a sample of previous written work. Only those students who have received written permission from a faculty supervisor may complete a thesis to satisfy the senior exit requirement. A student whose application has been approved may receive course credit toward the major for one independent study (course 195) in a literature concentration.

For students in the creative writing concentration, a creative writing project under the supervision of a faculty member (Literature/Creative Writing 194 or 195) is required.

The Literature Minor

The minor in literature requires seven courses.

Two lower-division courses are required:

- Literature 1, Literary Interpretation: close reading and analysis of literary texts
- One Literature 61-series course: categories, methodologies, and problems of literary study, or one Literature 80-series course: topical, thematic, and comparative studies of literary texts

Five upper-division courses are required:

- Literature 101, Theory and Interpretation
- Four other upper-division literature courses (except Creative Writing)

The Literature minor does not require second-language proficiency or a senior seminar.

General Information

Transfer Credit

A student may petition to receive credit toward the lower-division requirements of the major or minor for up to two courses taken at other institutions. An introduction to literature course may be used to satisfy the Literature 1 course requirement. Any other literature course may be applied toward the Literature 61 or the Literature 80 course requirement.

Transfer students planning to major in literature are urged to complete the equivalent of one year of college-level study of a language other than English before entering UCSC.

Creative Writing Courses

Any qualified student may take creative writing courses for credit toward graduation. Only students accepted into the creative writing concentration, however, may use Literature/Creative Writing 180, 183, 194, and 195 to satisfy major requirements.

Credit For Repeated Courses

Courses that vary significantly in material or methodology from one presentation to the next may be repeated for credit and are so designated in the course description in the UCSC General Catalog.

Advising

Faculty advisers are available in the Literature Department office throughout each academic term; students may make appointments in advance to meet with them. Staff advisers are available by appointment and on a drop-in basis. Students are encouraged to consult with a faculty adviser once per quarter.

Senior Checklist

Three quarters before anticipated graduation, all literature majors must complete a checklist in collaboration with a department adviser. The purpose of the checklist is to

confirm progress toward graduation and the satisfaction of all major requirements. Completion and approval of a senior checklist are required for graduation.

Honors

Honors in the literature major are awarded to graduating seniors who have earned a 3.70 to 3.89 grade- point average in their upper-division literature courses. Highest honors in the literature major are awarded to graduating seniors who have earned a 3.90 or higher grade-point average in their upper-division literature courses. Honors are not awarded in the minor.

Opportunities for Study Abroad

The University of California's Education Abroad Program (EAP) operates study centers in countries throughout the world, all associated with host institutions of high academic standing. EAP serves over 1500 upper-division students from the nine UC campuses every year. Students who participate in a UC Education Abroad Program may petition to apply up to three upper-division courses from EAP toward the literature major, or two upper-division courses toward the literature minor.

Latin American and Latino Studies and Literature Combined Major

The departments of Latin American and Latino Studies and Literature offer a combined major. See Latin American and Latino Studies for additional information.

The Graduate Programs

The Doctoral Program

The UCSC doctoral program in Literature offers an innovative multilingual and multidisciplinary approach to literary studies. The program is relatively small and students work closely with faculty throughout their graduate careers. They are encouraged to take advantage of the rich array of intellectual and cultural events, research clusters, and lectures offered on campus.

The doctoral program combines critical and independent thought with multilingual and global perspectives. Students work within and across five areas, each of which cuts across linguistic, national, and period boundaries: technologies of narrative; trans/post/emergent nationalisms; poetics, poetry, and experimental writing; materialism and material culture; and critical theory. In combination they allow students to blend critical approaches, literary traditions, and/or cultural archives in comparative, multilingual, and interdisciplinary projects. Starting in fall 2014 students may apply for the new Creative/Critical concentration in the PhD program. Students may elect to participate in cooperative programs between literature and feminist studies, Latin American and Latino studies, or American studies and receive a designated emphasis on their doctoral degree. Applications and requirements are available at the respective department offices.

The program requires significant literary work in two languages. All students are required to complete a minimum of two courses in a second-language literature in which 50 percent or more of the reading is done in the original language. The second literature must serve as a component of the qualifying examination.

The common requirements are:

- Literature 200, Proseminar, to be taken in fall quarter of the first year;
- Literature 201, Pedagogy of Teaching/Teaching Assistant Training, to be taken prior to or in conjunction with the first teaching assistant appointment;
- Twelve courses leading to the definition of an area of concentration. At least two of these must be in a second-language literature; at least one must focus on pre-1750 literature and culture. Up to four courses may be taken in other departments; up to three may be independent studies;
- Literature 291F, a two-credit advising course, each quarter;
- Three quarters of supervised teaching experience;
- The Literature Department's intensive three-week Graduate Summer Language Program

or equivalent;

- A qualifying examination (with written, oral, and translation components);
- A prospectus outlining and defining the dissertation project;
- A dissertation (written in conjunction with Literature 299, Thesis Research).

For the creative/critical concentration, applicants submit additional creative writing samples of poetry, prose fiction, creative non-fiction or hybrid/cross genre. Entering students complete all the requirements for the literature Ph.D. with the addition of a creative/critical enhancement to their degree in the form of coursework, original creative work with critical introduction and, if desired, work in poetics, translation, form and/or critical writing from the perspective of writerly practices.

A master of arts (M.A.) degree is conferred upon request to doctor of philosophy (Ph.D.) candidates who have successfully completed the literature Ph.D. qualifying examination or who have completed the coursework required for the doctorate (teaching assistant training and supervised teaching experience exempted) and elect to write a master's thesis under the supervision of a faculty adviser.

More detailed information for prospective graduate students, including procedures for application and admission to graduate studies, examinations, and requirements for the doctor of philosophy degree, is available from the Division of Graduate Studies (http://graddiv.ucsc.edu) and on the department web site: http://literature.ucsc.edu/.

The Master's Program

A separate master of arts degree program is intended for students whose aim is to deepen and expand their literary/critical training and to prepare for entry into a Ph.D. program at another institution. Priority for admission is given to students interested in underrepresented areas of study within the Literature Department's offerings, such as the non-English language literatures and, more broadly, critical theory.

The M.A. program requirements may not be completed in less than one year; the maximum time to obtain a degree is two years.

The common requirements are as follows:

- Literature 200, Proseminar, to be taken in fall quarter of the first year;
- Seven courses leading to the definition of an area of concentration. Up to two of these may be taken in other departments. One may be an independent study course;
- Literature 291F, a two-credit advising course, each quarter;
- A thesis (written in conjunction with Literature 299, Thesis Research). Typically, a thesis will range in length from 35–50 pages, plus a bibliography.

The Literature Department does not provide financial support to students pursuing the M.A. degree. Admission to the M.A. program does not constitute admission to the Ph.D. program. Students may not automatically transfer from the M.A. program into the Ph.D. program, but must reapply. Further information and application materials are available from the Division of Graduate Studies (http://graddiv.ucsc.edu) and on the department web site (http://literature.ucsc.edu/).

Literature Designated Emphasis

Graduate students may obtain a designated emphasis in literature on the Ph.D. degree by completing the following requirements:

1. The student must have a faculty graduate adviser from Literature, who serves both on the qualifying examination committee and the dissertation reading committee.
2. The student must prepare a significant piece of writing in the area of literature, such as a substantial seminar paper or a chapter of the doctoral dissertation. The adviser from Literature, in consultation with the student, determines whether a particular piece of writing meets this requirement.

3. The student must take four graduate courses in literature. With the approval of the Literature adviser, one of the four required graduate courses may be an independent study.

To obtain the Designated Emphasis in Literature:

1. The request for a designated emphasis must originate in the degree-granting department.
2. The student should complete the attached application, obtain the Literature adviser's signature and submit the application with supporting documentation (copies of the Qualifying Examination and Dissertation Committee Nomination forms) to the Literature Department office.
3. The Literature Department will notify the student and the home department of approval for the designated emphasis.

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Mathematics

2014-15 General Catalog

4111 McHenry
(831) 459-2969
http://www.math.ucsc.edu

Faculty | Course Descriptions

Program Description

Mathematics is both a fundamental discipline and an essential tool for students of biology, chemistry, computer engineering, computer science, Earth sciences, economics, electrical engineering, information systems management, physics, and psychology. Researchers in all these areas are constantly developing new and cutting-edge ways of applying mathematics to their fields. A strong mathematics background is vital to the advanced study of the physical and biological sciences and plays an integral role in studying the social sciences.

The UCSC mathematics program offers a wide variety of undergraduate mathematics courses:

- Courses 2 and 3 do not require thorough preparation in mathematics at the high school level. However, students interested in studying mathematics are strongly encouraged to take algebra, geometry, and trigonometry before entering the university. Students requiring mathematics courses are encouraged to take the mathematics placement examination (MPE) as early as possible. Students concerned about their ability to place into courses above Mathematics 2 or Mathematics 3 should consider taking these courses before they enter UCSC. Failure to begin the calculus series in the fall could delay progress in some majors.
- Lower-division courses with numbers in the range 11A-B through 30 (calculus, linear algebra, multivariable calculus, differential equations, and problem solving) prepare students for further study in mathematics, the physical and biological sciences, or quantitative areas of the social sciences. Science majors take a combination of these courses as part of their undergraduate studies.
- Upper-division courses, with numbers in the range 100-199, are intended for majors in mathematics and closely related disciplines. Some of these courses provide students with a solid foundation in key areas of mathematics such as algebra, analysis, geometry, and number theory, whereas others introduce students to more specialized areas of mathematics. Calculus, linear algebra, multivariable calculus, and proof and problem solving are prerequisite to most of these advanced courses.

Within the major, there are three concentrations leading to the bachelor of arts (B.A.) degree: pure mathematics, computational mathematics, and mathematics education. These programs are designed to give students a strong background for graduate study, for work in industry or government, or for teaching. Each concentration requires nine or ten courses,

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
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one of which must be a senior thesis or senior seminar. Please read the pure mathematics, computational mathematics, and mathematics education program descriptions below for specific information about course requirements. A minor in mathematics is also offered.

The mathematics program also provides an excellent liberal arts background from which to pursue a variety of career opportunities. UCSC graduates with degrees in mathematics hold teaching posts at all levels, as well as positions in law, government, civil service, insurance, software development, business, banking, actuarial science, forensics, and other professions where skills in logic, numerical analysis, and computing are required. In particular, students of mathematics are trained in the art of problem-solving, a skill absolutely essential to all professions.

Academic Advising

Academic advising is available at the Undergraduate Affairs Office . The undergraduate adviser provides information about requirements, prerequisites, policies and procedures, learning support, scholarships, and special opportunities for undergraduate research. In addition, the adviser assists with the drafting of study plans, as well as certifying degrees and minors. Students are urged to stay informed and involved with their major, as well as to seek advice should problems arise.

The Undergraduate Affairs web site is a critical resource for students. Here you will find a link to the undergraduate program; the materials at that link constitute the undergraduate handbook. Students should visit this first to seek answers to their questions, because it hosts a wealth of information. Each student in the major is encouraged to regularly review the materials posted to stay current about requirements, course curriculum, and departmental policy.

Requirements

Students who plan to take a mathematics course at UCSC must demonstrate sufficient preparation by their score on either the mathematics placement examination (MPE), the College Entrance Examination Board Advanced Placement (AP) calculus examination, the International Baccalaureate Higher Level Mathematics Examination, or by passing the appropriate prerequisite course.

Students who have passed course 2 may enroll in course 3. Students who have passed course 3 may enroll in course 11A or 19A. Students who have passed a precalculus course at a college or university may enroll in course 11A or 19A, but they must first verify eligibility of the course and course completion with the mathematics adviser (mathadvising@ucsc.edu).

Transfer students interested in a mathematics or science major should take courses equivalent to course 19A, 19B, and 21 before enrolling at UCSC. Courses equivalent to 23A, 23B, and 24 are also recommended before transferring to UCSC.

UCSC Mathematics Placement Examination

The Mathematics Placement Examination (MPE) is a mathematics test designed to assess student readiness for UCSC mathematics classes. The MPE is available during several, short windows each year. Each student may take the exam twice during their academic career. Only the highest MPE score is used for placement. MPE scores are valid for one year after the window closes.

Additionally, if a student receives a D, F, or NP in a course, the placement examination may not be used to place them out of that course. Students whose areas of study require precalculus or calculus courses are strongly advised to take the placement examination and the required courses early in their academic careers. Information on registering and taking the MPE can be found at this web site.

If your MPE score is	You may enroll in this course (or lower-numbered course)
100 = Not precalculus ready	MATH 2

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
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- Theater Arts
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200 = Precalculus ready	MATH3
300 = Applied Calculus ready	MATH11A*
400 = Calculus ready	MATH19A
500 = Honors Calculus ready	MATH 20A

* Some majors in science and engineering require Math 19A–B. Students planning to concentrate in those majors who receive 300, an Applied Calculus ready score on the MPE, should take courses 3 and 19A–B rather than courses 11A–B. All students are advised to consult with the Department sponsoring their major before deciding which mathematics pathway to take.

College Board Advanced Placement Calculus Examinations

Students who have received 4 credits for the College Entrance Examination Board Advanced Placement (AP) calculus examination should normally enroll in course 19B, and those with 8 credits should normally enroll in course 23A. However, students who received a score of 3 on the calculus AB or BC AP examination, should enroll in course 19A or 19B, respectively, to improve their knowledge of calculus before continuing their studies. Students who wish to challenge themselves, and who received a score of 4 or 5 on the AB or a score of 3, 4, or 5 on the BC examination may choose course 20A, Honors Calculus. Non-mathematics majors should consult their major departments before enrolling in a mathematics course.

If your AP AB score is	May enroll in this course
3	Mathematics 11A or 19A
4 or 5	Mathematics 20A or 11B or 19B

If your AP BC score is	May enroll in this course
3	Mathematics 11B or 19B or 20A
4 or 5	Mathematics 20A or 22 or 23A

International Baccalaureate Higher Level Examination in Mathematics

Students who have received a score of 5, 6, or 7 on the International Baccalaureate (IB) Higher Level Examination in Mathematics may enroll in course 20A, Honors Calculus; 22, Calculus of Several Variables; or 23A, Multivariable Calculus. Non-mathematics majors should consult their major departments before enrolling in a mathematics course.

Declaration of the Mathematics Major

Admission to the mathematics major (all concentrations) is contingent on students successfully passing the following introductory courses or their equivalents:

- Mathematics 19A, Calculus for Science, Engineering, and Mathematics
- Mathematics 19B, Calculus for Science, Engineering, and Mathematics
- Mathematics 21, Linear Algebra
- Mathematics 23A, Multivariable Calculus
- Mathematics 23B, Multivariable Calculus

- Mathematics 100, Introduction to Proof and Problem Solving

Students may only declare once they have passed all introductory courses or their equivalent courses with a grade of C or better. Students who receive two grades of NP, D, or F in the introductory courses are not eligible to declare in the major. Students who are not eligible to declare may submit an appeal to the department's undergraduate vice chair. The advising office will subsequently notify the student, and the college of the decision, no later than 15 business days after the submission of the appeal.

It should be emphasized that the nature of mathematics changes dramatically between lower-division and upper-division courses. Students often find that the material becomes far more abstract and theoretical. In addition, the role of computation in assignments diminishes and a greater weight is placed on deductive reasoning and the integral role of mathematical proofs. The Mathematics Department recommends that students interested in a mathematics major enroll in Mathematics 100 as early as prerequisites allow in order to decide whether they are interested in upper-division mathematics courses. It is strongly recommended that only students who earn grades of B- or better in Mathematics 100 consider applying to the major in mathematics. Students with a grade less than B in Mathematics 100 are urged to take Mathematics 101.

Major Requirements

Pure Mathematics

This concentration is intended for students who desire a comprehensive understanding of mathematics, including those considering graduate studies in the natural sciences. Students are required to complete at least 11 courses (with laboratories, if appropriate).

Eight of these courses must be:

- Mathematics 24, Ordinary Differential Equations;
- Mathematics 100, Introduction to Proof and Problem Solving;
- Mathematics 103A, Complex Analysis;
- Mathematics 105A, Real Analysis;
- Mathematics 111A, Algebra;
- Mathematics 117, Advanced Linear Algebra;
- one of Mathematics 121A, Differential Geometry, Mathematics 124, Introduction to Topology, or Mathematics 128A, Classical Geometry: Euclidean and Non-Euclidean, or Mathematics 129, Algebraic Geometry;
- and either Mathematics 194, Senior Seminar, or Mathematics 195, Senior Thesis.

The remaining three courses are selected by the student from among any mathematics course numbered above 100 (excluding Mathematics 188 and Mathematics 189) and Applied Mathematics and Statistics (AMS) 100 or above. Only one of the three courses can be from the AMS series.

A typical program for a pure mathematics major might include the following:

1st year	Mathematics 20A-B or 19A-B, 21, 23A
2nd year	Mathematics 23B, 24, 100, 103A, 110 or 128A
3rd year	Mathematics 105A-B, 111A-B, 106
4th year	Mathematics 107, 117, 121A, 194

The first two years of a typical program for a pure mathematics major who begins mathematics studies with precalculus might include the following:

1st year	Mathematics 3, 19A-B

2nd year	Mathematics 21, 23A–B, 24, 100

Computational Mathematics

This concentration is intended to prepare students for technical careers in industry or government while providing a solid mathematical background. Students are required to complete a minimum of eight mathematics courses (with laboratories, if appropriate) as follows:

- Mathematics 24, Ordinary Differential Equations;
- Mathematics 100, Introduction to Proof and Problem Solving;
- Mathematics 103A, Complex Analysis, or Mathematics 105A, Real Analysis;
- Mathematics 106, Systems of Ordinary Differential Equations, or Mathematics 107, Partial Differential Equations;
- Mathematics 110, Introduction to Number Theory;
- Mathematics 111A, Algebra;
- or Mathematics 117, Advanced Linear Algebra;
- Mathematics 106, Systems of Ordinary Differential Equations, or Mathematics 145, Introductory Chaos Theory, or Applied Mathematics and Statistics 114, Introduction to Dynamical Systems;
- and either Mathematics 194, Senior Seminar, or Mathematics 195, Senior Thesis.

In addition, students must complete two courses selected from the following:

- Applied Mathematics and Statistics, 100 or above
- Biomolecular Engineering 110
- Computer Engineering 107, 108, 153, 177
- Computer Science 101, 102, 104A, 109, 112, 122, 130, 132, 142
- Earth and Planetary Sciences 172
- Economics 113
- Electrical Engineering 103, 130, 135, 151, 154
- Physics 115

Some of these courses have prerequisites within their departments. Students are encouraged to plan their computational electives early, so that all prerequisites can be satisfied in a timely manner. Other upper-division courses with heavy emphasis on computational mathematics may occasionally be accepted with permission of the Mathematics Department.

Mathematics majors who wish to enroll in Computer Science 101 or Computer Science 122 should contact the instructor to request a permission code.

A typical program for a computational mathematics major might include the following:

1st year	19A–B, 23A, CMPS 12A/L and 12B/M
2nd year	21, 23B, 24, 100, 110, CMPE 16
3rd year	103A; 105A; 145/L or AMS 147; CMPS 101
4th year	106, 111A, CMPS 109, 194

Mathematics Education

This concentration is intended to prepare students for teaching kindergarten through high

school (K–12) mathematics. Students are required to complete the following 10 courses:

- Applied Mathematics and Statistics 5, Statistics
- Mathematics 100, Introduction to Proof and Problem Solving;
- either Mathematics 103A, Complex Analysis, or 105A, Real Analysis;
- Mathematics 110, Introduction to Number Theory;
- Mathematics 111A, Algebra;
- Mathematics 128A, Classical Geometry: Euclidean and Non-Euclidean;
- Applied Mathematics and Statistics 131, Introduction to Probability Theory;
- Mathematics 181, History of Math;
- Mathematics 188, Supervised Teaching Experience;
- and either Mathematics 194, Senior Seminar, or Mathematics 195, Senior Thesis.

UCSC students can pursue a degree in mathematics while preparing to teach at the secondary level. In California, students seeking a single-subject credential (for secondary teaching) in mathematics are required to take the CSET, a series of examinations that must be passed in order to enter a teaching-credential program (formerly The National Teachers Examination). Students who complete the mathematics education track, plus three additional specified courses, qualify for the California Single Subject Program, exempting themselves from the CSET. Both the Mathematics Department undergraduate adviser and the Education Department advising office have more information about the additional required courses.

A typical program for a mathematics education major might include the following:

1st year	Mathematics 19A–B, 23A
2nd year	Mathematics 21, 23B, 100; Applied Mathematics and Statistics 5
3rd year	Mathematics 101, 103A, 110, 181; Applied Mathematics and Statistics 131
4th year	Mathematics 111A, 128A, 188, 194

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in mathematics is satisfied by Mathematics 100, Introduction to Proof and Problem Solving, and either Mathematics 194, Senior Seminar, or Mathematics 195, Senior Thesis.

Honors

Honors in the Mathematics Department are awarded to graduating students whose academic performance in the major demonstrates excellence at a GPA of 3.5 or above. Highest Honors are determined by a cumulative review of student performance in mathematics courses. They are awarded to students who excel in challenging courses and in their capstone projects.

Minor Requirements

The minor is intended for students who are interested in mathematics and want a strong mathematical foundation for studying in areas that rely heavily on analytical skills. Students are required to complete at least eight courses as follows:

- Mathematics 21, Linear Algebra;
- Mathematics 23A, Vector Calculus; and

Mathematics 23B, Vector Calculus;

- Mathematics 100
- and any four courses numbered above 100.

No senior seminar or thesis is required.

A typical mathematics minor program for a physics major might be:

1st year	Mathematics 19A–B, 23A
2nd year	Mathematics 21, 23B, 24, 100
3rd year	Mathematics 103A, 105A, 106, 121A or 124
4th year	Mathematics 107, 145 or Applied Mathematics and Statistics 114

Combined Majors

Economics and Mathematics

The combined major in economics and mathematics is designed to meet the needs of undergraduate students who plan to pursue doctoral study in economics or business, or who wish to pursue a career as an actuary or other professional requiring a sophisticated understanding of economics and mathematics. The major combines the main undergraduate content of both economics and mathematics within a programmatic structure that joins the two disciplines. It provides a coursework combination required to prepare for a modern economics Ph.D. program, or for technically demanding professional careers. A full description can be found in the economics section of this catalog. The combined major, requiring fewer courses than a double major, is administered through the Economics Department.

Graduate Program

The Mathematics Department offers programs leading to the master of arts (M.A.) and doctor of philosophy (Ph.D.) degrees. Contact the Division of Graduate Studies for further information on the M.A. and Ph.D. programs, as well as on university application procedures.

M.A. Degree Requirements

Students are required to complete two of Mathematics 200, 201, 202, 203; two of Mathematics 204, 205, 206; one of Mathematics 208, 209, 210; and complete five additional courses in mathematics or a related subject by approval. In addition, students must do one of the following:

- pass an M.A.-level preliminary examination;
- write a master's thesis.

Ph.D. Degree Requirements

All of the following are required:

- obtain a first-level pass on at least one of the three written preliminary examinations and a second-level pass on at least one other. Students must complete the full course sequence in the track associated with the preliminary examination in which they did not achieve a first-level pass;
- satisfy the foreign-language requirement;
- pass the oral qualifying examination;
- complete three quarters as a teaching assistant;
- complete six graduate courses in mathematics other than Mathematics 200, 201, 202,

204, 205, 206, 208, 209, and 210. No more than three courses may be independent study or thesis research courses;

- write a Ph.D. thesis.

Students admitted to the Ph.D. program may receive an M.A. degree en route to the Ph.D.

Course Information

Mathematics 2, College Algebra for Calculus, is designed for students who do not meet the requirements for admission to Mathematics 3, Precalculus, and who need comprehensive and careful preparation for calculus. Mathematics 2 emphasizes algebra, graphs, and functions.

Mathematics 3, Precalculus, is recommended for students who need some preparation in algebra and trigonometry prior to taking calculus. This course covers functions and their inverse, exponentials, logarithms, and trigonometry.

Mathematics 11A and 11B, Calculus with Applications, are intended for biology and Earth sciences majors. However, students in these majors who score 400 or more points on the mathematics placement examination are strongly encouraged to take the 19A–B sequence, which is required for most upper-division mathematics courses. Laboratory sections are strongly advised.

Mathematics 19A and 19B, Calculus for Science, Engineering, and Mathematics, are intended for chemistry, computer engineering, computer science, electrical engineering, information systems management, mathematics, and physics majors. Laboratory sections are strongly advised.

Mathematics 20A and 20B, Honors Calculus, are intended for students who would enjoy delving particularly deeply into the foundational and theoretical issues of calculus. Laboratory sections are strongly advised.

Mathematics 21, Linear Algebra, covers vector spaces, matrices, determinants, systems of linear equations, and eigenvalues. It is intended for students in the physical and biological and social sciences and is prerequisite to Mathematics 111A.

Mathematics 22, Introduction to Calculus of Several Variables, is intended for science students whose schedules do not permit a full and comprehensive two quarters of multivariable calculus. Students who intend to pursue further studies in mathematics must take Mathematics 23A–B and not 22. Laboratory sections are strongly advised.

Mathematics 23A and 23B, Vector Calculus, are intended for mathematics majors and minors and students in computer engineering, computer science, electrical engineering, information systems management, and physics majors which require more rigorous mathematical training. Laboratory sections are strongly advised.

Mathematics 100, Introduction to Proof and Problem Solving, is an introduction to the methodology of advanced mathematics, emphasizing proof techniques. Basic areas such as set theory and logic are introduced, together with extensive applications within mathematics. This course serves as a prerequisite for nearly all upper-division courses and partially fulfills the Disciplinary Communication (DC) requirement.

Mathematics 200+, Graduate-level courses. All graduate courses are open to undergraduates who have taken the recommended prerequisites; students should consult with the course instructor. Advanced undergraduates are strongly advised to take or audit graduate courses that interest them.

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Merrill College

2014–15 General Catalog

College Office
(831) 459–2144
merrill.ucsc.edu

Course Descriptions

For college description and list of faculty, see colleges.

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Microbiology and Environmental Toxicology

2014-15 General Catalog

430 Physical Sciences Building
Telephone (831) 459-4719
FAX (831) 459-3524
http://www.metx.ucsc.edu

Faculty | Course Descriptions

Program Description

The Microbiology and Environmental Toxicology Department (METX) sponsors undergraduate and graduate courses in microbiology and environmental toxicology, both within the department and through affiliated departments. The curriculum offers a strong foundation in fundamental and applied toxicology and microbiology to provide the breadth and depth of perspective required for this interdisciplinary science. Research interests of students and faculty in METX span the fields of biology, microbiology, chemistry, Earth sciences, ocean sciences, environmental studies, and human health.

Undergraduate Programs

While the METX Department only awards graduate degrees, it does offer a select number of undergraduate courses to prepare and attract promising undergraduates for advanced studies in microbiology and environmental toxicology or related disciplines. Students interested in microbiology and environmental toxicology should major in a field such as biology; marine biology; molecular, cell, and developmental biology; biochemistry; chemistry; Earth sciences; engineering; or environmental studies while taking microbiology and environmental toxicology electives.

In addition, the program provides unique opportunities for exceptional undergraduates to conduct research in microbiology and environmental toxicology. These opportunities are limited to students who have demonstrated their potential in undergraduate courses in the basic sciences and environmental toxicology. With department approval, these undergraduates may also take graduate courses in microbiology and environmental toxicology. That coursework will be applied toward a graduate degree in microbiology and environmental toxicology if they are accepted into the program.

Graduate Programs

Graduate training in the METX Department prepares students to solve important problems in the field of environmental health by providing stimulating coursework, extensive scientific presentation training, and in-depth research that culminates in a thesis. There is no other program in the world that educates students to appreciate the interplay between microbes, chemical toxins, and health and provides the training students require to work

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
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- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
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effectively in a complex world. Graduate training in the METX department prepares students to become leaders in the field, following career paths in academia, teaching, industry, and government. Master of science (M.S.) students typically finish in two years and doctor of philosophy (Ph.D.) students in four to six years.

Key components of our graduate training include:

- Interdisciplinary core course that teaches critical thinking and how to approach problems: METX 200, Interdisciplinary Approaches to Problems at the Interface of Microbiology and Environmental Toxicology.
- Core course devoted to grant-writing skills: METX 205, Scientific Skills, Ethics, and Writing.
- Personalized class plan for the remaining three courses to fit the student's background and research goals. Possible courses include METX 201, Sources and Fates of Pollutants, METX 202, Cell and Molecular Toxicology, METX 206A, Advanced Microbiology, METX 210, Molecular and Cellular Basis of Bacterial Pathogenesis, METX 238, Pathogenesis: Molecular Mechanisms of Disease, and METX 250, Environmental Microbiology, as well as courses in other departments such as Ocean Sciences 220, Chemical Oceanography, and Molecular Cell and Developmental Biology 200B, Advanced Molecular Genetics. Speaking presentation skills training through coursework and yearly departmental presentations. Scientific writing and literature mastery through the writing of a literature review in the first year. Weekly seminars expose students to the breadth of our fields and provide students with opportunities to interact closely with speakers to form connections and collaborations.
- Qualifying examinations designed to perfect the student's ability to craft research plans.
- Extensive laboratory research training that starts immediately upon entering the program and culminates in the student's master's thesis or Ph.D. dissertation.

Sample Pathways

Pathways within the microbiology and environmental toxicology graduate program focus on interdisciplinary approaches to addressing problems in environmental and public health. We offer several defined training pathways, and also encourage students to create their own.

Metals in the Environment

Research includes how organisms are exposed to metals, how these metals cause toxicity, and investigating the concentration, speciation, and isotopic composition of contaminant metals and metalloids.

Microbiology

Microbiology provides research training on molecular genetic analysis of both non-pathogenic and pathogenic microbes. Students study host-pathogen interactions, ecology and evolution of pathogenic microorganisms, adaptation of pathogenic and non-pathogenic microorganisms to environmental stresses, and mechanisms of microbial biotransformation of pollutants and toxic metals.

Cellular and Organismal Toxicology

This pathway provides training in the biochemical, molecular, cellular, and physiological processes that are impacted by exposures to such contaminants as toxic metals. Research includes exposure pathways and toxicity of contaminants and pathogens within humans, with emphasis on the molecular and cellular mechanisms underlying toxicity.

Program Requirements

The METX student's curriculum is tailored to the individual, creating a graduate experience that combines essential background material with coursework at the frontiers of science. The student, in conjunction with a faculty committee, chooses classes to complement the Ph.D. or master's thesis work that each student is performing. Students are encouraged to explore new areas and bring this expertise back to their thesis research.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
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Requirements for both Master's and Ph.D. Students in Microbiology and Environmental Toxicology

1. Core coursework. METX 200 Interdisciplinary Approaches to Problems at the Interface of Microbiology and Environmental Toxicology, and METX 205, Scientific Skills, Ethics, and Writing, must be taken and passed with at least a B.
2. Three additional courses. Two courses from the following: METX 201, 202, 206A, 210, 238, 250, and at least one additional approved graduate-level course within Microbiology and Environmental Toxicology or another department. Students must enroll in METX 281, 292, and 297 or 299 each quarter. Additional courses as recommended by your first-year advising committee. Must be passed with at least a B.
3. Literature review. Under direction of the student's adviser, write a literature review of the current state of the field of the proposed dissertation research. The written review will be handed in to the student's adviser at the end of the summer of the first year.
4. Department seminar. Give a 20-minute departmental seminar each academic year, and one 50-minute departmental seminar during the fall quarter of the third year if a doctoral student, or in spring of the second year if a master's student.

Requirements specific to the Ph.D. degree

1. Teaching assistant. Doctoral students are required to work as teaching assistants (TA) for at least one quarter. Priority for TA positions is given to first-year doctoral students, then to current doctoral students who have not yet worked as a teaching assistant.
2. Ph.D. qualifying examination (QE1—microbiology and environmental toxicology internal). Part I of the qualifying examination consists of two portions: preparation and defense of an independent research proposal, and knowledge of material presented in the microbiology and environmental toxicology core courses taken by the student. The student must complete QE1 no later than spring quarter of the second year.
3. Third-year seminar and thesis proposal. The student will present a 50-minute seminar on his/her dissertation research proposal no later than the end of fall quarter in the third year.
4. Ph.D. qualifying examination (QE2). Present and defend a dissertation research proposal to the student's Ph.D. qualifying examination (QE) committee. The student must complete QE2 no later than fall quarter of the third year.
5. Advancement to candidacy. The student advances to candidacy after completing all coursework, completing the literature review, giving the third-year seminar and passing the Ph. D. qualifying examination parts I and II.
6. Dissertation defense. The student must submit their doctoral dissertation to the dissertation committee for tentative approval at least one month before presenting a formal, public doctoral research seminar.

Requirements specific to the Master's degree

1. Master's comprehensive examination. The master's comprehensive exam is a presentation and defense of the student's master's research proposal, including relevant background knowledge. The examination will not be specifically course-based, but will draw on knowledge from courses. This examination is taken in the fall quarter of the second year.
2. Second-year seminar. The student will present a 50-minute seminar on his/her thesis work in spring quarter of the second year.
3. Thesis. Students are required to submit a thesis for fulfillment of the degree requirements. The thesis should be submitted to the student's master's reading committee one month before the due date.

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Music

2014-15 General Catalog

244 Music Center
(831) 459-2292
music@ucsc.edu
http://music.ucsc.edu

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Program Description

The UCSC music curriculum is distinctive in developing musicians who integrate scholarship with performance. Although this rigorous program primarily addresses Western art music, it also incorporates the study of world music cultures in both their art and vernacular traditions. A major in music establishes a substantial foundation for further academic or performance studies. Two undergraduate majors are offered: the bachelor of music (B.M.), which especially develops the student's attainment in performance, and the bachelor of arts (B.A.), which cultivates greater breadth in the student's academic achievement. Two minors in music are also offered: one in electronic music, and one in jazz. The electronic music and jazz minors are open to music majors, as well as to students pursuing other majors.

There are three graduate programs in music: the master of arts (M.A.) and doctor of philosophy (Ph.D.) degrees in music and the doctor of musical arts (D.M.A.) degree in music composition. The master of arts (M.A.) degree in music has emphases in composition, musicology/ethnomusicology, or performance practice, and integrates studies in performance, composition/analysis, and research. The doctor of philosophy (Ph.D.) degree in music has an emphasis in cross-cultural studies, and aims to provide doctoral students with an integrative framework for music scholarship, emphasizing the ways in which musicology and ethnomusicology interact and complement one another. The doctor of musical arts (D.M.A.) degree in music composition has tracks in computer-assisted composition and world music composition and seeks to develop accomplished, active, and articulate composers who have a broad awareness of the diverse styles, cultural influences, media, venues, and technical means available to them in the 21st century.

The Music Center includes a 400-seat recital hall that has recording facilities, specially equipped classrooms, individual practice and teaching studios, a student computer laboratory, rehearsal space for ensembles, a gamelan studio, and studios for electronic and computer music. McHenry Library has a separate music section and listening rooms that have individual audio and video facilities. Recording and media equipment is available from the Learning Technologies center.

Undergraduate Programs

The bachelor of arts (B.A.) degree integrates performance, theory, composition, history, and

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

literature. The bachelor of music (B.M.) degree is designed for exceptionally talented students who intend to pursue a career in performance. Acceptance to the B.M. program is by audition during fall quarter; students must audition prior to their senior year.

The core degree requirements are the same for both bachelor of arts (B.A.) and bachelor of music (B.M.) students and are as follows:

- Music 30A, 30B, and 30C, Theory, Literature, and Musicianship
- Music 60, Group Instruction in Piano, taken concurrently with the Music 30 sequence (may be waived if the student is taking piano lessons from a UCSC instructor)
- Music 130, Harmony and Form in 19th-Century and Early 20th-Century Music
- Music 101A, 101B, and 101C, History of Western Art Music
- One course from the Music 105 series, Special Topics in History
- One course from the Music 150 series, Special Topics in Theory
- One course from the Music 180 series, Studies in World Musics

Additional Course Requirements for the Bachelor of Arts (B.A.)

- One of the following: Music 121, Orchestration; Music 124, Intermediate Electronic Sound Synthesis; or an additional Music 150 series or Music 180 series course
- Senior Capstone: Music 120, Seminar in Music Composition; or an additional Music 105 series course by permission of instructor
- A minimum of six quarters of Music Department instrumental or choral ensembles
- A minimum of six quarters of applied instruction (private individual instrumental or vocal lessons)

Additional Course Requirements for the Bachelor of Music (B.M.)

- A minimum of 12 quarters of Music Department instrumental or choral ensembles
- A minimum of 11 quarters of applied instruction (private individual instrumental or vocal lessons)
- Demonstration of an advanced level at Continuing B.M. juries each fall and spring quarter
- Music 196B, Senior Recital

The B.M. degree is for students who aspire to academic excellence and an advanced performance level. Once accepted to the B.M. program, students must take two juries per academic year: at the end of both fall and spring quarter, for continuing review and criticism of proficiency at their primary instrument.

If a student fails to participate in continuing B.M. juries, or does not attain, or maintain, an advanced level, and fails to maintain academic excellence, the Bachelor of Music Committee will re-examine the student's continued participation in the B.M. degree in consultation with the applied instructor. In cases in which the B.M. Committee finds the student did not meet these requirements the students will be dismissed from the B.M. program with an option to switch to the B.A. degree.

Time to degree: The determination of a dismissal can be made by the committee as long as a student has three remaining quarters before their expected graduation date. This will ensure enough time to make course changes from a B.M. to B.A. degree. A change to the B.A. degree is 10 to 25 fewer credits to be completed than the B.M. degree.

Students may appeal a dismissal of the B.M. degree by petition to the chair of the Music Department. A letter to the department chair must be submitted within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision.

Note: B.M. students wishing to concentrate in jazz are required to take Music 111B, Seminar in Jazz Analysis, instead of one of the Music 180 courses and Music 174, Intermediate Jazz Improvisation; and Music 175, Jazz Theory II.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
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It is essential that students in either program begin the Music 30 sequence, ensembles, and applied instruction in fall of their freshman year or as early as possible to make satisfactory progress toward their degree objectives.

Sample academic plans for the B.A. and B.M. degree programs are found in the Music Student Handbook, available online at the Music Department web site: http://music.ucsc.edu.

Qualification Policy

- Successful completion of Music 30A with a grade of "C" or above;
- Signature approval by the applied instrument instructor on the primary instrument authorization form.

Foreign Language Requirement

French 1, German 1, and Italian 1 are required for B.M. students who wish to concentrate in voice. There are no foreign language requirements for other students in the B.A. or B.M. programs; however, students who are planning to apply for graduate school are strongly advised to study a language pertinent to their research area up to a comparable level 3 at UCSC or be able to pass the level 4 entrance examination.

Letter Grade Requirement

All upper-division courses applied toward the music majors must be taken for a letter grade, except ensemble courses, which may be taken Pass/No Pass.

Required Examinations and Auditions

Core Curriculum Placement Examination. This examination is for the placement of students, including transfer students and re-entry students, into the appropriate music lower-division core course. It includes written sections in the areas of theory and musicianship that emphasize aural recognition and identification of musical structures and brief definitions of terms relating to music history. The date of the examination is normally the Tuesday before the first day of instruction for fall quarter. For more information on the examination including a sample test, please visit our web site: http://music.ucsc.edu.

Advisory Audition. All students in Music 30A, including music minors, will be scheduled for a juried audition at the end of the first fall quarter (on their major instrument or voice). The purpose of this audition is to give students feedback so that they can work toward meeting the requirements for the proficiency audition at the end of the next fall quarter. The advisory audition is waived for students who have been admitted to the B.M. program.

Proficiency Audition. It is a requirement of the major that all students in Music 130 must audition at the end of the second fall quarter and exhibit an upper-intermediate or higher level (on their major instrument or voice). The audition committee may allow for an extension (up to two quarters maximum) for a student who fails the proficiency audition.

Bachelor of Music Auditions. Auditions for admissions to the B.M. program are held at the end of each fall quarter. Students must have approval from applied music instructor in order to audition. After students have been accepted, they are required to audition twice a year, at the end of fall and spring quarters, for continuing review and critique.

Transfer Students

The Music Department requires transfer students to take the core curriculum placement examination and seek academic counseling before transfer. Transfer students are strongly encouraged to audition in advance because auditions help determine eligibility for the major. Detailed information on auditions and a sample core curriculum placement examination is available at: http://music.ucsc.edu/programs/important-information-incoming-and-prospective-students.

Transfer students who have some background in music theory normally test into Music 30A (which is only offered in the fall quarter). Students who require Music 15 for music theory preparation should take Music 15 in their first year or during summer session prior to their

incoming fall quarter to prepare for Music 30A. Transfer students who have completed all of their general education requirements and who test into Music 30A upon transfer may be able to complete the music major in two years.

B.A. transfer students should note that upon completion of Music 130, it is a requirement of the major to perform on a musical instrument or voice at an upper-intermediate level. Prospective students wishing to have their performance skill level assessed by faculty in preparation for entry to the program are encouraged to send a CD or tape for faculty review.

B.M. transfer students should prepare to audition in the fall quarter after enrollment. (For audition requirements, see the Requirements for the Bachelor of Music section above.) In certain cases, some or all of the applied music requirement may be waived based on prior coursework.

Because Italian 1, German 1, and French 1 are required for voice students, transfer students are encouraged to complete these language requirements before coming to UCSC.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in music is satisfied by completing Music 101A and 101C (already a part of the core curriculum and required for the B.A. and B.M.).

Honors

Honors in the major are conferred by vote of the music faculty. B.A. or B.M. students can be awarded honors for excellent work in individual areas, including coursework, senior project (thesis or recital), or a capstone course. Excellent work in any two of these areas normally results in honors in the major.

To be considered for highest honors in the major, B.A. students must complete a senior project (not required for the B.A. degree) and B.M. students must complete a capstone course (not required for the B.M. degree). Honors in all three areas—coursework, senior project, and capstone course—normally results in highest honors in the major.

Applied Music (Individual Instruction)

Private lessons in various instruments are required as a part of the B.A., B.M. or minor in music. These lessons carry an additional fee and require an audition with the instructor. Concurrent enrollment in an appropriate ensemble is required for a stipulated number of quarters. Consult the Music Student Handbook for more details.

Minors

Electronic Music

The electronic music minor focuses on the study of creating music using the tools of modern technology. It is designed to complement the music major or programs in other media by providing instruction in advanced skills of audio production, sound synthesis, and computer-assisted composition. A student may obtain a minor in electronic music by application and acceptance to the minor program and completing the following:

- One course from the following: Music 11A, Classical Music from the Middle Ages to the Present; Music 11B, Introduction to Jazz; Music 11C, Introduction to American Popular Music; or Music 11D, Introduction to World Music
- Music 15, Preparatory Musicianship
- Music 80C, History, Literature, and Technology of Electronic Music
- Music 123, Electronic Sound Synthesis
- Music 124, Intermediate Electronic Sound Synthesis
- Music 125, Advanced Electronic Sound Synthesis

- Two quarters of Music 167, Workshop in Electronic Music
- One of the following: Music 80L, 80M, or 80R (or a similar music course that has a technical focus as approved by the department), or Film 171A or Theater Arts 114
- One of the following: Physics 160; or Computer Science 5C, 5J, 5P, or 12A; or Electrical Engineering 70, 153, or 171

Jazz

The jazz minor focuses on the study of the history, theory, and performance of jazz. In addition, students may be introduced to musical styles that have had profound influences on this uniquely American art form: folk and popular musics of Africa, Europe, and the United States and Western classical music. The jazz minor is limited to students who have sufficient performance proficiency to pass auditions for entry into the jazz ensembles. The required courses for the minor in jazz are the following:

- Music 11A, Classical Music from the Middle Ages to the Present
- Music 15, Preparatory Musicianship
- Music 75, Beginning Improvisational Theory and 175, Jazz Theory II
- Music 111B, Seminar in Jazz Analysis
- One of the following: Music 11C, 11D, 80J, or 80Q;
- Six quarters of ensembles, including at least three quarters of the jazz ensembles (Music 3, Large Jazz Ensemble and/or 164, Jazz Ensemble)
- Music 174, Intermediate Jazz Improvisation

Detailed information about the music majors and minors may be obtained from the Music Department web site and undergraduate adviser.

Graduate Programs

Master of Arts

The master of arts (M.A.) degree program in music has emphases in composition, musicology/ethnomusicology, or performance practice, and integrates studies in performance, composition/analysis, and research. In consultation with a faculty adviser, the student pursues a two-year course of studies culminating in a final project that combines an original composition, written thesis, or essay with a related public performance or lecture recital.

Requirements

A minimum of 60 course credits completed at UCSC is required for the degree. All M.A. students are required to complete:

- Music 200, Introduction to Research Methods
- Music 201, History of Music Theory from the Greeks through Rameau
- Music 202, Tonal and Post-tonal Analysis
- Music 252, Current Issues Colloquium during each quarter in residence (for students entering the program fall 2007 and thereafter).

Students with an emphasis in composition also complete:

- Music 219, Techniques in Composition
- Music 220, Graduate Seminar in Music Composition
- One course in the Music 203 Performance Practice series.

Students with an emphasis in musicology/ethnomusicology or performance practice also complete:

- Three courses from the Music 203 Performance Practice series (Music 206D, Music Perception and Cognition meets the requirement for one 203 course). It is possible in some cases to substitute a course from the Music 253 or 254 series for one 203 course.

The final project for the degree includes both performing and scholarly components, which vary according to the degree emphasis.

Students with a composition emphasis submit a thesis composition together with an essay that addresses historical, technical, and/or interpretive issues of the music (Music 299); and they complete a full-length recital (Music 298) of their compositional work.

Students with a musicology/ethnomusicology emphasis complete a thesis (Music 299) and a short performance or lecture-recital related to the thesis (Music 298).

Students with a performance practice emphasis complete a full-length recital (Music 298) and an accompanying short essay that addresses historical, technical, and/or interpretive aspects of the music performed in the recital. Students in this emphasis whose main area is conducting complete a full-length recital (Music 298) and one of the following: a shorter lecture-recital, a short analytical or contextual essay on a different topic, or a collaboration with a graduate student composer or faculty composer on a premiere public performance. Students are encouraged to create a program involving corollary studies such as computer studies, area cultural studies, linguistics, anthropology, theater arts, and visual arts.

Graduate students must take all courses for a letter grade with the exception of independent study courses (Music 261, 265, 295, 297, 298, and 299) and the colloquium course (Music 252), which may be taken with the Satisfactory/Unsatisfactory grade option.

Prior to the start of classes each fall quarter, each incoming M.A. student is required to complete a three-hour diagnostic examination which is intended to identify areas in which supplementary coursework may be needed, in addition to the courses listed above.

Doctor of Musical Arts

The doctor of musical arts (D.M.A.) degree program in music composition has tracks in computer-assisted composition and world music composition. The track in computer-assisted composition includes algorithmic techniques for the generation of musical materials and structures to be realized in the creation of instrumental, vocal, and digitally synthesized music. The track in world music composition addresses a variety of compositional approaches influenced by indigenous world musics, with a focus upon those musics taught by faculty composers, ethnomusicologists, and applied instructors. The D.M.A. program seeks to develop accomplished, active, and articulate composers who have a broad awareness of the diverse styles, cultural influences, media, venues, and technical means available to them in the 21st century.

Requirements

For students entering with the bachelor's degree, a minimum of 102 credits in coursework at UCSC will be required. All students must be in residence for a minimum of nine quarters. Students must enroll in a minimum of 10 credits each quarter until they advance to candidacy. After advancing to candidacy, students remaining in residence must take a minimum of one 5-credit course each quarter.

For students entering with a master's degree from another institution, a minimum of 72 credits in coursework at UCSC will be required. All students must be in residence for a minimum of six quarters. Students must enroll in a minimum of 10 credits each quarter until they advance to candidacy. After advancing to candidacy, students remaining in residence must take a minimum of one 5-credit course each quarter. D.M.A. students are expected to complete the degree within a maximum of six calendar years from entrance to the program leaves of absence are not excluded from this count).

Required courses include:

- Music 200, Introduction to Research Methods
- Music 201, History of Music Theory from the Greeks through Rameau
- Music 202, Tonal and Post-tonal Analysis

- Music 219, Techniques in Composition
- Music 220, Graduate Seminar in Music Composition
- Music 252, Current Issues Colloquium (each quarter in residence)
- Five quarters of independent study—Music 297, 298, and 299.

Note: Students entering with a master's degree from another institution may petition to waive one or more of these courses by submitting documentation for equivalent courses completed elsewhere.

Students in the computer-assisted composition track complete:

- Music 206B, Computer-Assisted Composition
- One course in the Music 203 Performance Practice series
- Two quarters of Music 267, Workshop in Computer Music and Visualization, or another Music 206 course.

Students in the world music composition track complete:

- Music 206A, World Music Composition
- Music 203H, Area Studies in Performance Practice
- Music 203G, Concepts, Issues, and the Practice of Ethnomusicology; or another Music 206 course.

Graduate students must take all courses for a letter grade with the exception of independent study courses (Music 261, 265, 295, 297, 298, and 299) and the colloquium course (Music 252), which may be taken with the Pass/No Pass grade option.

Prior to the start of classes in fall quarter, each incoming D.M.A. student is required to complete a three-hour diagnostic examination which is intended to identify areas in which supplementary coursework may be needed, in addition to the courses listed above.

A D.M.A. student who entered the D.M.A. program with a bachelor's degree may apply for an M.A. degree, whether he/she is leaving the D.M.A. program or continuing toward completion of the D.M.A. degree, by fulfilling the following requirements:

- Completion of a minimum of five quarters at UCSC.
- Completion of a minimum of 35 graduate or upper-division course credits (including all courses required for the M.A. degree with an emphasis in composition).
- Successful completion of the qualifying recital (Music 298).

Pre-qualifying Reviews

Before the end of the first year of study, all D.M.A. students must present a half recital of their compositions from that year, and submit the scores and recital recording as a portfolio, which faculty will use to assess the student's progress in the program. Faculty may also consider the student's performance in Music 200, 201, and/or 202. In unusual cases, when progress has been minimal, faculty reserve the right to terminate a student's enrollment in the program. Typically, the half recital is satisfied by a combination of 1) participation in a concert of graduate-student compositions sponsored each April by Porter College and the Music Department, and 2) participation in a public reading of graduate-student final projects from Music 219 and 220.

The Qualifying Recital

At the end of their second year of study, all students admitted to the D.M.A. program must present a half-recital (35-40 minutes of music) representing their best work since entering the program. The D.M.A. qualifying recital will be evaluated by the student's primary adviser and by a second faculty member (generally a second composer) selected by the student in consultation with the primary adviser.

Dissertation Prospectus

The dissertation prospectus must be submitted 12 months before the scheduled qualifying examination. The prospectus must include a proposal describing the scope and nature of the dissertation composition and the accompanying essay. In addition to defining the parameters of the dissertation itself, the dissertation prospectus will suggest to the student's qualifying examination committee those areas of study that should be emphasized in the student's qualifying examination.

Qualifying Examination

Advancement to candidacy is contingent upon the passing of a written examination and an oral examination normally administered at the end of year three for students entering with a bachelor's degree, and the end of year two or the beginning of year three for students entering with a master's degree from another institution. For the written portion of the examination, the qualifying examination committee provides questions on the three topics assigned as areas of emphasis. The oral examination is administered by the student's qualifying examination committee and may concern any aspect of the assigned topics with an emphasis on those issues addressed in the written portion of the examination. Advancement to candidacy will be granted after successful completion of the written and oral examinations, acceptance of the dissertation reading committee form, satisfactory completion of coursework and the foreign language requirement, and the payment of the necessary fees.

Dissertation

D.M.A. students must complete a dissertation consisting of a substantial musical composition accompanied by an essay. One to two years of work beyond the qualifying examinations should be sufficient for the completion of the dissertation, except in cases where extended fieldwork is required.

Final Examination

The final examination will be a public oral defense of the dissertation. After an oral presentation by the candidate, the candidate will be questioned by the dissertation committee.

Doctor of Philosophy in Music

The doctor of philosophy (Ph.D.) degree in music has an emphasis in cross-cultural studies, and aims to provide doctoral students with an integrative framework for music scholarship, emphasizing the ways in which musicology and ethnomusicology interact and complement one another.

In addition to cultural approaches to musical style, the program also encourages the integration of scholarly research with musical performance, emphasizing the manner in which performance serves both rhetorical and symbolic ends within various cultural settings. To this end the concept of "performance practice" plays a significant role in this program, given that the concept of historically or culturally informed performance is applicable to music from the earliest times to the present day in all geographical and cultural regions, and can encompass research activities as diverse as fieldwork, historical editing, and recording, as well as publishing of books and articles on the traditions of composition and performance.

Requirements

Students entering the Ph.D. program with a bachelor's degree are required to complete the following courses:

- Music 200, Introduction to Research Methods
- Music 201, History of Music Theory from the Greeks through Rameau
- Music 202, Tonal and Post-tonal Analysis
- Three courses from the Music 203 Performance Practice series (Music 206D, Music

Perception and Cognition, or a Music 254 course may each substitute for one 203 course)

- Three courses from the Music 253 series
- Three courses from the Music 254 series
- Music 252, Current Issues Colloquium (during each quarter of residence)
- Music 299, Thesis Research

Students entering the Ph.D. program with a master's degree are required to complete following courses:

- Three courses from the Music 253 series
- Three courses from the Music 254 series
- Music 252, Current Issues Colloquium (during each quarter of residence)
- Music 299, Thesis Research

All students in the Ph.D. program, whether or not they are entering the program with a master's degree, should plan to take at least two, and preferably three of the following courses in addition to the regular requirements: Music 201, Music 202, Music 203H, or Anthropology 208A. The decision about which of these courses to take should be made in consultation with the student's adviser and the chair of the graduate committee.

Graduate students must take all courses for a letter grade with the exception of independent study courses (Music 261, 265, 295, 297, 298, and 299) and the colloquium course (Music 252), which may be taken with the Satisfactory/Unsatisfactory grade option.

Prior to the start of classes in fall quarter, each incoming Ph.D. student is required to complete a three-hour diagnostic examination that is intended to identify areas in which supplementary course work may be needed.

Ph.D. students entering the program with a bachelor's degree are required to submit a research paper by the beginning of the fourth quarter in residence, which will be revised that quarter under the supervision of the student's faculty adviser, and will be evaluated at the end of the quarter by the adviser and an additional faculty member. Students whose paper is assessed as unsatisfactory will not be allowed to continue in the Ph.D. program.

Students may devise a program of study that includes additional music courses, and courses from other disciplines suited to their special areas of concentration, in addition to the required courses.

Students who entered the Ph.D. program with a bachelor's degree may apply for the M.A. degree after completion of a minimum of five quarters in residence, evidence of the completion of the equivalent of one year of a foreign language at UCSC, the fourth-quarter research paper, and the following courses: Music 200, 201, 202, one course from the Music 203 series, Music 252 each quarter in residence, one course each from the Music 253 and 254 seminar series, and Music 297.

Pre-qualifying Reviews

At the end of the first year of study, all students accepted into the Ph.D. program will submit a brief report on work completed during that year. This report will inform a consideration by the music faculty of the student's status in the graduate program. Faculty will offer comments and suggestions to be communicated to the student either directly or through the student's adviser. If progress is minimal, faculty reserve the right to terminate a student's enrollment in the program.

Qualifying Examinations

Advancement to candidacy is contingent upon passing both written and oral examinations. The written qualifying examination will test knowledge absorbed through the two years of coursework as well as material in the student's field of concentration. The oral examination will focus on the previously completed written examinations well as the student's

developed expertise in her/his chosen specialization. Students must be registered in the quarter in which they take their qualifying examination.

The examinations will normally be administered at the end of year 3 for students entering with a bachelor's degree, and at the end of year 2 for students entering with a master's degree.

Advancement to candidacy will be granted after successful completion of the written and oral examinations, acceptance of the dissertation reading committee form, satisfactory completion of coursework and the foreign-language requirement, and the payment of the necessary fees.

Dissertation

To satisfy requirements for the degree, a student must complete a dissertation and present a related formal lecture or lecture-recital. The student will develop a dissertation prospectus, which will be due six months after advancement to candidacy. Guidelines for the format and content of the prospectus can be foundon the Music Department web site. The dissertation must embody substantial and original scholarly work based on a clearly distinguishable contemporary or historical music-cultural tradition, in any music-culture(s) of the world in which the UCSC program offers expertise. The public lecture or performance must demonstrate the student's grasp of the pertinent music-cultural performance tradition or music-cultural and/or music-historical concepts.

Final Examination

The final examination will be an oral defense of the dissertation open to the university faculty.

Successful completion of this examination will be determined by a majority vote of the dissertation reading committee.

Additional information about the program, including application and admission, is available from the Division of Graduate Studies and on the department web site: http://music.ucsc.edu/.

Foreign Language Requirement (for all graduate programs)

For M.A. and D.M.A. students, current skill in reading and comprehension of a relevant foreign language must be demonstrated by:

1. Satisfactory completion of level 3 of a foreign language at UCSC, preferably in the first year of the program; or
2. Submission of an official transcript documenting successful completion of one year of university-level foreign language at another institution (equivalent to level 3 at UCSC); or
3. Passing a foreign language proficiency examination administered by the Music Department in French, Spanish, German, Italian, or Russian. (This test requires translation of a passage of at least 600 words with no resources other than a dictionary to be completed in 1.5 hours.)
4. For languages other than French, Spanish, German, Italian, or Russian, the department may accept completion of an online course as fulfilling the requirement if the student can prove equivalency to a level 3 course at UCSC. The graduate committee will determine whether or not to accept any such course.

With approval of the primary adviser, students whose emphasis is algorithmic composition may complete three quarters or one year of university-level instruction in computer programming in lieu of the foreign language requirement.

Ph.D. students are required to demonstrate proficiency in a foreign language according to the same procedures as the M.A. or D.M.A. In addition, Ph.D. students are required during their first year of enrollment to demonstrate proficiency in a second foreign language

relevent to their area of interest.

Knowledge of languages not offered at UCSC must be demonstrated as determined by the Music Department's graduate committee. Graduate Division policy states that the language requirement must be completed prior to taking the qualifying examination.

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Oakes College

2014–15 General Catalog

College Office
(831) 459–2558
http://oakes.ucsc.edu

Course Descriptions

For college description and list of faculty, see colleges.

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Ocean Sciences

2014-15 General Catalog

A312 Earth and Marine Sciences Building
(831) 459-4730
http://oceansci.ucsc.edu/

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Program Description

The Ocean Sciences Department includes faculty, students, and staff involved in oceanography and other marine sciences and offers undergraduate and graduate courses in these disciplines. Through faculty sponsors, students have access to a wide variety of research facilities and equipment, including on-campus analytical chemistry, geology, and molecular biology laboratories for marine research; computing and imaging facilities; an onshore marine laboratory two miles from campus (Long Marine Laboratory), with aquariums and holding tanks that are supplied with running sea water; and a unique field station on Año Nuevo Island (19 miles north of Santa Cruz), especially suited for studies on pinnipeds and marine birds. The department supports collaborative studies utilizing the innovative technologies of the nearby Monterey Bay Aquarium Research Institute (MBARI), the Naval Postgraduate School, Stanford University's Hopkins Marine Station, California State University (CSU) Moss Landing Laboratory, and other facilities. Students may also work at other University of California facilities, including the Bodega Marine Laboratories and Scripps Institute of Oceanography.

In addition to research and instructional activities along the California coast, interests of the core faculty and their students include biological, chemical, and physical oceanography; sediment, marine, organic, and trace metal biogeochemistry; marine plankton, phytoplankton ecology, paleoceanography, aquatic microbial ecology, ecological modeling, and remote sensing (satellite oceanography); numeric modeling of coastal and basin-scale dynamics; and midwater ecology, climatology, among others.

Ocean Sciences Department affiliated faculty in other departments represent a deep resource of research interests and methodologies including those pertaining to coral reef and kelp forest ecology, plate tectonics and continental margins, marine mammal behavior and physiology, and natural products from marine organisms. Student research projects have included participation in major scientific expeditions to various marine environments ranging from Polar Regions to the tropics.

Undergraduate Programs

While offering a range of undergraduate courses, the Ocean Sciences Department presently only confers graduate degrees (master of science, M.S.; and doctor of philosophy, Ph.D). The undergraduate major in marine biology, sponsored by the Biological Sciences departments, includes required and elective courses in ocean sciences; and includes an ocean sciences concentration in Earth sciences for undergraduates. Students interested in

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- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

ocean sciences should major in a discipline such as biology, marine biology, chemistry, Earth sciences, physics, or mathematics and take ocean sciences–related electives. Students with a bachelor's degree in one of these disciplines or equivalent coursework may apply directly for admission to the graduate program through the Division of Graduate Studies.

Graduate Programs

The graduate programs in ocean sciences are designed to prepare students for careers in research, teaching, and other environmentally related endeavors. The fundamental requirement for admission to the program is substantial evidence of superior scholarship and aptitude for original research. Preparation for admission to the graduate program in Ocean Sciences should comprise an undergraduate degree in the discipline of one of the program specialty areas (e.g., biology or marine biology, geology or earth sciences, chemistry, or physical science) or an equivalent background. If a student does not have a degree in one of these areas, the student must demonstrate to their sponsor that they have taken the classes necessary to do their research.

The prerequisites for entering the Ph.D. program are a minimum of two quarters or two semesters in each of the following: a calculus series; chemistry, and physics with labs. In addition, one course in each of the following is required: earth sciences or geological principles; biology; and statistics or biostatistics.

Ocean Sciences Ph.D. Degree Program

The program leading to a doctorate in ocean sciences is designed around a core training in oceanography for all students, supplemented and focused by advanced training in oceanography and in the traditional disciplines—biology, chemistry, Earth sciences, and physics—as chosen by the student and his or her advisers. The core training is provided through courses in ocean sciences; a subset of which is taken by all students in the first two years and reinforced by the student's seminars throughout the program. Preparation also includes upper-division/graduate courses in ocean sciences and in the specialty discipline, graduate seminars, independent study research credits, participation in a departmental student seminar series, and a minimum requirement of two quarters as a teaching assistant. There is no formal language requirement.

A scheduling meeting in the first quarter of enrollment is used to map out the course program in the first year. The course program is determined by a faculty advisory committee in consultation with the student and courses are drawn from ocean sciences and other science departments (e.g., biology, chemistry, Earth sciences, physics). No later than the fall quarter of their second year, students must take a departmental oral examination that demonstrates their knowledge of ocean sciences and general expertise in their parent discipline. A written and oral qualifying examination are required, generally in the second or third year of graduate study. A dissertation based on original research is required, and the final examination is a public oral defense of the dissertation. Students are encouraged to prepare their dissertation, or certain chapters of it, in a form suitable for publication.

Sample Pathways

The pathways within the ocean sciences Ph.D. program are differentiated from related degrees in the traditional disciplines by their focus on global-scale problems and interactions, a focus on the ocean, and their inherently interdisciplinary approach. Interdisciplinary projects across and between pathways are encouraged, as are interactions with faculty in related departments.

Biological Oceanography

This area of study involves the interactions of organisms with their chemical and physical environments. It includes research on the physiology and ecology of organisms, but differs from marine biology in its focus on the oceanographic setting of the organism in relationship to, for example, biogeochemical cycling and the effects of ocean currents on distributions of organisms. The focus is mainly on small oceanic life-forms (plankton and bacteria, molecular ecology) and their roles in the biogeochemical cycles of marine systems.

Chemical Oceanography

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Chemical interactions of trace metals and radionuclides in the sea are the focus of this area of study. Research includes development of analytical techniques, measurement of trace species in seawater, and investigation of the effects and interactions of trace elements on biological processes using analytical and isotopic approaches.

Geological Oceanography

Paleoceanography, paleoclimatology, and sediment geochemistry are the focus in this pathway. Research areas include the history of global geochemical cycles and composition of the ocean on various timescales, the fate and diagenesis of materials in sediments and their contribution to the paleoceanographic record, understanding ocean and climate history by the use of records of stable isotopes and trace elements, and paleoclimate modeling.

Physical Oceanography

The physics and dynamics of the ocean and atmosphere are the main aspects of this program. Research includes observational, computational, theoretical, and experimental physical oceanography, geophysical fluid dynamics, ocean acoustics, dynamical meteorology, climate, and global change.

Requirements for Ph.D. Students in the Ocean Sciences Department

To introduce students to the breadth and depth of the field of ocean sciences, students will be required to complete the following.

1. Four core courses. These courses are expected to be completed in the first year of the program (and precede the departmental examination) in the in the following sequence: fall–OCEA 200 Physical Oceanography, and OCEA 280 Marine Geology; winter–OCEA 220 Chemical Oceanography; and spring–OCEA 230 Biological Oceanography.
2. A minimum of three graduate-level or upper-division elective courses is required to provide depth in the chosen area of emphasis or supporting disciplines. These courses are selected in consultation with the student's adviser and the department's graduate advising committee (a maximum of one course may be a graduate-level seminar (OCEA 290), and at least two courses must be graduate or upper-division undergraduate lecture courses).
3. OCEA 296, Teaching in Ocean Sciences, to be taken prior to or concurrent with being a teaching assistant.
4. Teaching experience satisfied by two quarters as a teaching assistant for an Ocean Sciences or supporting department's course.
5. OCEA 293, a 2-credit Graduate Research Seminar yearly requirement for all Ph.D. students.
6. OCEA 292, Ocean Sciences Seminar series. Attendance required each quarter of enrollment.
7. A minimum of three courses in Thesis Research (OCEA 299) under direction of a sponsor. Each quarter in residence a student should take 15 credits of classes. Students beyond their first year will usually take 10 or 15 credits of Thesis Research each quarter.
8. A comprehensive departmental examination. This oral examination, covering material from the core courses, is usually taken at the beginning of a student's second year in the program. This examination must be completed successfully within two years of entering the program.
9. Pass the qualifying examination to advance to candidacy. This examination requires a written research proposal to be defended orally in front of the student's dissertation committee and is normally taken at the beginning of the third year of the program. Successful completion of this examination is expected within three years of entering the program.

10. Ph.D. dissertation. The Ph.D. dissertation, demonstrating original thought and research, must be written, presented in an open seminar, and defended to the student's thesis committee. Chapters of the dissertation may be written in publication format, but must conform to university publication guidelines for submission.

Ocean Sciences Master's Degree Program

The Ocean Sciences Department offers a master of science (M.S.) degree in ocean sciences. The degree combines core courses and electives to provide depth and breadth in the ocean sciences, with a focused thesis to provide experience in original research. Graduates from the program are exceptionally prepared to take research or management positions in organizations concerned with the marine environment, to become educators, or to enter doctoral programs in ocean sciences or related fields.

Whereas the doctoral program has an oceanographic orientation, the ocean sciences master's program is even broader and has traditionally attracted many students in marine biology and ecology. As with the doctoral program, students are encouraged to select a course of study and a research program that draws on the expertise of the core ocean sciences faculty and any of the affiliated faculty in other departments. Customized programs of study that combine related disciplines are supported in the master's program.

Course Requirements for the Ocean Sciences Master's Degree

To introduce students to the breadth and depth of the field of ocean sciences, students will be required to complete the following:

1. Complete three of the four core courses (one of which must be OCEA 200, Physical Oceanography). Students are expected to complete all three of these courses in the first year of the program, and they should be taken in the order listed below. All four core courses are recommended, hoever, and if taken, the fourth course counts as an elective. The courses must be taken in the following sequence: fall–OCEA 200 Physical Oceanography, and OCEA 280 Marine Geology; winter–OCEA 220 Chemical Oceanography; and spring–OCEA 230 Biological Oceanography.
2. A minimum of three graduate-level or upper-division elective courses is required to provide depth in the chosen area of emphasis. These courses are selected in consultation with the student's adviser and the department's graduate advising committee (a maximum of one course may be a graduate-level seminar (OCEA 290), and at least two courses must be graduate or upper-division undergraduate lecture courses).
3. A minimum of three courses in Thesis Research (OCEA 299) under the direction of a sponsor. Each quarter a student should take 15 credits of classes. Students beyond their first year will usually take 10 or 15 credits of Thesis Research each quarter.
4. OCEA 296, Teaching in Ocean Sciences, to be taken prior to or concurrent with being a teaching assistant
5. Teaching experience satisfied by one quarter as a teaching assistant for an Ocean Sciences or supporting department's courses.
6. Attendance at the Ocean Sciences Seminar series (OCEA 292) each quarter of enrollment
7. Successful complettion of a master's thesis presented at an open seminar.

Details regarding admission, graduate standing, financial aid, examinations, and the requirements for the master of science and doctor of philosophy degrees are available from the Division of Graduate Studies (http://graddiv.ucsc.edu/student_affairs/).

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  - College Ten
  - Community Studies

Philosophy

2014-15 General Catalog

220 Cowell College
(831) 459-2070
http://philosophy.ucsc.edu

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Program Description

Philosophy investigates fundamental questions about the most basic facets of human thought, e.g., concerning knowledge and belief (epistemology), the nature of reality (metaphysics), and morality and aesthetics (value theory). Such questions can be studied by looking at answers that contemporary philosophers propose, by investigating the principles that other disciplines use to legitimate claims, or by learning how, historically, philosophers approached these issues. In this respect, "philosophy" names not only a historically defined subject matter, but also inquiry into any of the fundamental determinants of rational thought. Thus, students of philosophy can pursue a broad range of topics of the greatest historical, intellectual, and personal interest.

The department offers courses that relate these traditional philosophical questions to contemporary work in literature and the social and natural sciences. In addition, the department offers several courses that make a careful study of the classic texts in philosophy, ancient and modern. Moreover, the curriculum covers all the dominant contemporary schools of philosophy in the Anglo-American and European traditions.

The study of philosophy enables students to expand their abilities in critical thinking and reasoning as well as to improve their skills in verbal and written communication. Students may major or minor in philosophy.

Philosophy prepares students for many careers as well as for most professional schools, including law. Students who wish to go to graduate school in philosophy are encouraged to study logic at both the introductory and intermediate levels and any languages that are necessary for advanced scholarship in the different historical eras of philosophy.

Major Requirements

Courses

Eleven courses are required: two at the introductory level, two in the history of philosophy sequence (100A, 100B, 100C), and seven additional upper-division courses (including one advanced seminar). For some of the lower-division required courses, students may petition to substitute courses taken at other institutions (please note that logic classes offered at community colleges will NOT fulfill the department's logic requirement). These 11 courses must meet the following distribution requirements:

Introductory. Course 9 and at least one of courses 11, 22, or 24.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

History of philosophy. Two of 100A, 100B, or 100C (all three strongly recommended for students who anticipate graduate work in philosophy). Taking any two from the sequence Philosophy 100A, 100B, and 100C will satisfy the Disciplinary Communication (DC) requirement.

Upper Level. Six courses numbered 100A or above, at least one in value theory and two in metaphysics and/or epistemology. Note that the two courses counted toward fulfilling the history of philosophy requirement cannot be counted among these six additional courses.

Courses satisfying the value theory requirement: 137, 140, 142, 143, 144, 147, 148, 152, and 153.

Courses satisfying the metaphysics and epistemology requirement: 114, 115, 121, 122, 125, 126, 127, 133, 135, and 171.

Courses 195A, 195B, and 199 also cannot be counted among these six courses. All upper-division courses must be completed at UCSC unless a petition for an exception is approved by the undergraduate program director.

Senior Seminar. One advanced seminar numbered 190.

Courses must be satisfied in the following sequence. Before being eligible to enroll in any course in the history sequence (Philosophy 100A–100C), a student must have completed all required introductory courses, i.e., Philosophy 9 and at least one from Philosophy 11, 22, or 24. Before being eligible to enroll in any philosophy course above Philosophy 100C, prospective majors must have taken at least one of the required history of philosophy courses (i.e., either Philosophy 100A, 100B, or 100C). Transfer students wishing to major in philosophy should consult with the Philosophy Department undergraduate adviser as soon as possible.

Declaring the Major or Minor

Students must have taken or currently be enrolled in at least one philosophy course in order to declare the major or minor. Students declare by visiting the undergraduate adviser, who will develop an individual academic plan and complete a Petition for Major/Minor Declaration form.

Disciplinary Communication Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC Requirement in philosophy is met by completing any two from the sequence Philosophy 100A, 100B, and 100C.

Comprehensive Requirement

In the fourth year, students satisfy the comprehensive (exit) requirement by taking one course numbered 190. This advanced seminar meets the standards of the senior-year level of achievement in philosophy. Students who do superior work in an advanced seminar can be awarded a notation of Honors in the evaluation for that course. In addition to Honors in an advanced seminar, graduating seniors with a distinguished record of achievement in their philosophy courses may be awarded Honors or Highest Honors in the philosophy major.

Graduation with Honors in Philosophy requires at least a 3.7 average in all philosophy courses taken at UCSC. Graduation with Highest Honors in Philosophy requires at least a 3.9 average in all philosophy courses taken at UCSC. Students with an average between 3.8 and 3.9 may be awarded Highest Honors by vote of the Philosophy Department.

Minor Requirements

A minor in philosophy consists of any nine of the 11 courses required for the major. At least five of these must be upper-division. There is no senior exit requirement for the minor.

Program Planning Notes

When a faculty member thinks that a student has done exceptional work that could be

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
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carried to a more advanced level, the student may be given the option of writing a senior essay (course 195A). Normally, the senior essay is completed in one quarter; in unusual circumstances, it can be continued for a second quarter (course 195B), but only if the writing requirements for course 195A are completed successfully and on time. The senior essay, like individual studies more generally, does not count toward the 11 courses required for the major.

After undergraduates have taken the requisite introductory courses, they have a wide range of upper-division courses from which to choose. Those who are considering advanced study are encouraged to consult regularly with any member of the philosophy faculty about the courses that would best prepare them for graduate work. Preparation for graduate work ought to begin before senior year. The Philosophy Department sponsors workshops in the fall quarter for students contemplating graduate school in philosophy.

Graduate Program

The department's graduate program profile emerges from its distinctive approach to the study of philosophy, including an interest in the history of philosophy as an indispensable background to the main areas of contemporary concern in the discipline. More specifically, the department's characteristic and compelling strength lies in its attitude towards the two current traditions in philosophy—the so-called analytic and continental traditions. While analytically trained, the majority of the faculty has research or teaching interests in some major 19th and 20th century European figures, including, among others, Hegel, Nietzsche, Husserl, Heidegger, and Foucault.

Among the faculty's main contemporary interests are those topics commonly pursued in any high-ranking research and teaching program, including for example research and teaching interests in philosophy of science, philosophy of biology, metaphysics, philosophy of mind, logic, epistemology, philosophy of language, philosophy of religion, moral psychology, and ethics, including environmental ethics. The faculty's research and teaching in these areas is informed by leading historical figures, including especially Kant, Aristotle, Hume, Wittgenstein and—again, uniquely for such a small department—leading figures from the Middle Ages and late antiquity (including medieval Islamic figures).

Graduate students are therefore able to take advantage of a wide range of courses in the history of philosophy, including ancient, early modern, Kant, 19th-century, and the history of 20th-century philosophy (analytic, continental, and combined).

Both the master of arts (M.A.) and the doctor of philosophy (Ph.D.) programs encourage interaction with other fields.

Graduate Program Requirements

Breadth Requirements in the First Year

During their first year, all graduate students are expected to fulfill a set of breadth requirements. These requirements are designed to provide both a common experience on which students can build their individual projects and a shared framework within which they can exchange ideas. Six courses, to be completed in the first year, are required of every graduate student in philosophy. These six core courses will constitute the bare minimum required for the M.A. or Ph.D.

This minimal core set of courses will consist of (i) three graduate seminars, designated by the department each year as mandatory for every first year student, and (ii) three electives (any three graduate seminars in philosophy). Of the three required seminars, one will be in metaphysics/epistemology, one in the history of philosophy, and one in moral philosophy.

No courses labeled Philosophy 294 or higher will satisfy any of these minimum core requirements. This restriction is redundant for 299 (since that course is open only to students who have advanced to candidacy). The point of this restriction is to limit the use of independent studies, reading groups or student seminars for graduate seminar credit.

During their first year of study all students must pass a logic competency examination with a grade of B or better. This examination will cover material typically taught in a first course in formal logic.

Before the end of the third year, all Ph.D. students must complete Philosophy 270, a research seminar. A substantial paper is required prior to enrollment. The course may be taken earlier than the third year and is optional for M.A. students. Philosophy 270 is only offered in winter quarter.

For further details, see the graduate program statement on the department's web page or consult with the department's graduate adviser.

Ph.D. Program

The Ph.D. program provides students with closely monitored training in philosophy. The program is designed to be completed in six years or less. Graduate work in philosophy can lead to careers both inside and outside academia. Because most doctoral students will be preparing for a career that involves teaching philosophy, they are encouraged to be teaching assistants for at least three quarters.

Courses. A minimum of 12 graduate courses. Up to two courses may be taken from the offerings of other departments, and up to two courses may be independent studies.

Language requirement. The foreign language will be individually determined based on the relevance of such linguistic skills to the research interests of the student. Proficiency can be demonstrated either by passing a written examination administered by the department or by successfully completing a language course approved by the graduate committee.

Qualifying examination and Research Seminar. The qualifying examination, normally taken during the third year of enrollment, is centered on a qualifying essay that demonstrates the candidate's ability to do extended, dissertation-level research and analysis relevant to the proposed thesis topic and dissertation plan. The examination focuses on the student's research project and on the fields of scholarship it presupposes.

Near the end of the required coursework, doctoral students will develop a research project resulting in a substantial paper. The paper is required to enroll in the research seminar, Philosophy 270, which must be completed during or before winter quarter of the third year. The seminar will allow students to make substantial progress on a qualifying essay and cultivate their ability to assess and provide critical feedback on another author's philosophical work.

Dissertation. The final requirement for the Ph.D. degree is a dissertation representing a contribution to philosophical research.

M.A. Program

Applications to the M.A. program are welcomed from talented students with diverse academic backgrounds. The program is open not only to applicants who majored in philosophy as undergraduates, but also to applicants from other disciplines, who have a significant background in philosophy and who now want to study philosophy more intensively. The program is designed to be completed in one or two years.

Courses. A minimum of nine graduate courses. Up to two courses may be taken from the offerings of other departments, and up to two courses may be independent studies.

Languages. There is no foreign language requirement for M.A. students.

Master's paper. By the end of the second year of study and the completion of 45 credits, M.A. students will submit a master's paper, which will normally be defended orally before a committee of two faculty members.

Relationship of the M.A. and Ph.D. Programs

Students in the M.A. and Ph.D. programs will be in the same classes and work on the same course distribution requirements. Enrollment in the M.A. program confers no advantage for admission to the Ph.D. program.

Applications and Admissions

Application materials are available online at http://graddiv.ucsc.edu. Further information regarding the program may be requested from the Department of Philosophy at (831) 459-4578, fax: (831) 459-2650. Visit the web site at http://philosophy.ucsc.edu.

Designated Emphasis

To receive a designated emphasis in philosophy, graduate students from other departments must complete the following requirements in addition to degree requirements for the doctorate in their home department.

The following are required for the emphasis:

1. Department approval: The primary faculty adviser is to be consulted about the intention to pursue a Philosophy Designated Emphasis.
2. Philosophy adviser: A core philosophy faculty member is required to act as an adviser and serve on both the qualifying examination committee and the dissertation reading committee.
3. Coursework: Students must complete four graduate courses in philosophy selected in consultation with the philosophy faculty adviser. One of the four may be an independent study approved by the philosophy faculty adviser.
4. Writing: Students must submit a significant piece of writing that demonstrates competency in the field. The writing could take the form of a seminar paper or dissertation chapter. The essay must meet the approval of the philosophy adviser.

Guidelines and application forms are available in the Philosophy Department office.

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Physical and Biological Sciences Division

2014-15 General Catalog

204 Natural Sciences 2 Annex
(831) 459-2931
http://pbsci.ucsc.edu

Program Description

A broad range of majors is offered through the physical and biological sciences. The intellectual rigor of these majors ensures that our graduates are well prepared for further studies in graduate and professional schools, as well as careers in scientific research, environmental research, medicine, law, engineering, technology, and business.

The Division of Physical and Biological Sciences' interdisciplinary framework provides students with the opportunity to attend classes and pursue research that ranges from the study of atoms to the examination of distant galaxies. From abstract number theory to the development of new chemical compounds, from evolution to plate tectonics, we provide students not only with the skills to explore and discover the world but also to define and improve it.

Departments and programs affiliated with the Division of Physical and Biological Sciences include the Departments of Astronomy and Astrophysics; Chemistry and Biochemistry; Earth and Planetary Sciences; Ecology and Evolutionary Biology; Microbiology and Environmental Toxicology; Mathematics; Molecular, Cell, and Developmental Biology; Ocean Sciences; Physics; and the Science Communication Program. Our undergraduate affairs office helps students understand and manage the breadth and diversity of academic programs and resources that are available to students in the physical and biological sciences. More information can be found at http://undergrad.pbsci.ucsc.edu/.

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Physical Education

2014-15 General Catalog

East Field House
(831) 459-2531
http://opers.ucsc.edu/

Faculty | Course Descriptions

Program Description

Physical education offers students an opportunity to learn and improve skills in a variety of areas while gaining knowledge about the relationship between fitness and wellness. With this information, participants will be better prepared to make important choices leading to healthy lifestyles.

Physical education courses at UCSC, which are elective and without academic credit, are offered in a wide variety of activities. The courses consist of instruction, practice, and full participation consistent with each student's ability. While many of the courses are for students at a beginning level, some are designed with more advanced students in mind. Most courses involve class meetings one hour in length, twice a week; but some consist of two weekly one-and-a-half-hour meetings or a single two-hour meeting per week. Students may enroll in as many courses as they desire and are permitted to repeat any course.

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History of Art and Visual Culture

2014-15 General Catalog

D-201 Porter College
(831) 459-4564
havc@ucsc.edu
http://havc.ucsc.edu

Faculty | Course Descriptions

Program Description

In the History of Art and Visual Culture (HAVC) Department, students study the production, use, form, and reception of visual artifacts past and present. Objects of study include paintings, sculptures, and architecture, which are within the traditional purview of art history, as well as low art and non-art objects, which sit beyond its boundaries. The HAVC Department offers courses covering a wide variety of representations from the cultures of Africa, the Americas, Asia, Europe, and the Pacific Islands, including media as diverse as ritual, performative expression, bodily adornment, oil painting, installation art, textiles, architecture, and photography.

HAVC students at UC Santa Cruz (UCSC) investigate complex questions concerning the social, political, economic, religious, and psychological impact of images from the perspective of their producers, users, and viewers. Visual objects play a central role in the formation of values and beliefs, including the perception of gender, sexuality, ethnicity, race, and class. Through attentive historical study and close analysis, students are taught to recognize and assess these systems of value, and are introduced to theoretical and methodological frameworks for future research. Students also have the opportunity to take independent study courses and write senior theses.

The HAVC curriculum guides students in acquiring skill in critical thinking about art and visual culture, leading to a bachelor of arts (B.A.) degree. Each student who chooses to major or minor in HAVC devises an individual study plan with a faculty adviser. The lower-division courses, numbered 1-99, intended for general education students and prospective majors, provide an introduction to the field of visual culture according to geographic areas and visual traditions within those areas. Upper-division courses numbered 100-189 cover a broad range of issues in various aspects of world culture from earliest times to the present. Advanced upper-division courses focus on selected fields, topics, and methods. The most advanced courses, numbered 190 and 191, are taught in seminar format.

Declaration of the Major

To declare the major, students must complete two of the required four lower-division HAVC courses chosen from two different geographical regions:

10s Africa and its Diaspora;

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
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20s Asia and its Diaspora;

30s–40s Europe and the Americas;

50s Mediterranean;

60s Native Americas;

70s Oceania and its Diaspora

Students considering this major are encouraged to complete these courses early in their studies and consult with the HAVC undergraduate adviser to develop a plan of study. Transfer students should consult the Transfer Student/Transfer Credit section.

Requirements of the Major

The HAVC major requires four lower-division and nine upper-division courses including the satisfactory completion of the senior comprehensive requirement. Students must take courses in each of the different cultural settings to ensure methodological and disciplinary breadth.

Lower-Division Requirements

Four courses from three different geographical regions listed above.

HAVC 80 may be used to fulfill the lower-division regional breadth requirement for regions 10 (Africa), 60 (Native Americas), or 70 (Oceania).

Upper-Division Requirements

Nine courses, as follows:

- 100A recommended during sophomore year. Because 100A is a prerequisite for other courses, if it is not completed by the end of the junior year, students may have difficulty enrolling in required courses and graduation may be delayed.
- 101–191: eight courses required, including a seminar (190s and 191s) to satisfy the senior comprehensive (see Comprehensive Requirement below).

In completing upper-division course work, students must complete three upper-division courses (courses 101–191) from three different regions. Two of those regions must be a geographical area not studied at the lower-division level.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. Students in HAVC meet the DC requirement by completing course 100A.

Senior Comprehensive Requirement

All seniors must complete one seminar, 190–191, as their "senior exit" course to satisfy the senior comprehensive requirement. Seminars can be taken for senior exit credit only by permission of the instructor. Within the context of this advanced seminar, students will work under the close supervision of their professor to produce a written project that demonstrates a high level of achievement in research, writing, and critical thinking. Students whose performance is outstanding are eligible for honors in the senior comprehensive requirement.

Concentration in Religion and Visual Culture

This program is for students who wish to pursue the study of religion in conjunction with studies of visual culture. A student enters the concentration by proposing, in consultation with their faculty adviser, a sequence of upper-division courses to fulfill the religion and visual culture requirements. The declaration of major requirements for the religion and visual culture concentration are the same as those listed in the Declaration of Major section. The faculty adviser for the religion and visual culture concentration is Raoul Birnbaum.

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Requirements for the Religion and Visual Culture Concentration

Fifteen courses, as follows:

- Four lower-division courses (each from a different geographical area)
- 100A recommended during sophomore year. Because 100A is a prerequisite for other courses, if it is not completed by the end of the junior year, students may have difficulty enrolling in required courses and graduation may be delayed.
- 101–191: five courses that focus on the study of religion
- 190–191: one seminar (190s and 191s) to satisfy the senior comprehensive (see Comprehensive Requirement above).
- Four relevant upper-division courses in the study of religion from programs on campus such as anthropology, history, literature, and philosophy. (For a complete list of approved courses, please see the departmental web site http://havc.ucsc.edu/program/religion.)

Minor Requirements

Nine courses, as follows:

- lower-division: three courses from three different geographical regions;
- upper-division: six courses planned in consultation with a faculty adviser.

Department Advising

Undergraduate Adviser

The undergraduate adviser offers specific information about navigating through the program and the curriculum and assists students with requirements, prerequisites, policies and procedures, learning support, scholarships, and special opportunities for undergraduate research.

Faculty Advisers

Faculty are the best resource for learning about the philosophies and foundations of history of art and visual culture. Faculty advisers work individually with students to develop a specific course of study, recommend additional courses of interest, and discuss long-term career goals including education beyond the baccalaureate. A faculty adviser is assigned to each student by the undergraduate adviser during the declaration of major meeting.

Languages

All majors are encouraged to study at least one foreign language. Graduate programs in visual culture, art history, and other related disciplines generally require competence in one or more languages beyond English. Students are encouraged to consult with their faculty adviser to discuss an appropriate course of language study.

Transfer Preparation and Transfer Credit

Transfer students are encouraged to fulfill history of art and visual culture requirements prior to transfer. Refer to the ASSIST articulation agreements at www.assist.org for approved lower-division courses offered at community colleges. Transfer credit for lower- or upper-division courses from four-year institutions or community colleges not included in the ASSIST system is evaluated on a case-by-case basis; students must submit a Course Transfer/Substitution Petition and course syllabus to the HAVC Department for review. A student may transfer up to five art history courses toward the major, only two of which may be upper-division. For the minor, a student may transfer up to three lower-division courses. HAVC majors must take a minimum of eight regularly scheduled HAVC courses from members of the HAVC faculty and HAVC minors must take a minimum of six regularly scheduled HAVC courses from members of the HAVC faculty. Transfer students are strongly encouraged to contact the HAVC Department for advisement before enrolling at UCSC.

Education Abroad Program (EAP) Courses

The University of California's Education Abroad Program provides an excellent opportunity to take courses related to the history of art and visual culture in a range of locations. The department strongly encourages HAVC majors and minors to take advantage of this educational opportunity. Successfully completed EAP courses count as in-residence UC credit.

Upon return, you must submit a Course Substitution Petition to seek the approval of your adviser and department chair to substitute EAP courses for HAVC major and minor requirements (EAP courses do not automatically satisfy major and minor requirements). Petitions are evaluated on a case-by-case basis. We look for evidence that the course(s) provided critical analysis of the class material in its social and cultural context, as well as significant reading and writing requirements. We recommend you retain all relevant documentation (syllabi, reading lists, papers written, etc.) to support your case. We also suggest you consult with your HAVC adviser to plan your EAP courses in advance.

For additional information, see: http://ieo.ucsc.edu/programs-abroad/academic-planning/major-minor-credit.html and http://ieo.ucsc.edu/programs-abroad/academic-planning/uc-vs-transfer-credit.html. (Also refer below to the "Residency Requirement for the Major and Minor.")

Careers

The preparation students receive from the baccalaureate of arts degree in HAVC provides skills that can lead to successful careers in education, law, business, and social services, in addition to more disciplinary-specific careers in museum curating, art restoration, studies in architecture, and studies in art history leading to a graduate degree.

Graduate Study

There are many graduate programs that lead to the master of arts (M.A.) and doctor of philosophy (Ph.D.) degrees in fields such as art history, visual studies, cultural studies, history of religions, theory and criticism of art, etc. Most graduate programs require a reading knowledge of one or two languages other than English (see Languages above). Students who contemplate graduate study should consult with their faculty advisers as early as possible in their undergraduate careers.

Graduate Program

The History of Art and Visual Culture Department offers a course of study leading to the Ph.D. in visual studies. The Ph.D. is designed to steep our graduates in the most theoretically relevant methodologies for understanding the significance of visual artifacts and the social and cultural qualities of human vision (termed visuality); provide students with exposure to a range of cultural perspectives and visual artifacts drawn from around the world; and cultivate in our graduates the necessary skills and knowledge to secure and excel in academic and curatorial positions. The program is both interdisciplinary and flexible. Students work closely with their advisers and the director of graduate studies to craft personalized courses of study that advance their intellectual and professional goals.

The program employs a wide range of visual evidence for examination, without being constrained by traditional hierarchies of art. Fine arts, architecture, photography, film, performances, utilitarian objects, and popular entertainments all are primary source material for scholars in the field. The program at UCSC is particularly adept at illustrating significant differences in how disparate cultural groups interpret their visual worlds, given the breadth of cultural perspectives taught by our faculty. With scholars focusing on cultures in Africa, the Americas, Asia, Europe, and the Pacific Islands, visual studies at UCSC offers students an unparalleled opportunity to consider the role of social and cultural forces in guiding how and what their members see.

Graduate Program Requirements

Students take a minimum of twelve 5-credit graduate courses during their first two years of study, comprised of four core courses and eight electives.

The four core courses must be taken within the first two years: HAVC 201, Introduction to Visual Studies (fall); HAVC 202, Critical Theory (winter); and HAVC 203, Theories and Histories of Seeing (spring, taken twice).

Those entering with an M.A. are eligible to petition to exempt courses. In general, a student entering with a non-visual studies M.A. may petition to waive up to four electives, and a student entering with an M.A. in visual studies may also petition to waive the fourth core course (the second Theories and Histories of Seeing). The petition to exempt courses may be submitted any time after a student is accepted into the program, but first should be discussed with the assigned faculty adviser and the director of graduate studies. To receive exemption, the petition must be approved by the visual studies graduate committee.

Of the eight elective courses, at least four must have a visual studies designation (i.e., taught by core or affiliated faculty), and at least three must be drawn from departments outside of visual studies. For students entering with an M.A. who have successfully petitioned to have four elective courses waived, the distribution between visual studies courses and courses outside the department will be decided in consultation with the academic adviser and the director of graduate studies as part of the petition for course waiver.

Field Clusters/Field Specialties

Appreciating that most of our graduates will be required to fit themselves back into traditional disciplinary structures once they enter the academic job market, the program is designed to provide students with both new means of interpreting visual evidence and suitable depth of understanding in older disciplinary traditions. While all graduates will acquire a shared foundation in theories of visuality (attained through our core course requirements), individual student programs vary considerably depending on the type of department in which the student hopes to secure employment after graduation. In addition to completion of the core courses required of all students, each student will develop a cluster of individualized field courses in consultation with their adviser based on her/his particular professional goals.

To provide our students with the disciplinary background to facilitate employment within curatorial departments in museums and non-visual studies departments at colleges and universities, each student is required to take a minimum of four 5-credit courses in a disciplinary cluster (beyond the core course requirements). This requirement pertains both to students entering with a B.A. and an M.A. Acceptable field cluster courses might center around a medium (i.e., painting or architecture), a temporal/stylistic category (i.e., Early Modern or Postmodernism), a cultural, national, or social group (i.e., Pacific Islanders or China), or a disciplinary approach (i.e., cultural anthropology or gender studies). Field clusters are developed in consultation with the student's adviser based on the student's intellectual and professional goals. To count toward the degree, field clusters must receive prior approval from the visual studies graduate committee.

Language Requirement

Students must demonstrate reading knowledge of one foreign language prior to the start of their second year (either through attainment of a score of 550 or higher on the Educational Testing Service Graduate Student Foreign Language Test or through passage of a reading examination administered by the department).

Students are encouraged to master a second foreign language. Based on a student's area of interest, and the joint assessment of the student's adviser and the director of graduate studies, proof of proficiency in an additional language or languages may be required prior to the student being admitted to candidacy for the Ph.D. Should proficiency in additional languages be required, it must be demonstrated prior to the close of the student's third year of study.

Qualifying Examination

After completing all course work and passing one language examination, students are required to pass a qualifying examination prior to the close of the winter quarter of their third year, unless a petition for an extension, demonstrating reasonable cause, is approved by the visual studies graduate program committee. The qualifying examination is divided into three topic areas, with each one including a written and an oral component. Each topic area should display historical breadth and variety of media. Two of the topic areas should ideally relate to the future dissertation topic, while one of the remaining must constitute an outside area, examining a topic that is chronologically, geographically, and/or

methodologically distinct from the other two.

Prior to the end of his/her second year, a student should consult with his/her adviser to assemble a group of four faculty members who will serve as examiners and aid the student in assembling the necessary topic areas, compiling the needed reading lists, and preparing for the written and oral components of the examination in each area. The examination will have two parts. In part one, each student will respond in writing to three general questions, posed by three of their examiners in the pre-arranged topic areas. In part two, each student will gather together with his/her examiners to field questions probing and clarifying the previously submitted written component of the qualifying examination. In order to pass the qualifying examinations, the student must receive the unanimous endorsement of the committee members.

Dissertation Prospectus and Colloquium

After passing the qualifying examination, a student must complete an approved dissertation prospectus and a colloquium. The written dissertation prospectus is due no later than the end of the second quarter following the student's completion of the qualifying examination. The prospectus is a brief, concise essay of approximately 25 pages (with bibliography) that defines the scope, methodology, and rationale for the proposed dissertation. It is prepared in consultation with the student's dissertation director, who must approve of the document prior to sending it to the colloquium committee. The prospectus must be sent to the colloquium committee at least one month before the colloquium.

The dissertation director, in consultation with the student and director of graduate studies, will invite four to five faculty members, in appropriate fields, to be on the colloquium committee, attend the colloquium, provide input on the prospectus, and assess the student's preparedness to begin researching and writing the dissertation. Faculty participating in the colloquium may or may not have been members of the QE committee, and should represent faculty whose expertise has bearing on the student's project. A student will pass the colloquium after having demonstrated to the satisfaction of all colloquium committee members adequate preparation to begin researching and writing the dissertation.

Advancing to Candidacy

Advancement to candidacy follows and is contingent upon passing the qualifying examination, all needed language examinations, completing an approved dissertation prospectus, passing the colloquium, and the subsequent appointment of a dissertation reading committee of at least three members. The requirements for advancement to candidacy must be completed no later than the end of the winter quarter of the fourth year.

Dissertation and Final Examination

The dissertation must make a significant and original contribution to the field of visual studies, as judged by each dissertation committee member.

An oral defense of the dissertation is the only final examination requirement, unless a petition to waive the oral defense, demonstrating reasonable cause, is approved by the student's primary adviser and the visual studies graduate program committee. The student's dissertation committee, under the supervision of the director of graduate studies, will conduct the examination. In the event that the director of graduate studies serves on the dissertation committee, the chair of History of Art and Visual Culture will oversee the defense. Interested faculty and students in the visual studies program will have the opportunity to observe the defense.

Normative Time from Matriculation to Degree

The visual studies Ph.D. program at UCSC is designed to require six years for students matriculating with a B.A. and five to six years (depending on advanced standing granted) for those entering with an M.A. During the pre-candidacy period students will devote themselves to coursework, completion of the language examination, some teaching, preparation for and completion of qualifying examinations, completion of an approved version of their prospectus, passing their colloquium and selecting their dissertation committee. Requirements for advancing to candidacy must be completed by the end of winter quarter of the fourth year. Students will finish their dissertation and successfully

defend it before the end of their sixth year.

Designated Emphasis

Graduate students enrolled in doctoral programs at Santa Cruz may obtain a Designated Emphasis in visual studies on their Ph.D. degree by meeting the following requirements:

- Secure approval from a core member of the visual studies faculty to serve as an adviser for their Designated Emphasis.
- Have at least one core member of the visual studies faculty serve on either their qualifying examination or dissertation committee.
- Submit a significant piece of writing that demonstrates competency in the field. The writing could take the form of a seminar paper or dissertation chapter. The essay must meet the approval of the student's visual studies adviser.
- Successfully complete four graduate courses taught by either core or affiliated members of the visual studies program. The courses must form a coherent cluster in visual studies and be pre-approved by the student's Designated Emphasis adviser.

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Physics

2014-15 General Catalog

211 Interdisciplinary Sciences Building
(831) 459-3744
http://physics.ucsc.edu/

Faculty | Course Descriptions

Program Description

Physics seeks to discover the fundamental regularities or "laws" that govern our universe and to apply these laws to explain the behavior of fundamental and complex systems. The same underlying principles describe the behavior of atoms, lasers, living cells, and galaxies. Physics is, therefore, at the base of all modern science and technology, and, even at an elementary level, this fundamental nature can be appreciated.

The Physics Department offers majors in physics, physics (astrophysics), applied physics, and physics education. These programs prepare students for graduate work in physics, astrophysics, and astronomy, for engineering and other technical positions in industry, and for careers in education. With appropriate courses in other disciplines, these majors provide excellent preparation for advanced study in technical subjects such as biology, chemistry, engineering, geophysics, and the philosophy of science. The applied physics major is excellent preparation for positions in industry directly upon graduation.

Faculty are approachable to work with students in both formal and informal settings. All undergraduate physics majors have the opportunity to work individually with a faculty member in completing the senior thesis requirement.

The main areas of physics research at UCSC are the study of fundamental particles and interactions (high-energy physics), the study of condensed matter physics, astrophysics/cosmology, and biophysics.

Efforts in high-energy physics are aided by the presence of an organized research unit, the Santa Cruz Institute for Particle Physics (SCIPP). The SCIPP experimentalists play significant roles in experiments at some of the major accelerator laboratories in the world, including the Stanford Linear Accelerator Center (SLAC) at Stanford University and the European centers Organization for Nuclear Research (CERN). SCIPP experimentalists have also played an important role in creating the major satellite for gamma-ray astronomy, the Fermi Gamma-ray Space Telescope, are involved in the Dark Energy Survey, and conduct a thriving particle astrophysics program detecting TeV gamma rays as part of the UC VERITAS collaboration. SCIPP theorists are active in the phenomenology of high-energy particle interactions, including dark matter models, the theory of strong and electroweak interactions, electroweak symmetry breaking and Higgs bosons, theories of supersymmetry, superstrings, and gravity. SCIPP also maintains a vigorous program in particle astrophysics including research in high-energy astrophysics, dark matter, formation of galaxies and large-scale structure in the universe, and theories of cosmology

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and the very early universe. SCIPP is also home to a research program in experimental biophysics, exploiting instrumentation technologies developed in other areas of physics for the study of functional organization and development of neural systems in a variety of living organisms. In addition, there is closely related research in biomedical applications such as retinal prosthesis.

The presence of the strong astrophysics group from the Astronomy and Astrophysics Department in the same building provides a healthy symbiosis in this area. Note that the Astronomy and Astrophysics Department does not offer an undergraduate major. UCSC is the headquarters for the University of California Observatories, which include Lick Observatory near San Jose and the Keck Observatory in Hawaii; these provide additional opportunities for collaboration between researchers in physics and astronomy.

Condensed matter physics research at UCSC covers a range of topics including the behavior of exotic many-electron systems (for example, superconductors); the study of magnetic phase transitions; the organization of complex systems (proteins, DNA, and polymers); and the development of new electronic devices using novel materials and research in biophysics.

The experimental program uses X-ray and synchrotron radiation techniques at facilities such as the Stanford Synchrotron Radiation Laboratory (SSRL); neutron scattering techniques at various national laboratories; and optical, X-ray, and specific heat techniques at UCSC. Undergraduate students are actively involved in several condensed matter physics laboratories.

Courses

An undergraduate physics education is broad, yet fundamental. Undergraduate students, even in introductory classes, are exposed to new ideas associated with explorations at the boundaries of human knowledge.

The lower-division introductory courses in the major programs (Physics 5A, 5B, 5C, and 5D sequence) are well suited to students in the physical sciences and engineering. The 6A, 6B, 6C sequence, which also provides a calculus-based introduction to the basic concepts in physics, is better suited to students in the life sciences. Students who take Physics 6A instead of Physics 5A, and do very well in it, may contact the department chair for permission to enter the major. The laboratory courses, 5L-5M-5N and 6L must be taken concurrently with the corresponding lecture courses.

Major Program

The physics, astrophysics, and applied physics major programs provide a comprehensive coverage of the field and the background necessary for graduate school or industrial careers. The physics education major provides the necessary background to enter a rigorous credential program and, ultimately, a career in high-school science education. Students earn a bachelor of science (B.S.) degree. The UCSC physics, astrophysics, applied physics, and physics education programs begin with a four-quarter presentation of the introductory concepts of the subject, Introduction to Physics. (Note: the applied physics program also requires completion of a general chemistry course.) In order for a student to finish the UCSC physics program in four years, it is essential to start Introduction to Physics at the beginning of the first year.

This is followed by courses which provide an introduction to relativity and quantum physics. The programs continue with a three-quarter sequence in mathematical methods of physics designed to provide the mathematics preparation necessary for most of the upper-division physics courses required for the majors. Included in the upper-division programs are two intensive laboratory courses designed to illustrate both historical experiments in the development of physics, astrophysics, and applied physics, and modern experimental methods. Advanced and especially motivated students may enroll in some graduate courses with the approval of the instructor and department chair

The senior thesis, required of all physics, astrophysics, applied physics, and physics education majors at UCSC, provides the opportunity for students to apply their skills to problems of interest to them, either theoretical or experimental, usually with technical advice from a faculty member. The senior thesis may be based on research with a faculty

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
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member. The senior thesis is a distinctive part of the UCSC physics major program and entails a substantial investment of both student and faculty time. The learning experience involved in the thesis, as well as the thesis itself, has proven extremely valuable to students in enhancing employment opportunities upon graduation or in gaining admission to graduate school.

The physics education major is designed to provide future K–12 physics and mathematics teachers with the necessary coursework aligned with the K–12 physics and mathematics standards necessary to pass the California Subject Matter Examinations for Teachers (CSET) in Physics and Mathematics. It also includes a thorough introduction to educational theory and practice including a sequence of three classroom-based internships. Students will be well prepared to enter a rigorous teaching credential program and ultimately a career in high school education. The senior comprehensive requirement involves a curriculum development project overseen by the Physics/Astronomy faculty, with co-supervision from CalTeach/Education faculty as needed.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy the upper-division Disciplinary Communication (DC) requirement. Students in physics, applied physics, physics (astrophysics), and physics education satisfy the DC requirement by completing Physics 182, and the senior thesis.

Declaration of the Major

In order to be admitted to the physics, astrophysics, applied physics, or physics education majors students must pass Physics 5A, 5B and 5C with letter grades, and with an average grade point average (GPA) in these three courses of 2.70 or higher. At least two of these three courses must be passed in the first attempt. (Physics 5A has corequisites of Mathematics 19A or 20A and Physics 5L; Physics 5B has prerequisites of Physics 5A and 5L and Mathematics 19A or 20A, and corequisites of Mathematics 19B or 20B and Physics 5M; Physics 5C has prerequisites of Physics 5A and 5L and Mathematics 19B or 20B, and corequisites of Mathematics 23A or 22 and Physics 5N.) Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the Physics Department office within 15 days from the date the notification was mailed, and meeting with a faculty adviser. Within 15 days of receipt of the appeal, after consulting with the faculty adviser, the department chair will either finalize the denial of admission or specify further conditions for admission, and notify the student, the college, and the Office of the Registrar of the decision.

Letter Grade Policy

For all students entering UCSC in fall 2009 and later, all courses used to satisfy any of the physics major requirements must be taken for a letter grade.

Requirements of the Majors

Physics

The requirements for the major include Physics 5A/L, 5B/M, 5C/N, and 5D; Mathematics 19A or 20A, 19B or 20B, 23A, and either 23B or Physics 14; plus the following upper-division courses: 102, 105, 110A–B, 112, 116A–B–C, 133, 134, 139A, and 182 and the senior thesis.

In addition, students must pass at least two upper-division electives chosen from physics or the following astronomy and astrophysics courses: 111 through 118. In some cases, one of the elective requirements may be satisfied by an approved upper-division science or engineering course.

Students have to satisfy a computer programming requirement by taking one of the following courses, Computer Science 5C, 5J, or 5P, Earth Sciences 119, or Physics 115. Computer Science 5C teaches programming in C/C++, 5J in Java, and 5P in Python for students with no prior experience. Astronomy 119 teaches programming in IDL (commonly used by astronomers) and simple applications. Physics 115 does not teach programming; it assumes basic programming ability in C, C++ or Fortran and discusses numerical techniques relevant to physics. Students may also satisfy the computer programming

requirement by demonstrating their knowledge of programming to a faculty member designated by the Physics Department.

Physics (Astrophysics)

The requirements for the major include Physics 5A/L, 5B/M, 5C/N, and 5D; Mathematics 19A or 20A, 19B or 20B, 23A, and either 23B or Physics 14; plus the following upper-division courses: 102, 105, 110A-B, 112, 116A-B-C, 133, 135 or 136 139A and 182 and the senior thesis.

In addition, students must pass at least three upper-division electives selected from the following upper-division courses: Astronomy and Astrophysics 111 through 118, or 171 (cross-listed with Physics 171), or Astronomy and Astrophysics 257, Physics 129.

Students have to satisfy a computer programming requirement by taking one of the following courses Computer Science 5C, 5J, or 5P, Earth Sciences 119, or Physics 115. Computer Science 5C teaches programming in C/C++, 5J in Java, 5P in Python for students with no prior experience. Astronomy 119 teaches programming in IDL (commonly used by astronomers) and simple applications. Physics 115 does not teach programming; it assumes basic programming ability in C, C++ or Fortran and discusses numerical techniques relevant to physics. Students may also satisfy the computer programming requirement by demonstrating their knowledge of programming to a faculty member designated by the Physics Department.

Applied Physics

The requirements for the major include Physics 5A/L, 5B/M, 5C/N, and 5D; Mathematics 19A or 20A, 19B or 20B, 23A, and either 23B or Physics 14; Chemistry 1A or 1B; plus the following upper-division physics courses: 102, 105, 110A-B, 112, 116A-B-C, 133, 134, and 182 and the senior thesis.

In addition, students must pass at least three upper-division applied physics electives selected from the following approved list of courses: Physics 107, 115, 120, 129, 139A, 139B, 152, 155, 156, and 160, 171, 180, Electrical Engineering 101, 103, 115, 130, 145, 154, 171, 172, 178; other courses with approval from a faculty adviser.

Students have to satisfy a computer programming requirement by taking one of the following courses Computer Science 5C, 5J, or 5P, Astronomy 119, or Physics 115. Computer Science 5C teaches programming in C/C++, 5J in Java, 5P in Python for students with no prior experience. Astornomy 119 teaches programming in IDL (commonly used by astronomers) and simple applications. Physics 115 does not teach programming; it assumes basic programming ability in C, C++ or Fortran and discusses numerical techniques relevant to physics. Students may also satisfy the computer programming requirement by demonstrating their knowledge of programming to a faculty member designated by the Physics Department.

Physics Education

The requirements for the major include Physics 5A/L, 5B/M, 5C/N, 5D, 102, 133, 134 or 135 and 182 and the senior thesis; Mathematics 19A or 20A, 19B or 20B, 23A, 23B or Physics 14; Mathematics 100, 128A, 181; Education 50B or 50C, 100B or 100C, 185L, 185B or 185C and one upper-division course dealing with issues of diversity in education; Applied Mathematics and Statistics 5 or 7; and Astronomy 12 or 13. One elective course must be taken from physics, astronomy, mathematics or education courses, or other courses with approval of the department.

Sample Physics Major Planner

The following is a recommended academic plan for students to complete during their four years to fulfill requirements for the physics major.

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A or 20A	MATH 19B or 20B	MATH 23A
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N

2nd (soph)	PHYS 5D	PHYS 102	PHYS 116B
	MATH 23B	PHYS 116A	CMPS 5C, 5J, or 5P
		PHYS 133*	
3rd (jr)	PHYS 105	PHYS 110A	PHYS 110B
	PHYS 116C	PHYS 112	PHYS 139A
		PHYS 134*	
4th (sr)	PHYS 182***	PHYS elective**	Senior Thesis
	PHYS elective**	Senior Thesis	
	Senior Thesis		

* Physics 133 is offered fall and winter quarters. Physics 134 is offered winter and spring quarters and may be taken in the junior or senior year after completing Physics 133.
**Students should look into taking electives earlier where possible, as some courses are only offered every alternate year.
***Physics 182 will be offered twice yearly, fall and winter quarters.

Sample Physics (Astrophysics) Major Planner

The following is a recommended academic plan for students to complete during their four years to fulfill requirements for the physics (astrophysics) major.

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A or 20A	MATH 19B or 20B	MATH 23A
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
2nd (soph)	PHYS 5D	PHYS 102	PHYS 116B
	MATH 23B	PHYS 133*	
		PHYS 116A	
3rd (jr)	PHYS 105	PHYS 110A	PHYS 110B
	PHYS 116C	PHYS 112	PHYS 139A
		ASTR 119^	PHYS 136^^
4th (sr)	PHYS 182***	ASTR elective**	ASTR elective
	PHYS 135*	Senior Thesis	Senior Thesis
	ASTR elective**		
	Senior Thesis		

* Physics 133 is offered fall and winter quarters. Physics 135 is offered fall quarter and may be taken in the junior or senior year after completing Physics 133.
**Students should look into taking electives earlier where possible, as some courses are only offered every alternate year.
***Physics 182 will be offered twice yearly, fall and winter quarters.
^Astronomy 1119 is one of several ways to satisfy the programming requirement.
^^Physics 136 may be taken instead of Physics 135 by students interested in a research

career in astrophysics.

Sample Applied Physics Major Planner

The following is a recommended academic plan for students to complete during their four years to fulfill requirements for the applied physics major.

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A or 20A	MATH 19B or 20B	MATH 23A
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
2nd (soph)	PHYS 5D	PHYS 102	PHYS 116B
	MATH 23B	PHYS 116A	CMPS 5C, 5J, or 5P
		CHEM 1A	
3rd (jr)	PHYS 105	PHYS 110A	PHYS 110B
	PHYS 116C	PHYS 112	Apph elective**
	PHYS 133*	PHYS 134*	PHYS 11 (recommended)
4th (sr)	PHYS 182***	Senior Thesis	Apph elective**
	Apph elective**		Senior Thesis
	Senior Thesis		

* Physics 133 is offered fall and winter quarters. Physics 134 is offered winter and spring quarters and may be in the taken junior or senior year after completing Physics 133.
** Students should look into taking electives earlier where possible, as some courses are only offered every alternate year.
***Physics 182 will be offered twice yearly, fall and winter quarters.

Sample Physics Education Major Planner

The following is a recommended academic plan for students to complete during their four years to fulfill requirements for the physics (astrophysics) major.

Year	Fall	Winter	Spring
1st (frsh)	MATH 19A or 20A	MATH 19B or 20B	MATH 23A
	PHYS 5A/L	PHYS 5B/M	PHYS 5C/N
2nd (soph)	PHYS 5D	MATH 100	EDUC 100B or 100C (2 credits)
	EDUC 50B or 50C (2 credits)	PHYS 133*	
		PHYS 102	
3rd (jr)	MATH 23B	PHYS 134*^	MATH 181
	AMS 5 or 7	MATH 128A	
	PHYS 135*^	EDUC 185B/C	
	ASTR 12/13		
	EDUC diversity course	Elective	Senior Thesis

4th (sr)	PHYS 182**	EDUC 185/L (2 credits)
	Senior Thesis	Senior Thesis

*Physics 133 is offered fall and winter quarters. Physics 134 is offered in winter and spring quarters and may be taken in the junior or senior year after completing Physics 133. Physics 135 is offered some academic years as a multiple-term course: 135A in fall and 135B in winter or spring, depending on astronomical conditions.
**Physics 182 will be offered twice yearly, fall and winter quarters.
^Either Physics 134 or 135 must be taken

Depending on the student's interests, further preparation for graduate school in physics, astrophysics, applied physics, or for other careers is obtained by electing more specialized or applied courses (see the descriptions of courses below). In addition, again depending on the student's academic focus, elective courses may be selected in mathematics, astronomy and astrophysics, and/or other areas of physical science.

Comprehensive Requirement

The comprehensive exit requirement is normally satisfied by the submission and approval of a thesis. To satisfy the comprehensive requirement via a thesis Physics 182 is required. Note that successful completion of Physics 182 and the senior thesis satisfies the Disciplinary Communication requirement.

In special cases, minor modifications of these requirements may be granted to suit the specific program of a particular student. Before embarking on a program needing such waivers, students should discuss their plans with a physics adviser and seek approval by petition from the Physics Department office.

Honors

The department awards "honors" (3.5 grade point average or better) and "highest honors" (3.8 GPA or better) to top graduating students each year. Recommendations for these awards are made by the department chair and are based upon excellence of academic performance, particularly in upper-division physics courses, as reflected in grades and the narrative evaluations. The department also awards "honors" for outstanding work on the senior thesis, made upon the recommendation of the senior thesis supervisor and the thesis technical adviser.

Minor Requirements

Requirements for the minor in physics include Physics 5A/L, 5B/M, 5C/N, 5D (or Physics 6A/L, 6B/M, 6C/N with minimum GPA of 3.5); Mathematics 19A or 20A, 19B or 20B, 23A, 23B or Physics 14; Physics 102, 133, and 134 and three courses chosen from physics upper-division elective (some of which have prerequisites), or from a list of courses from other departments approved by the Physics Undergraduate Committee. See the Physics Department for the listing.

Advising and Preparation for the Major

Because the courses for the physics major are sequential, it is strongly advised that students declare their major in physics, astrophysics, or applied physics as early as possible (either at initial registration or by the end of the first year, if possible). Students who do not begin the lower-division requirements during their first year will have difficulty completing the program within four years. Transfer students may also have problems completing the program within the usual time, depending upon whether they took equivalent courses at their previous institutions. The department adviser works closely with students interested in pursuing the major to ensure that they begin the program immediately and follow the appropriate steps toward its completion.

High school students coming directly to UCSC should emphasize their mathematics preparation with the expectation that they will take calculus in their first quarter at UCSC in order to concurrently take the Physics 5 series, calculus-based physics for physics majors.

Students transferring to UCSC as junior physics, astrophysics, or applied physics majors should have completed three quarters of introductory calculus-based physics with laboratory and three quarters of calculus. It is also desirable to have an introductory course in modern physics as well as mathematics courses in linear algebra, vector calculus, and differential equations. The Physics Department advises each junior transfer student individually upon their arrival.

Graduate Programs

The Physics Department offers graduate programs leading to the master of science (M.S.) and/or the doctor of philosophy (Ph.D.) degrees. In the first year of study, Ph.D. students are expected to take two core graduate-level courses per quarter, including the courses required for the Ph.D. degree (210, 212, 214, 215, 216, 219) and other courses specific to the student's field of interest. All first-year students also take 205, Introduction to Research. All graduate students also attend a weekly colloquium, 292. Each student has a faculty adviser who helps to determine which courses are most appropriate, taking into account the student's background and interests. The student-faculty ratio is low so that M.S. and Ph.D. students can work closely with faculty and pursue programs that fit their individual needs. Research is currently conducted in theoretical and experimental particle physics, theoretical and experimental condensed matter physics (including materials physics and biophysics), and in theoretical and experimental high-energy astrophysics (including cosmology). After passing a written qualifying examination, Ph.D. students pursue independent research leading to an oral examination and completion of a doctoral dissertation.

Students may obtain a master's degree through course work (eight physics graduate courses) and submission of an approved thesis. The thesis may be waived by passing four sections of the written Ph.D. qualifying examination. Master's candidates are encouraged to write a research thesis and may do so in any of the research fields in the program, thereby developing laboratory and computational skills in areas such as electronics design, computer simulation and visualization, cryogenics, X-ray scattering, complex novel materials and devices, or materials science. Each M.S. student is assigned a faculty adviser who helps to design a course work plan suited to the interests of the student.

Physics students and faculty use a number of UCSC research facilities (described at the beginning of this section and elsewhere in this catalog): the Santa Cruz Institute for Particle Physics (SCIPP) and Lick Observatory (headquartered at UCSC). There is strong interaction with other disciplines, especially astronomy and astrophysics, biology, chemistry, Earth sciences, electrical engineering, and mathematics. Proximity to the Stanford Linear Accelerator Center and the Stanford Synchrotron Radiation Laboratory provides additional local research opportunities. UCSC faculty and graduate students also participate in research programs at CERN in Geneva, Los Alamos, Oak Ridge National Laboratory, NASA Ames, NREL, Lucent, Xerox, IBM, Bell Labs, and other national and international laboratories.

Application materials and brochures describing the physics M.S. and Ph.D. graduate programs in more detail may be obtained by visiting our web site at http://physics.ucsc.edu/ or by contacting the Division of Graduate Studies at http://graddiv.ucsc.edu.

Five-year B.S./M.S. program

The new five year combined B.S./M.S. in physics program provides highly motivated undergraduate majors the opportunity to earn a M.S. degree in five years. The program provides the additional level of preparation and experience that students need to pursue careers in industry and government. Students in the B.S./M.S. physics program can pursue concentrations in materials and device physics, energy and the environment, computational physics, finance and economics, and medical biophysics. Students apply to be admitted to the B.S./M.S. program, in consultation with their faculty or undergraduate advisor, no later than the end of the second quarter of the junior year. To be accepted to the program, students will need to have demonstrated solid performance in general and in the major, as demonstrated by: 1) a G.P.A. in physics courses of at least 3.0; 2) an overall G.P.A .of at least 3.0; and 3) a recommendation from a faculty member attesting to the student's

promise for the M.S. degree in physics.

Applied Physics majors are strongly advised to take Physics 139A as one of their electives. The Five-year B.S./M.S. program is not suitable for Physics Education Majors.

Course Requirements

All students in the 5-year BS/MS program will be expected to take a core set of four physics courses, including:

PHYS 212. Electromagnetism I;

PHYS 215. Introduction to Non-Relativistic Quantum Mechanics;

PHYS 216. Advanced Topics in Non-Relativistic Quantum Mechanics

PHYS 219. Statistical Physics;

plus four electives in the concentration areas described below. Typically, at least one of these electives will be another physics graduate course. One of the elective courses can be an upper-division undergraduate course upon approval of the faculty coordinator and Graduate Committee.

Two of these elective courses can also serve to fulfill the elective requirement for the B.S. degree.

Materials and Device Physics

This concentration prepares students who are interested in pursuing industrial jobs in the areas of materials science, semiconductors, and optoelectronic devices.

Elective courses include AMS 205A, CHEM 261, CHEM 269, CE 218, CE 218L, EE 211, EE 223, EE 224 EE 225, EE 231, PHYS 231, PHYS 232, PHYS 233, PHYS 242.

Energy and the Environment

This concentration prepares students who are interested in pursuing industrial or government jobs in the areas of sustainable-energy technologies, environmental and climate change and scientific policy related to these areas.

Elective courses include CHEM 268, CHEM 269, EPS 220, EPS 254, EPS 272, EPS 280D, ECON 250, ECON 259B, ENVS 271, PHYS 233, PHYS 242.

Finance and Economics

This concentration prepares students who are interested in pursuing industrial or government jobs in the areas of finance, monetary policy, and economics.

Elective courses include AMS 205A, ECON 200 ECON 202, ECON 209A, ECON 209B, ECON 210A, ECON 210B, ECON 216, ECON 217, ECON 212, ECON 221A, ECON 221B, ECON 223, ECON 234, ECON 235, ECON 236, ISM 205, ISM 230, ISM 245, PHYS 242.

Computational Physics

This concentration prepares students who are interested in pursuing industrial or government jobs in the areas related to using computational methods to solve applied problems as well as computer-based visualization methods for data presentation. Students interested in computational methods in biology could also consider the concentration in medical biophysics.

Elective courses include AMS 215, BMSE 205, BMSE 211, BMSE 230, BMSE 203L, CHEM 265, CE 215, CS 203, CS 210, CS 211, CS 240, CS 261, PHYS 242.

Medical BioPhysics

This concentration prepares students who are interested in pursuing industrial and hospital jobs in the areas of medical technology, biomolecular engineering, and biophysics.

Elective courses include AMS 215, BMSE/CHEM 255, BMSE 205, BMSE 215, BMSE 220, BMSE 220L, BMSE 222, BMSE 230, BMSE 203L, BMSE 250, BMSE 250L, CHEM 200A, EE 212, MCDB 200B, PHYS 180.

Course Schedule

Year	Fall	Winter	Spring
4th (sr)	Elective*	Elective*	PHYS 219
			Elective*
5th	PHYS 212	PHYS 215	PHYS 216
	Elective*	Elective*	Elective*
	Thesis	Thesis	Thesis

Students may find it helpful to start their master's thesis during the summer at the end of their fourth year.

*Alternate quarters for completing the four electives

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Politics

2014-15 General Catalog

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Program Description

In describing the department and major at UCSC, the term politics (rather than political science or government) is used because the study of political life requires a far more inclusive approach than that which is associated with conventional political science methods, and because politics happens in places other than governments. More specifically, the study of politics is the study of the way human communities shape and share a common life through their institutional practices, ideas, interests, and expectations. It looks at the way collective decisions are made and at the obstacles citizens meet as they try to forge a shared and just life. Courses address issues central to public life, such as democracy, power, freedom, political economy, social movements, international law and conflict, institutional reforms, and how public life, as distinct from private life, is constituted.

A major in politics is appropriate for students interested in careers in law, journalism, or teaching; in political and governmental work from local to international settings; and in corporations dealing with global issues. Many UCSC politics graduates have also gone on to do advanced work in distinguished graduate and professional schools. Others have found active and challenging careers in business and community organizing. Still others have turned to scholarship and writing. But regardless of career direction, the most significant purpose of the politics major is to help educate a reflective and activist citizenry capable of sharing power and responsibility in a contemporary democracy.

The study of politics is a critical part of a liberal arts education. Since political issues and practices are embedded in and reflective of the whole experience of a community, the study of politics can constitute the center of a broad-based course of study drawing on history, sociology, anthropology, philosophy, economics, literature, and law.

The programs offered by the UCSC Politics Department are designed to acquaint students with a broad range of issues studied by those in the field. The department offers an undergraduate major, a minor, a combined Latin American and Latino studies/politics major, and a doctoral degree. The Politics Department also houses a program in legal studies; see the Legal Studies Department, for details.

UCSC politics students have many opportunities for field work and for internship placements. Students are encouraged to develop their own extensive independent research projects.

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Politics faculty members give students individual attention to help them in their studies. Faculty members are firmly committed to the value of a liberal arts education, but they are also actively engaged in programs of research and writing. The research interests of the faculty range from the theory of justice to the problem of war, from campaign strategy to relations between the rich and the poor countries of the world.

No specific courses at the high school level are required for admission to the major in politics at UCSC. Courses in history, literature, philosophy, and the social sciences, whether taken at the high school or college level, are appropriate background and preparation for the politics major.

Requirements of the Major

Two lower-division politics courses. All students are required to complete and pass two courses from those numbered 1 through 79, as a prerequisite to upper-division courses in politics and prior to declaring the major. These courses are normally taken during the first year.

A student who has not been able to satisfy the pre-declaration requirement (a passing grade in two politics lower-division classes) may petition the department for an exception. The letter of petition must explain and document the circumstances that might justify an exception. The department will consider the request and notify the student of its decision within two weeks of receiving the petition or within 10 days of the start of the following quarter, whichever is later.

Four upper-division politics core courses. The following four groups of courses constitute the core of the politics major. Four courses are required: two courses from one group, one course from a second group, and one course from a third group. In general, upper-division courses are not recommended for freshmen.

Theory

105A Ancient Political Thought

105B Early Modern Political Thought

105C Modern Political Thought

U.S. Politics

120A Congress, President, and the Court in American Politics

120B Society and Democracy in American Political Development

120C State and Capitalism in American Political Development

Comparative

140A Politics of Advanced Industrialized Societies

140C Latin American Politics

140D Politics of East Asia

International

160A International Politics

160B International Law

160C Security, Conflict, Violence, War

160D International Political Economy

Five upper-division politics electives. Five additional upper-division politics courses, one of which may satisfy the comprehensive requirement described below.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement for politics majors is satisfied by

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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completing any three of the four required core courses. The politics core course list is detailed above in the major requirements.

Comprehensive Requirements

The comprehensive requirement in the Politics Department can be satisfied in any of the following methods:

- Senior Seminar: Successful completion of a politics senior seminar (190-series) that includes the writing of an extensive paper (no less than 15 pages) with a substantial research content. To enroll in a specific 190 seminar, students must have successfully completed the prerequisite courses listed in the seminar's catalog course description.
- Additional Elective: Successful completion of one additional politics upper-division elective that includes a substantial writing component comparable to a paper for a senior seminar, either as part of the existing course requirements or added with the approval of the instructor. The student must receive prior approval from the instructor and enroll in a two-credit independent study, Politics 199F as part of this option.
- Graduate Seminar: Successful completion of a politics graduate seminar (enrollment in which is contingent on the written recommendation of two politics faculty) that includes the writing of an extensive paper (no less than 15 pages) with a substantial research content.
- Thesis (2-3 quarters): Successful completion of a senior thesis (Politics 195A-B-C) of a minimum of 50 pages. This option is for students interested in working on original research and writing under the supervision of a politics faculty member.

Independent and Field Studies

Students may petition the department to substitute only one upper-division independent study or field study toward the elective requirement in the Politics major. UCDC and UCSAC internships are exempt from this limit.

Honors

Honors in the politics major are awarded to graduating seniors, based primarily on a review of grades and narrative evaluations, whose academic performance is judged to be consistently excellent by a committee of politics faculty. Highest honors in the major are reserved for students with consistently outstanding academic performance.

Requirements of the Minor

All students are required to complete and pass one lower-division politics course from those numbered 1 through 79, as a prerequisite to upper-division courses in politics and prior to declaring the minor. Additionally, five upper-division politics courses are required. Of these, four are to be selected from the core courses: two from one subfield and two from another subfield; these courses are listed above. The fifth course is to be selected from courses numbered 101-199.

General Undergraduate Information

Combined major. The Politics Department offers a combined major with the Latin American and Latino Studies Department. Requirements may be reviewed in the Latin American and Latino Studies section of the catalog.

Double majors. The department accepts proposals for double majors. A student pursuing a double major meets the full requirements of the politics major as well as the full requirements of the other major subject.

Advising. Declaring the major in politics is a four-step process: 1) complete and pass two lower-division politics courses (numbered 1-79) with a grade of C or better; 2) attend a declaration orientation workshop, 3) meet with your faculty adviser, and 4) meet with the politics undergraduate adviser. Each student meets with an assigned faculty adviser to discuss an intended program of study, including its breadth and purpose. The faculty adviser may suggest additional courses so that the student can achieve greater breadth or

concentration. Students are encouraged to select related courses from other departments which complement their interests in politics.

Course credit from other institutions. Courses from another institution may be considered only if they appear on the student's Transfer Credit Summary. Students who wish to substitute courses taken elsewhere for the Politics Department's requirements should discuss the procedure with the department adviser.

Transfer students. A student transferring to UCSC must meet with the politics undergraduate adviser as early as possible to discuss declaring the major and course enrollment. This will ensure a smoother transition. Students should bring a copy of their UCSC Transfer Credit Summary which may be printed from the student portal.

A junior transfer student may satisfy the requirement for one of the two lower-division courses by completing an equivalent course in a political science or equivalent department with a grade of C or better. Courses from another institution may be considered only if they appear on the UCSC Transfer Credit Summary.

Program Learning Objectives. Upon completion of the major, students will have met the following objectives. 1. Understand the origins, development and nature of political institutions, practices, and ideas; 2. Place particular political phenomena in broader historical, cross-national, cross-cultural and theoretical context; 3. Demonstrate familiarity with various theoretical approaches to the study of politics, and their application in different geographic and substantive areas; 4. Critically evaluate arguments about political institutions, practices and ideas based on logic and evidence; 5. Develop and sustain coherent written and oral arguments regarding political phenomena, theories, and values based on appropriate empirical and/or textual evidence and logic.

Graduate Program

The Faculty

The UCSC Politics Department's faculty provides a distinctive mix of senior scholars whose work has led the field toward interdisciplinary and engaged research, and junior scholars whose work represents the diverse cutting edge of U.S. and international political research. A group of affiliated graduate faculty extends the program's intellectual breadth and the range of the course offerings.

The department enjoys several areas of special strength, including American political development and a focus on the social foundations of democratic politics and democratization; the study of varieties of capitalism and post-communist politics and economy; the politics of Southeast Asia and Latin America; the study of race and politics; the politics of language; post-colonial theory and nationalist discourse; early modern political thought; and informal and translocal political organization.

The Curriculum

The Politics Department is impressed by the fact that many of the best studies of politics today disregard the conventional boundaries of the political science's disciplinary subfields. Therefore, the core graduate curriculum and qualifying examination process are structured around four interrelated themes central to political inquiry. Each of these areas of emphasis focuses, in a different way, on the relations among material life, institutional authority, collective mobilization, and political vision at all levels of politics.

Political and Social Thought. Brings together the history of political thought; contemporary social and critical theory;' and the contributions of legal and institutional analysis of various kinds. This area of inquiry emphasizes the critical study of political practices that are experienced or understood as in some way limiting, oppressive, or wrong. The work of political and social theory as we see it is to transform our understanding of these practices; to see their contingent conditions; and to articulate the possibilities of governing ourselves differently.

States and Political Institutions. Emphasizes the comparative and international study of political institutions as instruments of collective decision-making and action. This area of inquiry focuses on the state and on transnational, subnational, and regional political institutions. In this area, we emphasize historical patterns of institutional development in

relation to domestic political conflict and the changing contours of international political economy and patterns of conflict and cooperation among states.

Political Economy. Focuses on the relationship between states, markets, and societies. This area of inquire explores the various understandings of political economy that have emerged within a number of different theoretical perspectives, including Marxism, realism, and liberalism. At subnational, national, and supranational levels, this area seeks to understand political economy outcomes as the result of the mutual interactions between political institutions, societal interests, and ideas and norms.

Political and Social Forces. Concerns the interaction of social forces and political forces, drawing upon the work of scholars focused on social mobilizations and histories. Accordingly, this area of inquiry focuses on the articulation and organization of political interest and identities. This area studies the mutual interaction of these interests and identities with structure (states, discourses, public policy, and the law) uniting substantive and theoretical concerns across regional, national, and global politics.

The politics graduate curriculum works critically upon and within conventional social science research and also ranges beyond its methods, drawing upon cultural studies, historical sociology, and history as they inform the study of politics. Students in the politics graduate program also work with faculty in other distinguished departments at UCSC, including literature, history of consciousness, history, Latin American and Latino studies, environmental studies, philosophy, international economics, and feminist studies.

Scholars and students in the program emphasize the articulation of important questions prior to the development of methods for grappling with them, while recognizing the importance of appropriate methodological tools for doing meaningful political research.

Teaching

Throughout its history, the department has been strongly committed to undergraduate teaching. The graduate program offers graduate students the opportunity to work closely with faculty and undergraduates as teaching assistants. The Politics Department's faculty is committed to "the teaching of teaching": its training of college educators emphasizes the importance of civic education in undergraduate instruction.

See our web site, http://politics.ucsc.edu, for details about the policies for admission to graduate standing as well as the application, and information about financial-support opportunities. For more information, refer to the Graduate Division web site.

Ph.D. Program Requirements

The graduate curriculum in politics includes seven stages: 1) three core seminars plus Politics 201, *Logics of Inquiry*; 2) five other graduate-level Politics Department courses; 3) three additional graduate-level courses that may be from politics or other departments, along with further training as appropriate in language and methodology; 4) teaching assistant seminar and graduate colloquia; 5) a qualifying examination consisting of written and oral parts; 6) the research and writing of the dissertation; and 7) its oral defense.

Note: Please check with the department office for updated listings of course offerings and the appropriate year in which to undertake specific electives.

Designated Emphasis

We also offer a Designated Emphasis in Politics for graduate students of other UCSC programs. This notation recognizes the scholarly expertise obtained after completion of the designated emphasis requirements.

M.A. Degree

Our program is intended to lead to a Ph.D. in politics; there is no separate master of arts (M.A.) program. All curricular requirements are aimed at preparing students for timely and successful completion of a doctoral dissertation. However, all students will be eligible to receive an M.A. upon successfully passing the coursework requirements and completing an acceptable 30-page, journal-quality paper, either within the context of a course or independently, although not the written qualifying exam.

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Porter College

2014–15 General Catalog

College Office
(831) 459–2071
http://porter.ucsc.edu/

Course Descriptions

For college description and list of faculty, see Colleges.

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Portuguese

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Course Descriptions

Program Description

Students interested in acquiring proficiency in Portuguese may choose to enroll in either of two accelerated introductory tracks: courses 1A-B are designed as a two-quarter sequence for students who have no previous experience with the Romance languages; courses 60A-B comprise a two-quarter sequence designed for students who have a strong background in the Romance languages (typically Spanish) or some previous rudimentary knowledge of Portuguese. Both tracks are accelerated. A second-year Portuguese sequence, also accelerated (courses 65A-B), follows the first-year sequence, and is offered over two quarters. The completion of this sequence fulfills the two-year language requirement for study abroad programs.

The program is aimed at enabling students to gain proficiency in listening comprehension, speaking, reading, and writing. Instruction takes place in Portuguese from the beginning and draws heavily on Brazilian culture through popular music and cinema.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

Students may apply to spend time either in Rio de Janeiro, Brazil or in Salvador (Bahia) through the Office of International Education (OIE). Courses taken abroad can, with approval of an adviser, be applied to major requirements. For a list of current programs and requirements, visit their web site, http://oie.ucsc.edu. For information on credit applied to a major, contact the appropriate department.

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- Community Studies

Psychology

2014-15 General Catalog

273 Social Sciences 2 Building
(831) 459-2002
http://psychology.ucsc.edu

Faculty | Course Descriptions

Program Description

Psychology majors at UCSC are introduced to theory and scientific research in the field. Students begin with lower-division courses that include introductory psychology, precalculus, statistics, and introduction to developmental psychology. Majors take a total of eight upper-division courses. These include Psychology 100, Research Methods in Psychology; six courses in the four areas of psychology—developmental, cognitive, social, and personality psychology; and one upper-division course outside the major from an approved list.

Cognitive psychology focuses on topics such as perception; brain and behavior; motor control; learning and memory; thinking, feeling, and emotions; psycholinguistics; and computational modeling. Our cognitive psychologists extend traditional boundaries in the study of cognition to encompass bodies, physical environments, sociocultural contexts, and information technologies. Social psychology addresses topics such as persuasion and influence, motivation, group processes, intergroup relations, psychology and law, and social justice. Developmental psychology is concerned with processes of cognitive, language, social, emotional, and personality development across the life span. Additionally, both developmental and social psychology are concerned with issues of diversity including ethnicity, culture, gender, income, and family structure. Personality psychology focuses on person-centered processes including attachment, life stories, and adjustment.

In addition to the general psychology major, an intensive major (described below) is also available. The department also administers a major in cognitive science (see separate listing in this catalog under cognitive science). Students primarily interested in clinical and counseling psychology should realize that training in these areas does not occur at the undergraduate level but requires professional training through an advanced degree. UCSC does not offer advanced degrees in clinical or counseling psychology.

Students are encouraged to carry out research projects. Interested psychology majors will find research opportunities in courses, as research assistants in faculty members' research programs, or through faculty-sponsored independent study. This research may be carried out in specialized research laboratories or in the field. Students usually join an ongoing project in which a faculty member is engaged. Students who are especially interested in a career involving empirical research should become involved in a professor's ongoing research by their junior year. Some recent research topics include "Learning in Infancy," "Parent-Child Conversations," "Reading Aloud," "Learning About Psychology Through

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- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
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- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

Conversation," "Complexities of Privilege," and "Program Evaluation of Biophysics Course."

Preparation for the Major

Students interested in pursuing the psychology major should complete Psychology 1, 2, and the precalculus mathematics requirement. Psychology 1 and 2 should be taken for a letter grade. After completing these three lower-division required courses, students may petition to declare the psychology major subject to the grade requirement described in the Qualification to the Major section below.

High school students considering psychology as their university major find that the best preparation is a solid general education in English writing, mathematics at least through precalculus, biological and physical sciences, and social sciences.

Transfer Students

Junior transfer students should express an interest in psychology on their UCSC application for admission.

It is expected that prospective transfer students will have completed most, if not all, of the lower-division requirements. The lower-division requirements include Psychology 1, 2, 10, and AMS 2 or 6 (or equivalent). The psychology faculty recommends that all lower-division requirements be completed by the end of the sophomore year. In order to declare the major, transfer students must meet the grade requirement described in the Qualification to the Major section below.

Students who want to fulfill requirements with courses taken at other colleges must petition for the substitution of their transfer courses at an orientation session or at an appointment with the department adviser. Psychology 100, Research Methods in Psychology, must be taken at UCSC. Students planning to transfer to UCSC should check with the advising office of their present college, or refer to www.assist.org.

Transfer students are strongly encouraged to speak with an academic adviser at the Psychology Department office prior to enrolling in classes in order to determine their status and begin the actual declaration of major process.

General Psychology Major

Twelve courses are required for the general major: four lower-division courses in preparation for the major and eight upper-division courses. The lower-division courses are prerequisites for virtually all of the upper-division courses and should be completed as early as possible, or by the end of the sophomore year. Some upper-division courses have additional prerequisites.

Lower-Division Requirements

Psychology

1 Introduction to Psychology (or equivalent)

2 Introduction to Psychological Statistics (or equivalent, including Applied Mathematics and Statistics 5 or 7/L)

10 Introduction to Developmental Psychology

Applied Mathematics and Statistics 2 or 6, Precalculus for Statistics (or equivalent, including Applied Mathematics and Statistics 2 or 3 or 6 or Mathematics 3 or 4 or 11A)

Psychology 20, 40, and 60 are strongly recommended.

Upper-Division Requirements

Students must complete at least eight upper-division courses (a minimum of 42 credits), including appropriate substitutions noted below. The courses include Psychology 100, Research Methods in Psychology; two courses from each of any two of the following subfields; one course from the remaining two subfields; and one course from outside the major.

Psychology 100, Research Methods in Psychology

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

Faculty

Course Descriptions

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Appendixes

Archive of General Catalogs

Nondiscrimination Statement

Search the Catalog

Developmental (courses numbered 101–119)

Cognitive (courses numbered 120–139)

Social (courses numbered 140–159)

Personality (courses numbered 160–179)

Upper-division courses and their catalog descriptions are grouped within each of the subfields. At least one upper-division seminar course must be completed; these courses are identified within their catalog description by the phrase "satisfies seminar requirement." No more than two psychology courses numbered 183, 191A, 193, 194, and 195 may be used toward the upper-division requirements; however, these courses cannot be substituted for 101–179 courses in the same subfield as each other, or in a subfield in which the student has not taken a course in the 101–179 series. The eighth upper-division requirement must be a five-unit UCSC course outside of psychology chosen from a list of courses approved by the department. These lists of approved non-psychology courses are posted on the Psychology Department web site. At least six of the eight courses (including Psychology 100, Research Methods in Psychology, must be taken through the psychology program at UCSC, not transferred from elsewhere. After all substitutions have been made, students must satisfy the fundamental requirement that they take at least one upper-division UCSC psychology course from each of the four subfields.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) requirement. The DC requirement in psychology is satisfied by completing Psychology 100, Research Methods in Psychology, and a seminar. Seminar courses are designated in the campus catalog with the text "satisfies seminar requirement."

Program Planning Notes

Because some upper-division courses have additional prerequisites, students should read the descriptions of the upper-division courses carefully, noting the prerequisites for courses of interest to them.

Psychology Major Planners

Following are two recommended academic plans for students to complete during their first two years as preparation for the psychology major. Plan One is a suggested guideline for students who are committed to the major early in their academic career. Plan Two is for students who are considering the major or who need more preparation. Students should note that Applied Mathematics and Statistics 2 or 6 is a requirement for the major and is a prerequisite for Psychology 2 and Psychology 100. Courses 20, 40, and 60 are recommended electives and are prerequisites for some upper-division psychology courses.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	AMS 2 or 6	PSYC 2	PSYC 10
	PSYC 1	PSYC 40 (recommended)	PSYC 60 (recommended)
2nd (soph)	PSYC 100	(Begin upper-division coursework)	
	PSYC 20 (recommended)		

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	MATH 2		PSYC 1
2nd (soph)	PSYC 40	PSYC 2	PSYC 10
	AMS 2 or 6		PSYC 60
3rd (jr)	PSYC 100	(Begin upper-division coursework)	

The Intensive Psychology Major

The intensive major is an option that any psychology major may choose to undertake. The intensive major would be advantageous for a student intending to go on to a graduate program in any area of psychology. Students intending to take the intensive major should declare this on their proposed study plan during the junior year, outlining their plan for completing the requirements. The intensive major requires 18 courses.

Requirements for the Intensive Major

Lower-Division Requirements

Psychology 1 Introduction to Psychology (or equivalent)

Psychology 2 Introduction to Psychological Statistics (or equivalent, including Applied Mathematics and Statistics 5 or 7/L)

Psychology 10 Introduction to Developmental Psychology

Applied Mathematics and Statistics 2 or 6 Precalculus for Statistics (or equivalent, including Applied Mathematics and Statistics 3, or Mathematics 3 or 4 or 11/A)

Upper-Division Requirements

Fourteen upper-division courses are required for the intensive major. These courses must include Psychology 100 and two courses from each of the following four subfields, one of which must be a seminar:

Developmental (courses numbered 102-119)

Cognitive (courses numbered 120-139)

Social (courses numbered 140-159)

Personality (courses numbered 160-179)

No more than two psychology courses numbered 183, 191A or 193, may be used toward the upper-division requirements; however, these courses cannot be substituted for 101-179 courses in the same subfield as each other, or in a subfield in which the student has not taken a course in the 101-179 series.

Psychology 181, Psychological Data Analysis, Psychology 182, Advanced Research Methods, or an equivalent course approved by the department

Two quarters of Psychology 194, Advanced Research or 195, Senior Thesis

Two upper-division courses from one or more related areas outside of psychology from lists of courses pre-approved by the Psychology Department and posted on the department's web site, http://psychology.ucsc.edu. These two courses will not count toward the nine upper-division requirements listed above. (These courses may not include psychology courses cross-listed with other programs or taught by psychology faculty.) These courses also cannot be counted twice in cases of double majors or minors.

Cognitive Science Major

The Psychology Department is the administrative home for the cognitive science major. Requirements for the cognitive science major may be reviewed under its separate entry in this catalog.

Qualification to the Major

Students may petition to declare the psychology major once they have completed three lower-division courses: the mathematics requirement, Psychology 1, and Psychology 2 (or Applied Mathematics and Statistics 5 or 7/L). To be admitted to the major, students must demonstrate the attainment of foundational skills by receiving a grade of at least B- in (a) Psychology 1 and (b) Psychology 2 (or Applied Mathematics and Statistics 5 or 7/L). Students who pass these courses but do not achieve the required level of proficiency (i.e., who receive a grade of C, C+, or P) have alternative means of demonstrating foundational skills by: (a) completing Psychology 10 with a grade of B- or higher if the student did not receive a B- or higher in Psychology 1; (b) completing Applied Mathematics and Statistics 5 or 7/L with a grade of B- or higher if the student did not receive a B- or higher in Psychology 2; or (c) completing Psychology 2 with a grade of B- or higher if the student did not receive a grade of B- or higher in Applied Mathematics and Statistics 5 or 7/L.

Every student who satisfies qualification to the major and who petitions to declare the major by the declaration deadline will be admitted to the major. Students who satisfy the qualification to the major but who petition to declare the major after the deadline will be considered on a case-by-case basis for admission to the major; admission is not guaranteed. Students who did not satisfy the major admission requirements but believe that there are extenuating circumstances concerning their performance in the foundational courses may file a written appeal describing these circumstances; however, such appeals are rarely granted.

Comprehensive Requirement

UCSC requires that every student satisfy a senior exit/comprehensive requirement prior to graduation. Psychology students will satisfy this requirement by receiving a passing grade in one of our seminars. Passing a seminar course is also required for the major. Courses that meet this requirement are designated as seminars in the campus catalog as “satisfies seminar requirement.”

Academic Advising

Students are encouraged to approach faculty in their area of interest for further advising no later than the first quarter of their junior year to discuss an upper-division program of study and to plan for graduate training in psychology. As a supplement to academic advising offered by faculty members, the Psychology Department has an advising office located at 273 Social Sciences 2 Building, (831) 459-2002. The adviser assists students in obtaining information regarding major requirements and petitions, course planning, substitution of transfer courses for advance enrollment, careers, and graduate schools. Students are encouraged to take advantage of the advising office throughout their college career.

Senior Thesis

Students with adequate substantive and methodological preparation and a consistent record of strong academic performance may be eligible to apply to write a senior thesis. Students should initiate plans for a thesis no later than the first quarter of their senior year. Most faculty prefer to sponsor senior theses that are integrated with faculty research, so students are encouraged to talk with faculty before choosing a senior thesis topic. Information and applications are available in the department office, 273 Social Sciences 2.

Honors

Honors in the psychology major are awarded to graduating seniors whose academic performance is consistently excellent (i.e., GPA in psychology courses is 3.6 or higher) by a committee of psychology faculty. Highest honors in the major are reserved for students with consistently excellent academic performance and an honors-level senior thesis.

Psychology Field-Study Program

The Psychology Field-Study Program provides qualified students an opportunity to apply classroom learning to direct experience in a community agency. Each year about 200 students develop new skills and clarify personal and professional goals by working as interns in schools, corporations, law enforcement agencies, research organizations, mental health services, and other social service agencies where they are supervised by professionals. Psychology faculty members sponsor the students' field study helping them to integrate their field experience with course work and guiding them in related academic projects.

The two-quarter program is open to junior and senior psychology majors who must apply at least one quarter in advance. There are information meetings and individual meetings to help students develop a learning plan, select a placement, and choose an academic project. Application information is included in the information meetings.

Graduate Program

The psychology program offers three areas of specialization leading to the doctoral degree: cognitive, developmental, and social psychology. The program does not offer courses, training, or supervision in clinical psychology. The program prepares students for research, teaching, and administrative positions in colleges and universities as well as for positions in schools, government, and other public and private institutions. Each student is primarily associated with one of the three research areas and participates in the courses and research forums sponsored by the faculty in that area. The program requires full-time enrollment as a graduate student. Although applicants for a master's degree are not accepted, students in the doctor of philosophy (Ph.D.) program may obtain a master of science (M.S.) degree by fulfilling specific requirements.

The cognitive graduate program focuses on "Minds, Brains, and Beyond," offering a blend of traditional topics and new directions in cognitive science. With core strengths in language, memory, and perception, we are exploring topics such as: faces, speech, body movements, and embodied cognition; how forgetting helps memory; metaphors and analogies; cognitive aesthetics; natural language use in conversation; cognition and technology; human performance and information processing. Our graduates find careers in academia, tech industries, and more.

Graduate work in developmental psychology addresses the integration of individual, interpersonal, and cultural processes of development. Our faculty study these developmental processes in diverse communities and institutions, including families, peer groups, schools, museums, and close relationships. We use a mixture of quantitative and qualitative methods. Some research interests of the faculty include: learning by observing, overhearing, and participating; infants' and children's cognitive and language development; conversation, narrative, and memory sharing; academic achievement and career aspirations; family/peer/school links; gender development and discrimination; development of personal and social identities; intergroup relations; ethnicity, culture, and development; social policy and educational practice.

The social psychology graduate program at UCSC has a unique mission and focus. We use Kurt Lewin's model of "full-cycle" social psychology (theory-application-action) to study a broad range of topics related to social justice. In this way, knowledge gained in action-oriented research leads, in turn, to the development of new theory. Accordingly, our students learn to apply psychological theories and data to the analysis and solution of a wide range of social problems. We use a variety of research methods to examine justice-related issues in different cultural, political, and policy contexts. Our students are trained in laboratory, field, and survey methods; they are encouraged to attend to issues of race, class, sexuality, ethnicity, gender, and physical ableness; and, in addition to traditional social psychological approaches, are steeped in critical theoretical perspectives such as feminist theory. Our graduates go on to successful careers in academia as well as in community, government, and non-profit settings. Our approach to research and training, combined with the quality and competencies of our faculty, make our program among the nation's best for the psychological study of social justice issues. Current faculty research interests include aggression and trauma; educational access; feminisms; institutional analysis; intersectionality; narrative and identity; political conflict, violence, and peace-

building; political psychology; poverty and economic justice; power and oppression; psychology and law; sexual identity and society; sexuality; social identity; social policy analysis; and structural inequality.

Graduate students in psychology may obtain a designated emphasis on the psychology Ph.D. diploma indicating that they have specialized in feminist studies and/or Latino American and Latino Studies (LALS) if they meet requirements spelled out by a committee composed of psychology and feminist studies faculty, or psychology and LALS faculty.

Details on the policies for admission to graduate standing and requirements for the Ph.D. degree, as well as the online application can be found on the Division of Graduate Studies web site. The department's graduate program brochure, and faculty research are available on the department web site.

Students enrolled in the psychology graduate program will complete a first-year and second-year research project. All graduate students must enroll and participate in the colloquium series each quarter (Psychology 230 for cognitive, Psychology 242 for developmental, and Psychology 231 for social). First-year students must take two courses in statistics (Psychology 204 and Psychology 214A) and a two-quarter proseminar sequence during fall and winter quarters. (Psychology 224A and 224B for cognitive, Psychology 244A and 244B for developmental, and Psychology 211A and 211B for social.) Students are also required to serve as a teaching assistant for at least two courses during their graduate career (one of which must be Psychology 10 for developmental and Psychology 40 for social).

Additional requirements for the cognitive area include: three advanced cognitive graduate courses, a graduate course in developmental psychology, a graduate course in social psychology, and a substantive advanced course in a discipline other than psychology.

Additional requirements for the developmental area include: Psychology 225A, Psychology 225B, Psychology 246, one other advanced developmental graduate seminar course, a graduate course in cognitive psychology, a graduate course in social psychology, and a substantive advanced course in a discipline other than psychology. Developmental graduate students are also required to complete a professional practicum between the end of their second year and end of their third year.

Additional requirements for the social area include: Psychology 210, Psychology 248, Psychology 249 or Psychology 261, one other advanced social graduate seminar, a graduate course in cognitive psychology, a graduate course in developmental psychology, and a substantive advanced course in a discipline other than psychology.

Students are required to take their graduate courses as Satisfactory/Unsatisfactory.

After satisfying the formal course and research requirements, psychology graduate students must take an oral examination to qualify as a candidate for the Ph.D., ideally by the end of their third year. The qualifying examination is intended to assess a student's knowledge of psychology and competence to conduct the dissertation research. For the qualifying examination, students write a major paper that reflects a conceptual analysis of their main research area, prepare a list of readings representative of their expertise in three areas of psychology, and satisfactorily complete an oral qualifying examination.

Within a year of advancing to candidacy, students will prepare a written dissertation proposal that should demonstrate the student's in-depth knowledge of some research topic, along with a detailed outline of the empirical research to be conducted for the dissertation. The student's dissertation committee reviews the proposal, and the student will orally defend the proposal for approval by the committee. After the final draft of the dissertation has been completed and submitted to the faculty committee members, students must defend their thesis in an oral exam.

The Ph.D. degree is awarded upon successful completion and submission of the dissertation.

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Queer and Sexuality Studies

2014-15 General Catalog

416 Humanities 1
(831) 459-2461 or 459-2757
fmst@ucsc.edu
http://qss.ucsc.edu/

Program Description

Scholarship pertaining to the critical study of gender and sexuality can be found across a broad range of departments at UCSC. This presence is manifested in a diverse faculty, in course offerings, and in research programs. Courses with queer content can be found across a broad range of departments, programs, and colleges at UCSC.

For more specialization, departments such as Feminist Studies and Literature have sufficient flexibility to allow students to design a course of study within those majors to explore these interests. For students who prefer to take a more self-directed approach, there is the option of designing an individual major.

Research activities are sponsored by the Queer Theory research cluster (a part of the Center for Cultural Studies), the Queer and Sexuality Studies Working Group, and many campus departments and student organizations.

The Lionel Cantú GLBTI Resource Center serves as a clearinghouse for queer activities on the UCSC campus. Each quarter, the center prepares a list of all course offerings with queer content. Information is available at http://queer.ucsc.edu or via e-mail at queer@ucsc.edu.

More information may be obtained from members of the faculty working group: Anjali Arondekar (Feminist Studies), Carla Freccero (Literature, Feminist Studies, History of Consciousness), Irene Gustafson (Film and Digital Media), Marcia Ochoa (Feminist Studies), B. Ruby Rich (Film and Digital Media). Additional faculty contacts: Julie Bettie (Sociology), Benjamin Carson (Music), Sheila Crane (History of Art and Visual Culture), Jody Greene (Literature, Feminist Studies), Herbert Lee (Applied Mathematics and Statistics), Peter Limbrick (Film and Digital Media), Catherine S. Ramírez (Latin American and Latino Studies), Jenny Reardon (Sociology), Lisa Rofel (Anthropology), Danny Scheie (Theater Arts), Daniel Selden (Literature), Elizabeth Stephens (Art).

Please contact Anjali Arondekar in the department of Feminist Studies in the Humanities Division (aarondek@ucsc.edu) for information about course offerings and resources.

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Religious Studies

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Program Statement

Religious studies is not a separate program at UCSC, but students interested in the study of religion can select a degree plan from several majors and complement the requirements from a broad array of courses that focus on religion. Majors particularly appropriate for the study of religion at UCSC include the following: anthropology, history, history of art and visual culture, literature, and philosophy. The Department of History of Art and Visual Culture offers a concentration in religion and visual culture.

Students interested in the study of religion may build an independent program of study by fulfilling the requirements of one of the majors listed above and, under the guidance of a member of the faculty, use elective courses to develop a concentration of study appropriate to their interests and needs. One of the following faculty should be contacted to discuss a course of study in religion at UCSC: Murray Baumgarten (literature), Raoul Birnbaum (history of art and visual culture), Susan Harding (anthropology), Ralph Quinn (psychology), Triloki N. Pandey (anthropology), Cynthia Polecritti (history), and Marilyn Westerkamp (history).

Students seeking information on an individual major in religious studies should contact their college academic preceptor.

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Russian

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Course Descriptions

Program Description

The Language Program offers beginning and intermediate level courses in Russian: Russian 1 and 4, fall quarter; Russian 2, winter quarter; and Russian 3, spring quarter. Students may also select an individual major in Russian studies.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

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Science Communication

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Kresge Annex A
(831) 459-4475
http://scicom.ucsc.edu

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Program Description

The Science Communication (SCIC) Program is a graduate certificate program composed of one track: science writing. Students combine a background in scientific research with a desire to communicate science to the general public. The program focuses on the practice of conceiving, reporting, writing, and editing articles on scientific, medical, environmental, and technological subjects for newspapers and magazines, online news outlets, universities and federal agencies, and special publications directed at general readers. The program in science writing offers intensive training in news, features, multimedia storytelling, profiles and essays, and investigative reporting. Graduates receive a certificate in science writing.

Graduate Certificate in Science Writing

The program accepts 10 students per year. Enrollment in science writing classes is strictly limited to students enrolled in the program. The program consists of one academic year of full-time study, beginning in fall quarter, followed by a full-time summer internship lasting a minimum of 10 weeks. *Science Notes*, the UCSC online science magazine, is produced annually by the graduate students. Please see the current issue and an archive of past issues on our web site, http://scicom.ucsc.edu/.

The program consists of a required sequence of six courses covering the main skills of professional journalism: SCIC 201A, Reporting and Writing Science News; SCIC 201B: The Science Feature; SCI 201C: Profile and Essay Writing; SCIC 201D: Policy and Investigative Reporting; SCIC 201E: Multimedia Science News; and SCIC 202: Writing and Editing Workshop. Assignments in each course are overseen by practicing journalists and editors, and many course projects are published regionally and nationally. In addition, students must complete at least two part-time writing and reporting internships during the academic year at media organizations and news offices, through formal arrangements overseen by the Science Communication Program. The six required courses, plus two course-equivalent internships, constitute the eight courses (40 units) required for the graduate certificate. The final requirement is a full-time professional internship in science journalism or public outreach at a venue approved by the program director, for a minimum of 10 weeks.

Admission to the Science Writing Graduate Program

Students who have an intimate acquaintance with the theory and practice of science, an

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aptitude for writing, and a strong desire to communicate science to the general public are ideal candidates for the program. All applicants must have a prior degree in science or engineering (B.S./B.A., M.S., or Ph.D.) to be eligible. Other admission requirements are: full-time research experience of at least six months duration;official Graduate Record Exam (GRE) General Test scores; and at least three references from faculty or supervisors familiar with the applicant's research and communications skills. Applications and instructions can be found online through the UCSC Graduate Division web site at http://graddiv.ucsc.edu.

Further Information

Details about the science writing graduate certificate program may be obtained from the Science Communication Program office, the web site, or by sending e-mail to scicom@ucsc.edu.

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Social Documentation

2014-15 General Catalog

101 Communications Building
(831) 459-3445
socdoc@ucsc.edu
http://film.ucsc.edu/socdoc

Faculty | Course Descriptions

Program Description

This is a crucial time for the documentary, as traditional sources of journalistic investigation and reporting are dwindling, untested opinions dominate the Internet, veracity is under constant attack, and audiences increasingly must search hard to find reliable perspectives on the world. It is at this moment that the Social Documentation (SocDoc) program has come into being to train the next generation of documentarians in creative and scholarly approaches to experience, representation, and argument. Founded in 2005, the SocDoc program at UCSC taps faculty across the campus to provide students with access to expertise and crosses traditional disciplinary lines in an effort to ground master of arts (M.A.) students in the deepest understanding of subject as well as medium. SocDoc has emerged as an exciting new center of gravity for an innovative new discipline. Our students have earned grants and awards for their thesis documentaries, produced around the globe, in film/video, photography, other digital media, and a range of documentary styles. We don't just tell a story; our students go beyond the story to place individuals in context and struggles in history, deepening the public's understanding of the societies in which we live and with which we connect.

The UCSC Social Documentation (housed in the Film and Digital Media Department) program is a two-year, full-time, graduate-level program leading to an M.A. degree. The program offers students a chance to develop expertise in the understanding and production of social documentaries in film/video, multimedia, photography, new digital media. Students may also work in other documentary mediums related to faculty expertise. Students learn how to translate various scholarly interpretations of social life into effective, accessible, and professional quality media projects.

Upon completion of the program, master of arts degree holders will be qualified to enter documentary-related professions such as documentary directing, producing, or editing. Degree holders may work within industries such as public broadcasting, or in the documentary field, as independent producers and artists, or for archival centers or museums or within organizations committed to issues for which documentaries can advance understanding and change. Degree holders may also choose to pursue a doctor of philosophy (Ph.D.) degree in related fields in the arts, humanities, or social sciences.

The program is designed to provide opportunities for the graduate student who is actively committed to social justice to work on a full-time basis beyond the boundaries of the university. Master of arts candidates build a curriculum around a required set of core

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courses that offer a foundation in the theory and practice of social documentary, elective courses in their substantive area of interest, and the creation of a two-year documentary project that is the final requirement for the degree. Courses and faculty expertise are related to social justice in terms of broad structural and social changes and community-based organizing. Documentaries in the program have called attention to a range of under-recognized communities, problems, and structural inadequacies.

Objectives

The Social Documentation program aims to train its graduates in critical thinking and the use of visual, audio, electronic, and print media, as well as historic presentations and ethnographies, dedicated to the documentation of underrepresented areas of community life. The curriculum concentrates on the analysis of social problems, the creation of a critical approach to the collection and presentation of documentary material, and on the role of effective documentary in social change. For the master's degree, students produce projects of their own: documentaries in film or video; photographic essays (in book, gallery, or cross-platform presentations); multimedia and audio productions; and Internet or other web-platform projects.

Special features of the program include its focus on the study of "ordinary life" and its emphasis on training students to produce original social analysis in broadly representational forms. The course of study includes training in the techniques of appropriate media and systems of representation. The unique emphasis of the Social Documentation program, however, is the acquisition of a level of academic rigor in the chosen subject of focus, an insistence on humanities and social scientific methodologies, a reliance on an ethical process of production that takes its subjects into full account, and a commitment to research in the development of material for extra-academic uses and audiences. Broadcast and theatrical media have increasingly recognized the importance of ancillary distribution through partnerships with pertinent communities of interest, just as the Internet is increasingly utilized for added depth and community interaction on issues. The Social Documentation program aims to prepare documentarians for newly evolving social media landscapes. At the same time, students receive training in the basic theories of social documentation with the aim of applying these theories to the analysis, prioritization, and solution of social problems.

Graduates are expected to generate work that will have an impact on the world outside the academy and to develop an understanding of documentary practices as well as social codes that can form a foundation for future work in their targeted subject area and arena of practice. The master's project, which constitutes the culmination of the two years of study, is to be given a public exhibition or reading, and becomes the springboard for continuing work after graduation.

Requirements

The Social Documentation program has a required core curriculum around which students develop a plan of study. Each student has two advisers, one for creative guidance and the other for topical expertise, who will be involved in designing each student's study and project plans. Full-time enrollment is required.

A total of 72 credits is required to complete the master's degree in social documentation, comprising a combination of seminars on social documentary and social science research designed specifically for the SocDoc students, other courses on campus selected by students individually on the basis of relevance to the proposed project, and cohort courses focused on conceptualizing, executing, and completing the students' social documentary master's projects. There are eight required core courses.

Required courses for the first year are as follows:

- 200 Approaches to Social Documentary
- 202 Practice of Social Documentary
- 208 Social Science Research and Social Representation
- 270 Project Planning

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
- Social Documentation
- Social Sciences
- Sociology
- Spanish and Spanish for Heritage Speakers
- Spanish Studies
- Stevenson College
- Sustainability Studies
- Technology and Information Management
- Theater Arts
- UCDC Program
- Writing Program
- Yiddish

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Required courses for the second year:

- 204 Ways of Seeing and Hearing
- 294A Production, Analysis, Editing
- 294B Production, Analysis, Editing
- 294C Production, Analysis, Editing

In addition to these mandatory courses, an additional 32 credits must be secured through electives as identified on an individual basis, offered by other departments, or through independent study classes with or approved by faculty advisers.

To satisfy requirements for the master of arts degree, a student must complete the first year of required courses and electives. By the end of the first year, before summer quarter begins, students will have completed a proposal for their documentary project, which will be the basis for a required oral qualifying examination conducted by the graduate director and faculty advisers. This proposal will include a description of the subject to be documented, a treatment or narrative outline, a work plan including budget and timeline, and a preliminary annotated bibliography and filmography/videography of related works. Approval of the written proposal and satisfactory completion of the qualifying examination is a prerequisite for advancement to further coursework or fieldwork on the master's project. The successful qualifying examination proposal should address the following questions:

- What is the story to be told?
- What is the stylistic approach?
- What is the social analysis that will guide, inform, and underwrite the story?
- How will that analysis be represented in the documentary?
- What kinds of evidence will be generated to persuade the audience that the analysis is accurate?
- How will the documentary use social analysis to make the personal political: how will it move from analysis to critique?

The second year is focused on the final documentary project required for completion of the master's degree. This project must reflect original research and creative activity while demonstrating a command of related previous work by others. With an understanding of budgetary, equipment, and time limitations, students' electronic, digital, and photographic or other projects should reflect a level of quality appropriate for publication, exhibition, or broadcast (including digital/web-cast).

Typically, the expectation in each medium is as follows:

Documentary Film/Video. One 20- to 30-minute documentary suitable for professional distribution and public exhibition.

Documentary Photography. One major exhibition on or off campus with a minimum of 10-20 images with text, and/or a 10-minute multimedia presentation and/or a publication-ready book of photographs and essay(s).

Online/Digital Platform Projects. To be clarified with program chair and advisers, given the evolving nature of this field.

Audio Documentary/Sound Recording. One 20-30-minute documentary suitable for radio broadcast or museum/public installation.

The final examination consists of the public presentation of the project.

In addition, every project must be accompanied by a written essay describing its relationship to its field and must document its research via field notes, bibliographies, archival searches, filmographies, videographies, and photography searches.

All materials will be filed in digital form and archived for future reference and access. All final projects, in every medium, must be submitted in the formats specified by the program

chair.

Goals for Social Documentation Graduates

The Social Documentation program prepares graduates with critical skills and professional tools well suited to careers in the evolving fields of documentary media in the private and public sectors, for collaboration on community-based projects, for a range of activities geared to the analysis and documentation of sociopolitical issues, and for work with private and public organizations in need of media expertise and analysis. It is expected that students will make careers in the nonprofit fields evolving to link social justice organizations with media outlets, as well as in a range of public campaigns and initiatives. They will also be well equipped to function as independent documentarians working on behalf of social change within the expanding sectors of media production and representational intervention.

Also, given the emphasis on the histories of the social documentary and on developing methods suitable for contemporary challenges, many graduates are likely to enter the field of education on a part- or full-time basis. The Social Documentation program's teaching assistant (TA) training program, in conjunction with the Film and Digital Media Department, provides graduates with the preparation necessary to exercise pedagogical options.

Designated Emphasis

UC Santa Cruz graduate students enrolled in doctoral programs may obtain a designated emphasis in social documentation as part of their Ph.D. degree. Students must meet the following requirements in order to obtain the designated emphasis:

- Secure approval from a member of the Social Documentation Program core faculty to serve as the adviser for the Designated Emphasis.
- Have one core faculty member from the Social Documentation core faculty serve on the student's qualifying examination committee or dissertation committee.
- Submit a significant piece of documentary work that demonstrates competence in the field of social documentation. This project could consist of a digital video or photography project, or possibly an audio or web-based piece, focused on the student's area of study and thus constituting a parallel investigation into the subject of the Ph.D. dissertation. In certain circumstances, a documentary project on a subject other than the dissertation could be approved, but generally that would not be the case. The submitted project must meet the approval of the student's social documentation advisor.
- Successfully complete four graduate courses within the Social Documentation Program curriculum. The courses must be pre-approved by the student's designated emphasis advisor. In most cases, these courses would included 200, 202, and two others, but may be adapted to fit the needs of particular students.

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Social Sciences

2014-15 General Catalog

460 Humanities and Social Sciences Building
(831) 459-3212
http://socialsciences.ucsc.edu/

Faculty

Program Description

The Division of Social Sciences focuses on the study of human relationships and society. As global economic and political changes transform the world around us, social scientists help us meet the challenges and opportunities of the 21st century.

Our eight departments offer more than 30 undergraduate and graduate degree programs, including many that are interdisciplinary collaborations. Our faculty members conduct leading-edge research in their fields, frequently working with students in research clusters linking departments to our research centers. We also offer extensive opportunities for experiential learning through field studies.

Our research, teaching, and state-of-the-art facilities provide students with a comprehensive and rigorous education that prepares them for productive careers and further academic pursuits. For more information on the division, see our web site at: http://socialsciences.ucsc.edu/.

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Sociology

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226 College Eight
(831) 459-4306
http://sociology.ucsc.edu

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Program Description

Sociology is the study of social interactions among individuals and social groups. More specifically, sociologists examine the cultural, ideological, economic and political contexts of human action including the processes whereby social institutions are created, maintained, and transformed.

Sociology was born as an intellectual response to the democratic and industrial revolutions that ushered in the modern era. As such, it considers how society is organized in relationship to a vision of a just, free, and equal society—a vision that may require fundamental social change. Developing an understanding of both social change and social justice as part of the sociological tradition is one of the teaching goals of sociologists at UCSC. In the process, we expect to develop in students an appreciation for the craft of social science: disciplined inquiry, observation, and research as part of informed global citizenship.

Sociology faculty members are engaged in research on a wide range of topics, such as medicine and technology; labor studies; the intersection of class, race, gender and sexualities; environmental sociology; sociology of emotion and affect; queer studies; the cultural politics of sex work; globalization and international development; black cultural politics; Latino and Chicano studies; the politicization of religion; drugs in society; global inequality, crime, and deviance; international law; legal institutions; sustainability; popular culture and cultural studies; media studies; urban studies; political economy; critical ethnography; discourse and conversational analysis; identities and identity changes; and social movements. Sociology faculty use a number of approaches and methods, including ethnography, comparative and historical analysis, conversational and discourse analysis, qualitative interviews, and survey research.

Because of the interdisciplinary emphasis among sociology faculty, undergraduates find the department amenable for double majors and minors, and non-majors find many sociology courses of interest. In recent years, students have conducted independent studies and written senior theses on a variety of subjects including the social construction of gender, emerging professions in health care, utopian communities, human development in Costa Rica, mass communication, the social effects of war, family violence, sustainable development in Bolivia, sanitation in Kenya and Haiti, street children in India, African soccer players in Europe, gay and lesbian families, Latino educational success, and cross-cultural family welfare policies.

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The sociology major at UCSC is a rigorous program of study that retains enough flexibility to accommodate students with diverse career goals and plans. It ensures that all students are trained in the main theoretical and methodological traditions of sociology, yet permits considerable variation in students' own areas of specialization. The major provides the necessary intellectual foundation for students who are considering graduate studies in sociology and related social sciences. It also can be used as preparation for careers in fields as diverse as law, social work, management, environmental planning, public service, education, health services, journalism, and counseling. Finally, the sociology major can provide a general liberal education for undergraduates interested in the study of contemporary society and social problems.

Global Information and Social Enterprise Studies (GISES) is an innovative service learning program developed in collaboration with the Global Information Internship Program (GIIP). It aspires to create a new generation of well-trained advocates for social justice and sustainable development who use the tools of information technology and social enterprise to solve global problems. Practically, student projects engage with local and global organizations to democratize globalization, deepen social justice, reduce poverty, support digital education, and advance the transition to a sustainable world. By combining the spirit of social entrepreneurship with innovative information technologies, GISES students reduce the digital divide by strengthening the informational, communication and organizational capacity of schools, community organizations, and non-governmental organizations (NGOs). The GISES program provides an excellent foundation for students pursuing careers in non-profit management, social advocacy, and education. Depending on a student's major, there are two ways to enter the GISES program. If a student is a sociology major and wishes to participate in GISES, she or he should declare the intensive sociology major. A student who majors in any field other than sociology should declare GISES as a minor.

Declaration of the General Sociology Major, Intensive Sociology Major, Combined LALS Major, Sociology Minor, or GISES Minor

The Sociology Department offers three undergraduate majors: 1) a general sociology major; 2) an intensive sociology major; and 3) a combined major with Latin American and Latino studies. Additionally, there are two minors, one in sociology and one in Global Information and Social Enterprise Studies (GISES).

Students must take two of the following courses prior to petitioning for entry to the general sociology major: Sociology 1, Introduction to Sociology, Sociology 10, Issues and Problems in American Society, or Sociology 15, World Society. Students who pass two of these courses with a grade of C+ or better will be allowed to declare the sociology major.

Students must take five courses prior to petitioning for entry to the intensive sociology major: Sociology 1, Introduction to Sociology; Sociology 15, World Society; Sociology 30A, Introduction to Global Information and Social Enterprise Studies; Sociology 30B, Designing ICT Projects for Social Enterprises; and Sociology 30C, Project Implementation and Grant Writing for Social Entrepreneurs. To be considered for admission to the intensive major, students are required to obtain a GPA of 2.8 or above in these courses and submit a list of six upper-division courses they propose to complete the upper-division elective requirement, including a brief statement of justification for how each elective contributes to the specific project they will complete for Sociology 196G, Project Practicum.

Students must take two of the following courses, Sociology 1, 10, or 15, prior to petitioning for entry to the sociology/Latin American and Latino studies major. Students who pass two of these courses with a grade of C+ or better and who have completed LALS 1 will be allowed to declare the combined major.

Students must take one of the following courses, Sociology 1, 10, or 15 prior to petitioning for entry to the sociology minor.

Students must take four courses prior to petitioning for entry to the GISES minor: Sociology 15, World Society; Sociology 30A, Introduction to Global Information and Social Enterprise Studies; Sociology 30B, Designing ICT Projects for Social Enterprises; and Sociology 30C, Project Implementation and Grant Writing for Social Entrepreneurs. To be considered for

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admission to the GISES minor, students must take the four courses listed and submit a list of four upper-division courses they propose to complete the upper-division elective requirement, including a brief statement of justification for how each elective contributes to the specific project they will complete for Sociology 196G, Project Practicum.

Equivalent courses may be taken at other universities or at community colleges.

Students who intend to declare one of the department's majors listed above must take the lower-division courses for letter grades. In addition, students who intend to declare the intensive sociology major must take 30A, 30B, and 30C for letter grades.

Courses for which the grade of W is given are not counted in the computation of the GPA. The department will evaluate grades for repeated courses following the university's grading policy for repeated courses.

Students may petition for admission to the major by filling out the campus's Declaration of Major form, and by supplying evidence of their performance in the required lower-division courses. For specific details, refer to the Sociology Department web site, sociology.ucsc.edu, or the department's undergraduate adviser.

Transfer students who cannot complete two lower-division courses (Sociology 1, 10, or 15 at UCSC, or equivalents at another university, or at a community college with a grade of C+ or better before university policy requires them to declare a major should contact the sociology undergraduate adviser.

Appeal of Negative Decisions

Students who are informed that they are not eligible to declare the major may appeal this decision by submitting a letter to the Sociology Department within 15 days from the date the notification was mailed. Within 15 days of receipt of the appeal, the department will notify the student, college, and Office of the Registrar of the decision. Letters of appeal should describe any extenuating circumstances that might have affected the student's record.

Requirements of the General Sociology Major

For more details, students may consult the sociology handbook, available online at http://sociology.ucsc.edu, or at the department office, 226 College Eight.

Sociology majors are required to take a total of 11 courses (2 lower-division courses in preparation for the major, 4 prescribed upper-division core courses, and 5 upper-division electives). In addition, they must successfully complete the comprehensive requirement prior to graduation.

Lower-division preparation. All sociology majors are required to take two of the following courses or their equivalents.

1, Introduction to Sociology

10, Issues and Problems in American Society

15, World Society

Upper-division core courses. The following four sociology courses are required as the foundation of theoretical and methodological training in the discipline. Students are encouraged to take these courses early in their academic career.

103A, Statistical Methods

103B, The Logic and Methods of Social Inquiry

105A, Classical Social Theory

105B, Contemporary Social Theory

Upper-division advanced coursework. Five additional upper-division sociology courses are required. The Sociology Department offers upper-division electives that reflect a wide range of ideas within the discipline and the diversified research interests of the faculty. Refer to the Sociology Department Undergraduate Handbook or the Sociology

Undergraduate Adviser for a list of recommended courses within a specific specialization.

Comprehensive requirement. Prior to graduation, all sociology majors are required to complete one of the following comprehensive requirements.

- Senior thesis. The prerequisite for the senior thesis is course 103B. Students who would like to write a senior thesis must submit to their preferred faculty thesis sponsor a proposal that includes a one- to three-page description of the work to be undertaken, a brief bibliography, and materials from relevant courses, and key words describing the thesis topic. The proposal must be submitted by the second week of the quarter, one quarter prior to the commencement of the thesis work. Students unsuccessful in obtaining a thesis sponsor through these means may submit their proposals to the department's undergraduate education committee (UEC) by the second week of the quarter, one quarter prior to the commencement of the thesis work. UEC members will review the merits of these proposals and assign the ones they approve to faculty members who have not yet agreed to serve as thesis advisers for the following year. Students will be notified of the outcome of the UEC's deliberations within three weeks.
- Capstone course. Sociology 196A, Capstone: The Sociologist as Public Intellectual. Upper-division lecture course that explores public sociology and integrates current research with theoretical strands in sociology.

In exceptional cases, students unable to take the senior capstone course may be allowed to substitute a portfolio of work. This substitution must be approved in advance, by the department chair. The portfolio option consists of: 1) portfolio of materials from (at least) three upper-division sociology courses; 2) a synthetic essay; 3) a paper consisting of new research by the student on some contemporary social or political issue, analyzed using the theoretical and empirical materials from those three courses. See the department for additional information.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The goals of the Sociology Department's disciplinary communication are to teach students to think critically by designing, evaluating, and analyzing existing or proposed research studies to create knowledge through synthesizing and integrating information from a variety of sources pertaining to a complex social problem, and to develop and apply evidence-based writing skills. Course 103B, The Logic and Methods of Social Inquiry, satisfies the Disciplinary Communication Requirement for students in programs administered by the Sociology Department. Combined majors with Latin American and Latino Studies should refer to the Latin American and Latino Studies Department for their Disciplinary Communication requirement.

Sociology Major Planner One

The following is a recommended academic plan for students to begin the sociology major.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	SOCY 1*	SOCY 10*	SOCY 1*
2nd (soph)	SOCY 15*	SOCY 103A	SOCY 103B
3rd (jr)	SOCY 105A	SOCY 105B	

*Two of courses 1, 10, or 15 required for the major

Sociology Major Planner Two

The following is a recommended academic plan for transfer students entering the sociology

major as juniors. It is assumed that course 1 and/or course 10 equivalencies were completed at the previous college.

Students Beginning in Fall Quarter

Plan Two—Option 1

Year	Fall	Winter	Spring
3rd (jr)	SOCY 15	SOCY 103A	SOCY 103B
	SOCY 105A	SOCY 105B	

Students Beginning in Winter Quarter

Plan Two—Option 2

Year	Fall	Winter	Spring
3rd (jr)		SOCY 10	SOCY 103B
		SOCY 103A	
4th (sr)	SOCY 105A	SOCY 105B	

All majors must complete the remaining five upper-division courses in their junior and senior years.

Requirements of the Intensive Sociology Major

The intensive major is an option for students wishing to major in sociology and focus in the area of Global Information and Social Enterprise Studies (GISES). The global information and enterprise studies intensive sociology major is sponsored and administered by the Department of Sociology. This major is designed for highly motivated, self-directed and enterprising students who have demonstrated the capacity to design and complete an honors-quality project for a civil society group. Students are required to take a total of 16 courses (five prescribed lower-division courses in preparation for the major, four prescribed upper-division core courses, six upper-division electives, and a project practicum course). In addition, they must successfully complete the comprehensive requirement prior to graduation.

Lower-division preparation. Students must take the following five courses or their equivalents.

1, Introduction to Sociology

15, World Society

30A, Introduction to Global Information and Social Enterprise Studies

30B, Designing ICT Projects for Social Enterprises

30C, Project Implementation and Grant Writing for Social Entrepreneurs

Upper-division core courses. The following four sociology courses are required as the foundation of theoretical and methodological training in the discipline. Students are encouraged to take these courses early in their academic career.

103A, Statistical Methods

103B, The Logic and Methods of Social Inquiry

105A, Classical Social Theory

105B, Contemporary Social Theory

Upper-division advanced coursework. Six additional upper-division courses are required. The student's choice of electives must be approved either by the student's project adviser or by the director of GISES at the time of submitting the major declaration.

Project practicum. Students must enroll in Sociology 196G Project Practicum and complete their GISES capstone project. Contact the Sociology Department undergraduate adviser for more detailed guidelines regarding the GISES capstone project. At least one quarter before expected graduation, students are required to submit electronically a polished, focused, and concise GISES project proposal (five-page maximum), to the director of GISES and the sociology undergraduate adviser. The project proposal constitutes a prerequisite for enrolling in SOCY 196G.

The final GISES capstone project must make an unambiguous contribution to advancing a solution to a problem associated with global social justice and/or sustainable development. The project must be associated with a real, viable civil society organization, community organization, school or non-governmental organization (NGO). To complete the final requirements for GISES major or minor, the integrated project—narrative and digital deliverable—must be mounted on the appropriate web-enabled database managed by the Global Information Internship Program (GIIP).

Disciplinary Communication (DC) requirement. All students are required to satisfy the Disciplinary Communications Requirement in their major. The goals of the Sociology Department's disciplinary communication are to teach students to think critically by designing, evaluating, and analyzing existing or proposed research studies; to create knowledge through synthesizing and integrating information from a variety of sources pertaining to a complex social problem; and to develop and apply evidence-based writing skills. Course 103B, The Logic and Methods of Social Inquiry, satisfies the Disciplinary Communication Requirement for students in sociology programs.

Comprehensive requirement. Prior to graduation, students are required to complete one of the following comprehensive requirements.

- Senior thesis. The prerequisite for the senior thesis is course 103B. Students who would like to write a senior thesis must submit to their preferred faculty thesis sponsor a proposal that includes a one- to three-page description of the work to be undertaken, a brief bibliography, materials from relevant courses, and key words describing the thesis topic. The proposal must be submitted by the second week of the quarter, one quarter prior to the commencement of the thesis work. Students unsuccessful in obtaining a thesis sponsor through these means may submit their proposals to the department's undergraduate education committee (UEC) by the second week of the quarter, one quarter prior to the commencement of the thesis work. UEC members will review the merits of these proposals and assign the ones they approve to faculty members who have not yet agreed to serve as thesis advisers for the following year. Students will be notified of the outcome of the UEC's deliberations within three weeks.
- Capstone course. Sociology 196A, Capstone: The Sociologist as Public Intellectual. Upper-division lecture course that explores public sociology and integrates current research with theoretical strands in sociology.

In exceptional cases, students unable to take the senior capstone course may be allowed to substitute a portfolio of work. This substitution must be approved in advance by the department chair. The portfolio option consists of: 1) portfolio of materials from (at least) three upper-division sociology courses; 2) a synthetic essay; 3) a paper consisting of new research by the student on some contemporary social or political issue, analyzed using the theoretical and empirical materials from those three courses. See the department for additional information.

Requirements of the Combined Major in Sociology and Latin American and Latino Studies

Students may choose to declare a combined major in sociology and Latin American and Latino studies. The requirements (listed below) should be examined carefully before choosing the combined major option. Students must complete the lower-division sociology

courses with a grade of C+ or better and LALS 1, and both departments must approve a study plan before the major can be declared. Each department determines major and thesis honors separately.

Language Study

Students must demonstrate proficiency in Spanish or Portuguese equivalent to the completion of Spanish 6 or 56 or Spanish for Spanish Speakers 63 or Portuguese 65A–B.

Sociology/Latin American and Latino Studies

Students are required to take a total of 13 courses and to satisfy a senior comprehensive requirement. There are three lower-division course requirements, two from the Sociology Department and one from the Latin American and Latino Studies Department. The lower-division LALS course must be LALS 1; transfer students may petition to replace LALS 1 with an appropriate course from another institution. Upper-division requirements include six core courses: LALS 100, 100A, 100B; Sociology 103B, 105A, and 105B; and four additional elective courses, two from sociology and two from Latin American and Latino studies. At least one of the Latin American and Latino studies upper-division courses must be taught in Spanish or Portuguese***, and at least one course in the sociology/Latin American and Latino studies combined major must be on Chicano/a–Latino/a issues. Up to three relevant courses taken through study abroad programs from which credits are transferable to UCSC may be credited toward the major when the content is deemed appropriate by the faculty advisers of both sociology and Latin American and Latino studies. Students can satisfy the comprehensive requirement in one of three ways: 1) writing a senior thesis; 2) passing an appropriate LALS Senior Seminar (194 series); or 3) completing two additional sociology upper-division courses in the area of Inequality and Social Change (refer to the sociology undergraduate adviser for the specific list of courses). If the thesis option is selected, it should be planned in consultation with an adviser from each department, completed under the supervision of a faculty member from either department, and read and approved by both advisers; one adviser is sufficient if this faculty member belongs to both departments.

***Upper-division courses in Portuguese are currently not taught at UCSC and must be taken elsewhere.

Honors in the Major

The Sociology Department awards honors in the major based on the student's cumulative GPA for all courses taken to satisfy the program's major requirements. Students with a GPA of 3.75 or above will be considered for honors in the major. Students with a GPA of 3.9 or above will be considered for highest honors in the major. No more than approximately 15 percent of the graduating class will be considered for honors or highest honors in the major.

Requirements of the Sociology Minor

Students minoring in sociology are required to take six courses: one of courses 1, 10, or 15; at least two of courses 103B, 105A, and 105B; and at least three other upper-division sociology courses.

Requirements of the GISES Minor

Students minoring in GISES are required to take nine courses (four prescribed lower-division courses in preparation for the minor, four upper-division electives, and a project practicum course). The four lower-division requirements are courses 15, 30A, 30B and 30C. The student's choice of four upper-division electives must be approved either by the student's project adviser or by the director of GISES at the time the minor is declared. Students must take Sociology 196G, Project Practicum, and complete their GISES capstone project. See description for the project practicum under Requirements for the Intensive Major.

UC Education Abroad Program Students

Academic year programs. Students must declare the major and pass the two lower-division preparatory course requirements (1, 10, or 15) and three of the upper-division core courses (103B, 105A, 105B) prior to study abroad.

Semester programs. Fall semester: students must declare the major and pass the two lower-division preparatory course requirements (courses 1, 10, or 15) and one upper-division core course (105A) prior to fall semester study abroad. Spring semester: students must declare the major and pass the two lower-division course requirements (courses 1, 10, or 15) and two upper-division core courses (103B and 105B) prior to spring semester study abroad.

It is recommended that the students have the courses intended to be taken abroad reviewed and approved by the Sociology Department prior to departure. Up to two relevant courses taken through study abroad programs from which credits are transferable to UCSC may be used toward satisfaction of the major requirements when the content is deemed appropriate and approved by the Sociology Department.

Transfer Students

Junior transfer students expressing an interest in sociology on their UCSC application for admission are admitted as proposed sociology majors. This status is considered undeclared. Transfer students must meet with the sociology undergraduate adviser when they arrive on campus to determine their status and begin the actual declaration of major process, which must be completed by the end of the second quarter of the junior year for transfer students.

Graduate Program

The graduate program in sociology at UCSC leads to both academic and non-academic careers. It distinguishes itself by its interdisciplinary nature. The program is designed to educate students in sociological theory and methods and in the disciplines major substantive areas while simultaneously exposing students to other arenas of intellectual inquiry that will aid them as they pursue their research questions and interests. After completing a group of required courses, students work closely with individual faculty members in designing their own course of study. The program leads to a doctor of philosophy (Ph.D.) degree in sociology. A master of arts (M.A.) degree may be taken en route to the doctorate, but a master's program per se is not available.

The core curriculum is divided into two parts, 1) basic grounding in sociological theory and methods, and 2) exposure to research in three areas of concentration: a) globalization, political economy, and environment; b) inequality and identity; and c) culture, knowledge, and power. To prepare students to conduct their own research projects, the department trains student in multiple methods—comparative, cultural analysis, ethnography, field research, historical, interpretive, and quantitative techniques.

Faculty specialties include black cultural politics, comparative; construction of deviance; criminology; discourse and conversation analysis; emotion/affect; environmental sociology; ethnography; globalization; identity and identity changes; inequality; international development; international law; intersection of class, race, gender, and sexuality; labor studies; language and social interaction; law and society; legal institutions; media; medicine and technology; political economy; popular culture and cultural studies; qualitative methodology; queer studies; science and technology studies; sex work/erotic labor; social movements; sociology of drugs; sociology of knowledge; urban; and visual sociology.

Graduate students are supported through teaching assistantships, teaching fellowships, research fellowships and other grant/fellowship opportunities. A number of faculty receive research grants that support graduate student research assistantships, most recently, for example, the National Science Foundation Science and Justice Fellowships.

When asked what they most appreciate about the sociology graduate program, most students cite the students' and faculty's activism and commitment to social change in combination with their dedication to teaching, scholarly research, and understanding of the social forces of our society. The Sociology Department's colloquium series enhances scholarship, practice, and collegial networks. The diversity in age, ethnicity, and work experience of the student body creates a vibrant atmosphere for learning

Many of the faculty in the Sociology Department have affiliations with other departments and programs on campus, and the graduate program consequently encourages

interdisciplinary work. Seminars in the anthropology, environmental studies, history, history of consciousness, politics, psychology, and feminist studies programs are open to sociology students. Graduate students in sociology may obtain a designated emphasis on the sociology Ph.D. diploma indicating that they have specialized in a specific field in addition to sociology, such as feminist studies, Latin American and Latino studies, environmental studies, philosophy, or education. Students must meet requirements for the designated emphasis as spelled out by the relevant department. For a complete list of programs that offer a designated emphasis, refer to the fields of study in the General Catalog. Students also participate in research projects under the auspices of a number of interdisciplinary social science research centers: the Science and Justice Research Center; the Center for Agroecology and Sustainable Food Systems; the Center for Global, International, and Regional Studies; the Center for Labor Studies; the Chicano/Latino Research Center; the Center for Collaborative Research for an Equitable California; the Affect Studies Working Group; the Urban Studies Research Cluster; and the Santa Cruz Center for International Economics. Research opportunities also are available in the areas of environmental studies, feminist studies, and lesbian/gay/queer studies.

Many of our graduate students present papers at professional conferences and publish articles during the course of their graduate studies. The sociology master's paper is designed to prepare students to write for professional journals. Ongoing faculty seminars focusing on concrete research topics are available for advanced graduate students working on papers and dissertations in related areas.

The sociology program provides graduate students with many teaching opportunities so they can practice the skills required for good teaching—the ability to articulate ideas, to organize and present materials in logical sequence, and to listen attentively and discern someone else's comprehension. Graduate students serve as teaching assistants for at least three quarters in the department's core classes of the undergraduate curriculum.

The Sociology Department at UCSC is intellectually innovative, both in its interdisciplinary approach and in its commitment to inquiry that is engaged with the world beyond the university.

Required Courses

Students are required to take at least 12 courses as follows.

A THREE-COURSE CORE GROUP:

201 The Making of Classical Theory

202 Contemporary Sociological Theory

203 Sociological Methods

TWO METHODS COURSES:

204 Methods of Quantitative Analysis

and one of the following eight courses:

205 Field Research Methods

206 Comparative Historical Methods

209 Analysis of Cultural Forms

241 Cross-National and Cross-Cultural Research

242 Feminist Research Seminar

268A Science and Justice: Experiments in Collaboration

Sociology 282 Social Policy Research

Psychology 248 Survey Methods

THREE AREA FOUNDATION COURSES:

220 Global Transformation: Macrosociological Perspectives

240 Inequality and Identity

260 Culture, Knowledge, Power

At least one writing course (208 or 250)

A minimum of three elective graduate seminars, at least one from Sociology (excluding Sociology 250 and Sociology 293).

Students with no background in statistics are strongly advised to take an undergraduate course in statistical methods before enrolling in Methods of Quantitative Analysis, but can be admitted with permission of the instructor.

Progress Toward the Ph.D.

- Beginning at least by the end of the first year, students initiate work on their master's paper.
- Completion of the master's paper and required coursework is expected by the end of the second year.
- Graduate students prepare field statements in two distinct areas of sociology as a written pre-qualifying stage to the oral qualifying examination.
- The qualifying examination is an oral defense of the student's dissertation proposal and occurs one quarter after the pre-qualifying field statement stage has been passed.
- Students are expected to take their oral qualifying examination by the end of the third year, but no later than the end of the fourth year.
- After passing the qualifying examination, a student advances to candidacy and begins work on the dissertation with the aid of a three-person dissertation committee.
- After the complete dissertation has been submitted to and accepted by the dissertation committee, students must pass an oral dissertation defense.

Details of the policies for admission to the graduate program, the requirements for the Ph.D. degree, and information on financial support opportunities are available from the Department of Sociology. For more information, refer to the Graduate Studies section of the catalog.

Designated Emphasis in Sociology

To receive the Designated Emphasis (DE) in Sociology, a graduate student from another department must complete the following requirements in addition to the degree requirements for the doctorate in their degree-granting department. Students must initiate the request for the DE through their home departments. Then the student must meet with the Sociology graduate director who will: a) decide whether to approve the application; b) help find a Sociology faculty adviser; and c) oversee progress in the Designated Emphasis.

Adviser: In addition to the student's adviser(s) in their home department, the student must have a faculty adviser from among the core faculty of the Sociology Department who commits to serve on the qualifying examinaton (QE) committee. Outside members of a QE committee must be tenured.

Courses: The student must take five (5) Sociology graduate seminar courses:

Two (2) core courses:

SOCY 201 The Making of Classical Theory
SOCY 202 Contemporary Sociological Theory

One (1) methods course from the following:

SOCY 203 Sociological Methods
SOCY 204 Methods of Quantitative Analysis
SOCY 205 Field Research Methods
SOCY 206 Comparative Historical Methods
SOCY 209 The Analysis of Cultural Forms
SOCY 241 Cross-National and Cross Cultural Research
SOCY 242 Feminist Research Seminar

SOCY 282 Social Policy Research

Two (2) other graduate seminar electives* offered by the Sociology Department

*SOCY 208, SOCY 250, SOCY 293, SOCY 297, SOCY 299 cannot be counted toward the requirements for the Designated Emphasis.

All courses must be offered by the Sociology Department. Courses offered by other departments do not count towards the requirements for the Designated Emphasis in Sociology.

Writing: The student must prepare a significant piece of scholarly writing in the area of sociology. This may take the form of a substantial seminar paper, a master's essay, a paper submitted for publication, or a chapter of the doctoral dissertation. The student's Sociology faculty adviser will determine whether a particular piece of writing meets the requirement.

Graduate students interested in pursuing the Designated Emphasis in Sociology should contact the Sociology graduate program coordinator.

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Spanish and Spanish for Heritage Speakers

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Spanish for Heritage Speakers Course Descriptions | Spanish Course Descriptions

Program Description

Students interested in acquiring proficiency in Spanish can enroll in a wide range of Spanish language or Spanish for Heritage speakers (SPHS) courses, from beginning to advanced levels. The language and culture sequences of lower-division courses, Spanish 1-6 as well as Spanish for Heritage Speakers 4-6, and upper-division series Spanish 156 and Spanish 150-153 courses are aimed at enabling students to gain proficiency in aural comprehension, speaking, reading, and writing as well as meta-linguistic and cultural competence. Students are strongly encouraged to finish year-long sequences without interruption and, if possible, to study in Spanish-speaking countries. Students can pursue a major in Spanish Studies or select from among several programs that require some coursework in Spanish, including: a major or minor in language studies, a major in literature with an emphasis in Spanish/Latin American/Latino literatures, a major in Latin American and Latino studies, or a major in global economics.

Spanish

Students interested in taking Spanish classes are required to take the placement examination (http://ic.ucsc.edu/test/) to enroll in the appropriate level. Students finishing a first year of instruction in Spanish (1-2-3) are encouraged to continue on to second-year (intermediate-level) by taking Spanish 4, 5, and 6. First-year students also have the option of enrolling in the accelerated sequence (1A and 1B), which is equivalent to three quarters of language study.

Health science and human biology majors have priority enrollment in Spanish 5M, Medical Spanish, but others may enroll if there is space availability. Students are also encouraged to continue with the third-year Spanish 114 and the Spanish 156 and Spanish 150-153 series in which a wide variety of topics are covered. For more information on the courses offered in Spanish, please see the course descriptions.

Spanish for Heritage Speakers

SPHS has been developed for heritage speakers who, although raised in Spanish-speaking

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

communities or households, are not yet fully proficient in Spanish. SPHS courses take into account the experiences and influences of bilingual and bicultural upbringing.

SPHS students are required to attend a group tutoring session once a week in addition to the regular class meetings. Some lower-division and all upper-division courses can fulfill requirements for several majors or departments, such as American studies, education, global economics, language studies, and Latin American and Latino studies.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

Study Abroad

The Office of International Education (OIE) offers programs ranging from four weeks (Summer Session) in Cuernavaca, Mexico to one quarter or one academic year in Buenos Aires; Argentina, Santiago, Chile; San Jose and Monteverde, Costa Rica; Morelia and Monterrey, Mexico, and Cordoba, Madrid, Alcala, Barcelona, and Granada, Spain. Generally, students must have completed Spanish 6 or SPHS 6 by the end of the sophomore year to qualify for a junior year abroad. Courses taken abroad can, with approval of an adviser, be applied to major requirements. For more information, see the OIE web site, (http://oie.ucsc.edu). For information on credit applied to a particular major, contact the appropriate department.

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Spanish Studies

2014-15 General Catalog

Languages and Applied Linguistics
218 Cowell College
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http://language.ucsc.edu

Faculty

Program Description

The interdisciplinary major in Spanish Studies is designed to offer students advanced linguistic proficiency in Spanish as well as a broad understanding of the historical and cultural developments of the Spanish-speaking world.

The Spanish Studies major at UCSC combines the strengths of language and applied linguistics with those of literary and cultural studies. The sequence of courses first exposes students to the academic registers of Spanish, a critical component for both heritage speakers and second language learners. Students will then develop academic literacy in the language while gaining familiarity with the methods of analysis in different fields. The configuration of the major affords students flexibility in following their particular interests by choosing one of two tracks: (1) literature and culture or (2) language and linguistics.

These pathways within the major prepare students for a range of career possibilities that involve working with the Spanish-speaking public in a variety of professions (e.g., law, business, public service). Students may also pursue further training in teaching Spanish as a second language at the high school or university level.

Study Abroad

Spanish studies encourages students to take advantage of the UC Education Abroad Program (EAP). EAP language and culture programs are focused primarily on language acquisition. Some programs do not require prior language study while others have language prerequisites. Many of these programs provide students with the language skills needed to participate in regular university courses taught in the language of the host country. EAP opportunities in Spanish include Argentina, Chile, Mexico, Spain, and Costa Rica.

Students who participate in the EAP may petition to apply up to 5 courses (up to 25 upper-division credits) from EAP toward the major. Petition forms are available in the Language Program Department office.

Requirements for the Major

There are a total of 52 credits (including the 2-credit senior exit course) required for the Spanish studies major. See Program Major Requirements below for a breakdown of the

- Computer Engineering
- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
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- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

credit requirements.

Major Prerequisite Foreign Language Requirement

Six courses in the regular track Spanish 1, 2, 3, 4, 5, 6; or three courses in the Spanish for Heritage Speakers (SPHS) track, SPHS 4, 5, 6; or equivalent proficiency and Linguistics 50, Introduction to Linguistics.

Five required Spanish studies core courses (25 credits total):

- Literature: Spanish Literature (LTSP) 102A, From the Conquest to Sor Juana; or LTSP 102B, Romanticism to Modernism (5 credits)
- Spanish Studies: Spanish Literature 105*, Introduction to Spanish Studies (New cross-listed course) (5 credits)
- Linguistics: Spanish 150*, Topics in Hispanic Linguistics: Introduction to Hispanic Linguistics (5 credits)
- Spanish Language: Spanish 114, Advanced Conversation and Composition (5 credits)
- History: One history upper-division course in a related field (i.e., History 131, 132, 133, 134A, 134B) (5 credits)

*Spanish Literature 105/Spanish 105 and Spanish 150 must be taken prior to enrollment in or in conjunction with concentration courses.

Choice of Concentrations (choose one concentration—3 courses, 15 credits total)

Languages and Linguistics Track (three courses): Five-credit Spanish-language courses numbered 100–189, Spanish 199 and Languages 199 (except Spanish 150, Spanish 114 and Spanish Literature 105/Spanish 105) are accepted with the permission of the Spanish studies director (or faculty adviser).

- Spanish 151, Topics In Hispanic Linguistics: Varieties of Spanish
- Languages 152, Topics In Hispanic Linguistics: Spanish in the U.S.
- Languages 153, Topics In Hispanic Linguistics: Spanish as a Second Language
- Spanish 156A, The Language of Latin American Cinema
- Spanish 156B, The New Latin American Song SPAN 156C, Latin American Women's Voices SPAN 156E, Spanish Culture
- Spanish 156F, Humor in the Spanish Speaking World
- Spanish 156I, Hispanic Culture through Dance
- Spanish 156M, Mexico and the Southwest

Literature and Culture Track (three courses): Any 5-credit Spanish literature course numbered 100–189, Spanish Literature 195, Spanish Literature 199 (except Spanish Literature 102A, 102B, 105); see below for examples:

- 100A, Spanish Literature: Origins to 18th Century
- 100B, Spanish Literature: Nineteenth and Twentieth Centuries
- 100C, Medieval Spanish Literature
- 117, Spanish Speaking Caribbean
- 130A, Spanish American Prose
- 130D, Latin American testimonio
- 130E, Latin American Poetry
- 130F, U.S. Latino/a Writing in Spanish, English, and Spanglish
- 131A, Mexico

- Queer and Sexuality Studies
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- 131B, Novel of the Mexican Revolution
- 131D, Chile
- 131H, Cuba
- 134C, Fiction and Marginality: The Marginal at the Center
- 134G, Popular Culture in Latin American Narrative
- 134H, African-Latin American Literature
- 134L, Historia de la lectura y los lectores: recepción y consumo cultural en el mundo Latino Americano
- 134M, Modernidad y Literatura: El Boom de la novela latinoamericana
- 134N, El cuento en Hispanoamérica: Variedades esteticas de la literatura breve in America Latina
- 135A, Mexico Through Movies
- 135C, La Globalizacion en/del Cine Latin/o Americano
- 135D, Social Documentary
- 135F, Cine y Literatura
- 135G, Geografías y géneros del cine hispanoparlante
- 150, Introduction to the Golden Age
- 151, Literature and Life in Don Quijote and Other Cervantes Texts
- 152, Spanish Golden Age Theater
- 153, Picaresque Novel

Electives (one upper-division course, 5 credits total): Choose from related 5-credit courses in Anthropology, Education, Feminist Studies, History, History of Art and Visual Culture, Latin American and Latino Studies, Linguistics, Sociology (see Elective Courses for Spanish Studies), or any upper-division Spanish Literature, Spanish, or languages concentration courses not taken for concentration credit or capstone requirement.

Capstone Requirement

Spanish 195F, Senior Essay: With faculty permission, students will enroll in Spanish 195F, a 2-credit senior exit course taken in conjunction with an upper-division Spanish, Languages or Spanish Literature concentration course not used for core or concentration credit. Students will work with a faculty adviser to complete a senior capstone essay in addition to course requirements for the upper-division course. This combination must be approved by a faculty adviser in Spanish studies.

Disciplinary Communication (DC) Requirement

The Disciplinary Communication general education requirement (DC requirement) is satisfied by successfully completing Spanish 114.

Declaring the Major in Spanish Studies

To qualify for the major in Spanish studies, students must have completed Spanish 4 or equivalent with a grade of C or better, or receive a Spanish placement examination score of 50.

Transfer Students

In addition to the required courses to satisfy the campus general education requirements, transfer junior students are strongly advised to complete two years of Spanish language study in accredited two- and four-year institutions. Transfer students who arrive at UCSC with two years of Spanish language preparation should be able to complete the Spanish

studies major in normative time. While it is not a condition of admission, students from California community colleges may complete the Intersegmental General Education Transfer Curriculum (IGETC) in preparation for transfer to UC Santa Cruz.

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Stevenson College

2014–15 General Catalog

College Office
(831) 459–4930
http://stevenson.ucsc.edu/

Course Descriptions

For college description and list of faculty, see colleges.

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Sustainability Studies

2014-15 General Catalog

College Eight Office
(831) 459-2361
http://eight.ucsc.edu/

Faculty

Program Statement

Among the most critical societal challenges of the next 50 years are the rapidly-growing and linked ecological and social crises arising from stresses on supplies of energy, water and food. These crises are not simply about the adequacy of supply relative to demand, however; they are also the result of the complex social relations within and among societies, in the past, present and future. Dealing with such socio-ecological problems therefore requires robust interdisciplinary collaborations among engineers, social scientists and natural scientists. Moreover, in today's rapidly-changing economy, college graduates will need to be flexible and adaptable, able to learn new knowledge and skills rapidly, and cognizant of the complex organization of society and technology. The minor in Sustainability studies is administered by College Eight and is designed to foster both analytical ability and provide necessary learning.

The pedagogical underpinnings of this minor are premised on relationships between classroom learning, service learning, and research and application. Broad interdisciplinarity and individual facility in both STEM and social sciences are critical, elements at the center of the minor's core courses. The curriculum is therefore structured to (I) facilitate interdisciplinary academic and research collaborations among faculty and students across multiple UCSC divisions (drawing on but outside of the divisional structure); (II) teach and train students in the ecology and sustainability of design and application in the built environment, and the use of STEM skills and social science knowledge to these ends; and (III) meet undergraduate demand for a sustainability curriculum with focuses distinct from those offered in existing UCSC departments.

Program learning objectives are as follows:

a) Students will understand the causes, features, data, complexities, policies and practices giving rise to and needed to address the contemporary global socioecological crisis; the role of production, consumption, politics, policies, markets and behavior in this crisis; and options and alternatives for moving toward and achieving sustainability.

b) Students will learn basic applied STEM skills needed for dealing with real-world applications including assessments, measurements, technologies, behavior and other factors related to objective a.

c) Students will become cognizant of appropriate social science knowledge and methods needed to design and implement social enterprise and service learning projects in sustainability and ecological design and practice.

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- Crown College
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- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
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- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
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- Physics
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- Portuguese
- Porter College
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d) Students will design and conduct interdisciplinary research projects in issues and topics that are related to sustainability, including energy, food, water, the built environment, life-cycle analysis, waste disposal and recycling.

e) Students will design and participate in service-learning projects in collaboration with on- and off-campus units, agencies and organizations, and apply the knowledge and skills acquired through the minor

No specific prior preparation or prerequisites are required for entry to the minor.

Requirements of the minor

Two lower-division courses:

Electrical Engineering 80S, Sustainability Engineering and Design

and one of the following:

College Eight 81B/Earth and Planetary Sciences 81B, Fundamentals of Environmental Science

- College Eight 81C/EE 81C, Designing a Sustainable Future
- Physics 2, Elementary Physics of Energy
- Electical Engineering 80J, Renewable Energy Sources

Environmental Studies majors may substitute one of the following for the second lower-division course requirement: Environmental Studies 23, 24 or 25.

Service learning sustainability internship (three 2-credit courses required), one quarter of CLEI 55, Introduction to Service Learning for Sustainability, and two quarters of College Eight 155, College Eight Sustainability Internship.

Sustainability research and green enterprise practicum (three 2-credit courses required), one quarter each of

College Eight 150A, Sustainability Praxis in the Built Environment

College Eight 150B, Tools of the Trade

College Eight 150C, Green Enterprise & Social Entrepreneurship

Education for Sustainable Living Program, one quarter of College Eight 161, Education for Sustainable Living (5-credit section)

Upper-division courses, either

Electrical Engineering 122A, B, C, Impact Designs: Engineering and Sustainability through Student Service (all three quarters)

or

Two breadth electives from the list below

Anthropology 146, Anthropology and the Environment.

Anthropology 160, Reproductive and Population Politics.

Anthropology 173, Origins of Farming

Anthropology 194, Consumption and Consumerism

Biomolecular Engineering 122, Environmental Virus Bioinformatics

College Ten 105, The Making and Influencing of Environmental Policy

Community Studies 149, Political Economy of Food and Agriculture

Ecology and Evolutionary Biology 107, Ecology

Ecology and Evolutionary Biology 108, Marine Ecology

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
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Ecology and Evolutionary Biology 147, Community Ecology

Ecology and Evolutionary Biology 155, Freshwater Ecology

Earth and Planetary Sciences 17, Remote Sensing of the Environment

Earth and Planetary Sciences 116, Hydrology

Earth and Planetary Sciences 121, The Atmosphere

Earth and Planetary Sciences 142, Engineering Geology for Environmental Scientists

Earth and Planetary Sciences 146, Ground Water

Earth and Planetary Sciences 191, Climate Change Science and Policy

Economics 170, Environmental Economics

Economics 171, Natural Resource Economics

Electrical Engineering 175/L, Energy Generation and Control

Electrical Engineering 176/L, Energy Conservation and Control

Electrical Engineering 177/L, Power Electronics

Feminist Studies 133, Science and the Body

History of Art and Visual Culture 141I, Environments, Installations and Sites

History 101C, Oceans in World History

History 177, Smoke, Smallpox and the Sublime

History 196F, European Environmental History

Latin American and Latino Studies 164, Environmental Justice.

Legal Studies 131, Wildlife, Wilderness, and the Law

Legal Studies 132, California Water Law and Policy.

Legal Studies 137, International Environmental Law and Policy

Microbiology and Environmental Toxicology 101, Sources and Fates of Pollutants

Microbiology and Environmental Toxicology 144, Groundwater Contamination

Microbiology and Environmental Toxicology 160, Coastal Environmental Toxicology and Policy

Ocean Sciences 101, The Marine Environment

Ocean Sciences 102, Oceans and Climate

Politics 174, Political Economy of Global Energy, Environment, and Resources.

Psychology 159E, Peace Psychology

Sociology 115, Sustainable Design as Social Change

Socilogy 125, Society and Nature

Sociology 130, Sociology of Food

Sociology 132, Sociology of Science and Technology

Sociology 173, Water

Sociology 177G, Global Cities

Sociology 179, Nature, Poverty, and Progress

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Theater Arts

2014-15 General Catalog

J106 Theater Arts Center
(831) 459-2974
theater@ucsc.edu
http://theater.ucsc.edu/

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Program Description

The Theater Arts Department is a diverse group of scholars/artists united by a passionate belief in the value of the performing arts. Based on respect for the classical theater of all cultures, combined with a determination to challenge tradition and fashion with equal courage, we educate our students in the history, theory, and practice of theater to address fundamental issues by using the tools of body, voice, mind, and imagination. Seeking to attain the highest levels of intellectual and artistic integrity with a commitment to cultural diversity, we serve the research mission of UCSC, our audiences, and the students who will shape the theater of the future.

The Theater Arts Department combines drama, dance, critical studies, and theater design/technology to offer students an intensive program of theater as a unified field. The program stresses the inter-relation of all concentrations as essential to the successful practice of the theater arts in the 21st century. Graduates of the UCSC program typically pursue careers in professional theater and dance companies, in film and television, and in teaching at all levels—from university to high school to grade school. Many students go on to higher degrees at prestigious national programs. Others engage in careers in arts, administration, dramatic writing, and related fields.

The lower-division curriculum requires a range of practical work in the various concentrations and an interdisciplinary exposure to critical and historical studies. At the upper-division level, students are given the opportunity to focus on one or more areas of interest in limited-enrollment studios. At the same time, they are asked to expand their theoretical perspectives through confrontation with performance theory and focused coursework in critical studies. The impact of digital and new media on theater is integrated into the curriculum, especially with respect to dance and design.

A wealth of production opportunities is available to students. This includes major productions directed by faculty or distinguished visiting artists each quarter, productions directed or choreographed by students, and faculty-directed workshops. Undergraduate students are also given the opportunity to see their own writing, choreography, or developing concepts put into production in annual festivals of student work. Although majors are given preference in studio courses, most courses and productions welcome nonmajors as well. Opportunities to study and perform non-Western as well as Euro-American traditions are also a significant part of the program.

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- Computer Science
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- East Asian Studies
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- School of Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Kresge College
- Language Studies
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Molecular, Cell, and Developmental Biology
- Merrill College
- Microbiology and Environmental Toxicology
- Music
- Oakes College
- Ocean Sciences
- Philosophy
- Physical and Biological Sciences Division
- Physical Education
- Physics
- Politics
- Portuguese
- Porter College
- Psychology

The stage and studio spaces available to students of theater arts allow for this breadth of training and performance opportunities. The Theater Arts Center contains a 500-seat thrust stage; a state-of-the-art experimental theater; a 200-seat proscenium theater; acting, directing, and dance studios; costume, scene, and properties shops; a sound recording room; and a computer lab.

Elsewhere on campus are the open-air Quarry Theater seating 3,000, the Sinsheimer-Stanley Festival Glen, and the 150-seat Barn Theater. Library holdings in theater literature and history are extensive, including a large slide collection and dance video holdings; journals in current theater, design/technology, and dance; and recordings, films, videotapes, and CD-ROMs.

Requirements to Declare the Major

Prior to petitioning for the major, students must have successfully completed three lower division courses: one course from Theater Arts 61A, B, or C, and two courses chosen from Theater Arts 10, 20, or 30. Students are encouraged to complete these courses as early in their studies as possible so that the petition to major status can be accomplished no later than the end of sophomore year.

Transfer Students

Transfer students who have not satisfied the requirements to declare the major are advised to take as many of the six lower-division requirements listed above as possible in their first two quarters. Transfer students may petition to have equivalent lower-division courses taken at other schools count toward the lower-division major requirements. Petition forms and information on courses and major requirements can be obtained at the department office, J106 Theater Arts Center.

Major Requirements

The Theater Arts major requires seven lower-division courses, six credits of course 50, and eight upper-division courses (inclusive of a senior seminar project). Majors may organize their studies around a concentration in an area of interest in accordance with the requirements outlined below. The following six lower-division courses must be taken by all majors:

10, Introduction to Theater Design and Technology

20, Introductory Studies in Acting

30, Introduction to Dance Theory and Technique

61A, Ancient and Medieval Drama

61B, Drama from the Renaissance to the Modern Age

61C, Birth of the Modern: After the Renaissance

One additional lower-division 5-credit elective.

Plus: 50, Fundamentals of Theater Production (two-credit course; must take a total of six credits)

The following upper-division courses must be taken to complete the major:

Eight, 5-credit upper-division theater arts courses:

- 160, Dramatic Theories
- Two studio courses
- One elective
- One faculty-directed theater arts production course
- Two 161, 163, 164, or 165 series of critical studies courses in dance or drama, or 113, 116A (design) courses

- Queer and Sexuality Studies
- Religious Studies
- Russian
- Science Communication
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One senior seminar requirement, (course 185)

Exceptions to the major requirements, through the UC Education Abroad Program (EAP) or transfer credits, are considered on a case-by-case basis by the department chair.

Disciplinary Communication (DC) Requirement

Students of every major must satisfy that major's upper-division Disciplinary Communication (DC) Requirement. The DC Requirement in theater arts is met by completion of the required courses 160 and 185.

Theater Arts Major Planners

The following are two recommended academic plans for students to complete during their first two years as preparation for the theater arts major. Plan One is a guideline for students who are committed to the major early in their academic career; Plan Two is for students who are considering the major.

Plan One

Year	Fall	Winter	Spring
1st (frsh)	THEA 61A	THEA 20	THEA 10
	gen ed	THEA 61B	gen ed
	college core	gen ed	gen ed
2nd (soph)	THEA 30	elective	THEA 61C
	gen ed	THEA 50	gen ed
	college core	gen ed	gen ed
	(declare major)		

Plan Two

Year	Fall	Winter	Spring
1st (frsh)	gen ed	THEA 20	THEA 10
	gen ed	low-div studio	THEA 61C
	college core	gen ed	gen ed
2nd (soph)	THEA 30	THEA 50	THEA 50
	THEA 61A	THEA 61B	gen ed
	gen ed	gen ed	gen ed
	(declare major)		

Comprehensive Requirement

Theater arts majors are responsible for successfully completing course 185, Senior Seminar.

Minor Requirements

Students earn a minor in theater arts by completing eight courses (seven, 5-credit courses and one, 2-credit course) comprising a background in the theory and practice of the theater arts as well as a focus on either drama, theater design/technology, or dance. The

course requirements are listed below. There is no comprehensive requirement for the minor.

- Theater Arts 61A or B or C
- One quarter of the 2-credit course 50
- One course in the student's area of focus chosen from: 10, 20, 30, or 40
- Three upper-division courses chosen from the following: 113, 116A, 161, 163, 164, 165
- Two upper-division studio courses, one of which may be a faculty-directed production (151)

Independent Studies (199) and Field Studies (198) will not satisfy minor requirements unless approved in advance by an adviser and the chairperson.

Transfer students are advised to check with the department office to determine which courses can be articulated from a community college.

The Dance Minor

Students earn a minor in dance by completing eight courses (three lower division, five upper division) comprising a background in the theory and practice of dance. The course requirements are listed below. There is no comprehensive requirement for the minor.

Lower division courses:

- one 5-credit course in dance foundations (30 or 36); one course (varying units) in cultural forms (including but not restricted to 22, 37, 80Z)
- one quarter of the 2-credit course 50

Upper division courses:

- one 5-credit course in dance foundations (130); one course in critical studies (164, 165)
- three 5-credit elective courses planned in consultation with a faculty adviser (including but not restricted to 122, 131, 135, 137, 138, 139)
- Independent Studies (199) and Field Studies (198) will not satisfy minor requirements unless approved in advance by an adviser and the chairperson.
- Transfer students are advised to check with the department office to determine which courses can be articulated from a community college.

The Theater Arts Master of Arts Program

The Theater Arts Department offers a master's of arts (M.A.) degree that follows a one summer/one academic year structure and combines intellectually rigorous coursework with challenging artistic practicum. Like our undergraduate curriculum, our graduate program integrates the study of ancient and modern theater texts and practices, and it examines hemispheric and global approaches to performance. This M.A. program culminates in a capstone thesis project (creative and scholarly) following coursework in both academic and professional theater.

Students are required to complete 40 credits for the Theater Arts M.A. This includes three graduate seminars, Theater Arts 290A, 290B, and 290C, for a total of 15 credits. These courses are required of all M.A. candidates, whatever their area of emphasis. Students must also complete Theater Arts 293, a 10-credit performance research project that includes a professional internship project. Students may take this course in any quarter in the academic year. This work will have a significant academic component, supervised and assessed by a theater arts faculty member.

Students must also complete the 5-credit Theater Arts 295, Group Critique; 5 units of an Independent Study (Theater Arts 297); and the 5-credit Theater Arts 299, Capstone Thesis.

M.A. students may also take an undergraduate or graduate course in another department as an elective. These courses must be approved by the graduate committee and graduate director each academic year.

There are no teaching requirements for graduate students in the theater arts M.A. program; however, students are encouraged to act as teaching assistants while they are at UC Santa Cruz.

For additional information, contact the Theater Arts Department.

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UCDC Program

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25 Merrill College
(831) 459-2855
politics@ucsc.edu
http://politics.ucsc.edu

Course Descriptions

UCDC Program at the University of California Washington Center

The UCDC Program at the UC Washington Center in Washington, D.C., supervises and supports students who pursue academic study and internships in the nation's capital. The program is open through a competitive application process to students in all majors who will have upper-division status by the quarter in which they participate. (Physical and Biological Sciences and Engineering majors are eligible to participate in their sophomore year with department approval.) Students enroll for fall, winter, or spring quarter, earn 12 to 17 course credits, and continue to be registered as full-time students. Applicant selection is based on academic record, a written statement, letters of recommendation, and in some cases a personal interview. Financial aid eligibility is maintained.

Students live in the UC Washington Center with students from all UC campuses. This provides an intellectual and social community throughout the quarter.

Interested students with strong academic records are encouraged to apply. For more information, e-mail ucdc@ucsc.edu, contact the UCDC coordinator in 10 Merrill College, or visit the program's web site.

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Writing Program

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209 Humanities 1
(831) 459-2431
http://writing.ucsc.edu/

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Program Description

The campuswide Writing Program offers courses designed to help students become more competent and confident writers of prose. The courses offered through this program teach skills of grammar and organization and strategies of invention, composition, revision, and editing. These courses approach writing as one of the most important ways we have of making discoveries about ourselves and the world and of communicating these insights to others.

Together with the colleges, the Writing Program administers the writing components (C1, C2) of the campus general education requirements; administers the Entry Level Writing Requirement (ELWR), and advises students about ways to fulfill these requirements.

Writing Program instructors in each college participate in the college's core course and counsel students about their writing. The Writing Program offers Writing 2 (a lower-division course that satisfies the C2 requirement); the Writing 20, 21, 22, 23 series to help meet the needs of students who have not passed ELWR, including students with complex linguistics backgrounds; instruction for undergraduates in the theory and practice of peer tutoring (Writing 169 and 159); and instruction for graduate students from all disciplines in the theory and practice of teaching first-year composition courses (Writing 203).

Each year, the Writing Program also offers specialized lower-division courses (such as Writing 22A and 22B) for multilingual and international students to provide additional grammar support for essays written in fall core courses and in spring Writing 2 classes.

The Writing Program houses the Humanities Don Rothman Endowed Award in First-Year Writing. Now in its fifth year of honoring outstanding first-year writers and of recognizing the pedagogical inspirations of their teachers, the endowment celebrates students' academic achievements during a fall ceremony attended by friends, family, faculty, and administrators.

Courses in creative writing are offered through the Literature Department.

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Yiddish

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Course Descriptions

Program Description

Students interested in acquiring proficiency in Yiddish can enroll in beginning language courses. In addition, some credit from these courses may be counted toward the major or minor in Jewish studies; consult with the Jewish studies program. Lower-division courses are aimed at enabling students to gain proficiency in aural comprehension, speaking, reading, and writing. Attention is also given to developing an understanding of the culture that has been expressed through the Yiddish language. Some instruction takes place in Yiddish from the beginning level.

Campus Language Laboratories and Placement Exams

Information about these topics can be found under Department of Languages and Applied Linguistics.

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Faculty

For faculty listings, see the program statement for individual programs and departments.

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Anthropology

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361 Social Sciences 1 Building
(831) 459- 3320
http://anthro.ucsc.edu/

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Faculty and Professional Interests

Professor

Donald Brenneis
Linguistic anthropology, folklore, legal anthropology, ethnomusicology, overseas Indians, South Asia, disputing and dispute management, legal language, bureaucratic institutions, knowledge production, improvisation

Melissa L. Caldwell
Poverty and public health; welfare, charity, and assistance; food and consumption; gardens, nature, and landscapes; religion; socialism and postsocialism; Russia, the former Soviet Union, and Eastern Europe

Nancy N. Chen
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

May N. Diaz, Emerita

Shelly Errington
Globalization of folk art, visual and social semiotics, photography, film, the Internet and digital media, Southeast Asia, and Latin America

Alison Galloway
Skeletal biology, forensic anthropology, human variation, history and ethics of physical anthropology, reproductive energetics and aging

Diane Gifford-Gonzalez
Neolithic Africa and Eurasia, colonial New Mexico, origins of food production, pastoralists, zooarchaeology, history of archaeology, interpretive theory, visual anthropology

Judith A. Habicht-Mauche
Precontact and early contact North America; Southwest and Southern Plains; social networks and cross-cultural interaction; migration; community and identity formation; ceramic production and exchange; technology as cultural practice; archaeometry and materials analysis

Susan Harding, Emerita

Diane K. Lewis, Emerita

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Daniel T. Linger, Emeritus
General human theory, psychological anthropology, self, consciousness, identity, memory, politics, conflict, Brazil.

Carolyn Martin Shaw, Emerita

Olga Nájera-Ramírez
Folklore theory, ritual, festival, dance, greater Mexican culture, history and folklore, transnationalism, identity; expressive culture, ethnomusicology, bilingual communication, gender, history, and culture of Latin America, the U.S., and Mexico

Triloki Nath Pandey
Native peoples of North America, cultures of India, political anthropology, anthropological theories and comparisons; native North America; tribal India; Nepal

Richard R. Randolph, Emeritus

Lisa Rofel
Critical theory, anthropology of modernity, popular/public culture, gender and sexuality, queer theory, transnational capitalism, postcolonial and transnational feminism, China

Danilyn Rutherford
Borders and frontiers, colonialism, nationalism, ethnicity, kinship, performance, Christianity, secularism, sovereignty, publics, affect, technology, governancy, theory and method in anthropology, West Papua, Indonesia, the U.S.

Stuart A. Schlegel, Emeritus

Anna Tsing
Culture and politics; feminist theory; globalization; multi-species anthropology; social landscapes and forest ethnoecologies; multi-sited ethnography; Indonesia, Southeast Asia, and the U.S.

Adrienne L. Zihlman, Emerita
Primate and human evolution, comparative functional anatomy of monkeys and apes, sex and gender, growth and development, life history and evolutionary theory, history of physical anthropology

Associate Professor

Mark Anderson
Racial formation, diaspora, nationalism, transnationalism, culture and power; Latin America, African diaspora

Mayanthi Fernando
Religion and secularism; anthropology of Islam; gender and sexuality; multiculturalism/pluralism; modernity and its "Others"; ethnography and ethics; colonial and post-colonial France/Europe; theory and methods in the study of religion

Andrew Salvador Mathews
Environmental anthropology, science and technology studies, conservation and development, climate change, environmental history, Mexico, Latin America, Italy

J. Cameron Monroe
Historical archaeology, complex societies, political economy, architecture and landscape, Africa and the African diaspora

Renya Ramirez
Native American studies, Indian identity, Native Americans and anthropology, urban Indians, Native American women, cultural citizenship, expressive culture, and anti-racist education

Matthew Wolf-Meyer
Anthropology and history of medicine and public health, science studies, American studies, popular culture, the United States and the United Kingdom

Assistant Professor

Chelsea Blackmore

Nondiscrimination Statement

Search the Catalog

Pre-Columbian archaeology (Mesoamerican focus), identity formation, complex societies, class and state formation, gender, feminist/queer theory

Jon Daehnke
Archaeology of the North American Pacific Coast, cultural heritage politics and law, contemporary Native American politics, human-environment interaction, landscape and place, collaborative methodologies, NAGPRA implementation and compliance, public representations of heritage and memory

Lars Fehren-Schmitz
Palaeogenetics / anthropological genetics, human evolutionary ecology, evolutionary demography, gene-culture coevolution, migration theories, population history of the Americas, archaeology of South America

Megan Moodie
Feminist theory, reproductive politics, development, legal identities, affirmative action, ethnographic methods, narrative, literature, utopias and other postsocialist/postcolonial imaginaries, connected histories and the longue durée, South Asia, Eastern Europe

Lecturer

Guillermo Delgado-P., Emeritus
Latin American cultures; comparative indigeneity; indigenous property rights; cultures of the sacred; ecologies and peasantries; Quechua/Andean linguistics, mining, labor history; alternative/electronic journalism; anthropology in the developing world; interethnicity; urbanization; social movements; culture theory

Annapurna Pandey
Women's issues; women's political and religious lives and their representation in film; media and literature dealing with India and Indian Diaspora; film-making on the experiences of the diasporic Odias in the greater bay area

Jude Todd, Emerita
Indigenous American world views; permaculture; culturally prescribed attitudes toward water and soil; chemical-industry influences on government, university research, and popular belief systems; transgenerational epigenetic inheritance

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Professor

Raoul Birnbaum (History of Art and Visual Culture)
Buddhist studies, especially Chinese practices from medieval times to the present; religion and visual culture in China

John Brown Childs, Emeritus (Sociology)
Ethnic conflict and transcommunal cooperation; sociology of knowledge; African American, Native American, Latino interactions

James T. Clifford, Emeritus (History of Consciousness)
History of anthropology, travel, and exoticism; transnational cultural studies, museum studies, indigenous studies

Carolyn Dean (History of Art and Visual Culture)
Cultural histories of the native Americas and colonial Latin America

A. Russell Flegal (Microbiology and Environmental Toxicology)
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Stephen R. Gliessman, Emeritus (Environmental Studies)
Agroecology, sustainable agriculture, tropical land use and development, alternative trade networks, sustainable livelihoods and conservation, community and agroecology

Donna Haraway, Emerita

Paul Koch (Earth Sciences)
Isotope biogeochemistry, vertebrate paleontology

Patricia Zavella, (Latin American and Latino Studies)
Transnational migration of Mexicans, women's work and domestic labor, poverty, family, sexuality and social networks, feminist studies, ethnographic research methods, and Chicana/Latino studies

Associate Professor

Jeffrey Bury (Environmental Studies)
Political ecology; sustainable development; Latin American studies; international relations; institutional dimensions of natural resource conservation in the global south ; extractive industries; climate change; new models of conservation

Flora Lu (Environmental Studies)
Ecological anthropology, human behavioral ecology, Amazon rainforest, indigenous peoples, conservation, Ecuador, culture change, market integration, indigenous resource management, political ecology, environmental justice

Marcia Ochoa (Feminist Studies)
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, geography, multimedia production, graphic design, colonialism and modernity, Latin American studies—Colombia and Venezuela

S. Ravi Rajan (Environmental Studies)
Environmental history and political ecology, risk and disaster studies, science and technology studies, North–South environmental conflicts, environmental social theory, environmental ethics

Assistant Professor

Cecilia Rivas (Latin American and Latino Studies)
Transnationalism; media and communication (Internet, newspapers); migration; globalization; race, ethnicity, and gender; bilingualism; consumption; El Salvador, Central America, Southern Mexico

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Applied Mathematics and Statistics

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Program Statement | Course Descriptions

Faculty and Professional Interests

Professor

Nicholas Brummell
Fluid dynamics; magnetohydrodynamics; numerical simulations of geophysical and astrophysical dynamics, especially solar interior physics; supercomputing

David Draper
Bayesian statistics, hierarchical modeling, Bayesian nonparametric methods, model specification and model uncertainty, quality assessment, risk assessment, statistical applications in the environmental, medical, and social sciences

Pascale Garaud
Astrophysical andgeophysical fluid dynamics, magnetohydrodynamics; analytical and numerical solutions of partial differential equations related to these phenomena

Athanasios Kottas
Bayesian nonparametrics, mixture models, modeling and inference for point processes, nonparametric regression, survival analysis, applications in biometrics, ecology, and the environmental sciences

Herbert Lee
Bayesian statistics, computer simulation experiments, spatial statistics, inverse problems, model selection and model averaging, nonparametric regression, neural networks, classification and clustering

Marc Mangel, Distinguished Professor Emeritus and Research Professor of Applied Mathematics and Statistics

Raquel Prado
Bayesian non-stationary time series modeling, multivariate time series, biomedical signal processing and statistical genetics

Bruno Sansó
Bayesian spatio-temporal modeling, environmental and geostatistical applications, modeling of extreme values, statistical assessment of climate variability

Hongyun Wang
Single molecule studies and biophysics, statistical physics, stochastic processes and stochastic differential equations, classical analysis; numerical analysis

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Associate Professor

Qi Gong
Computational methods for real-time control systems, trajectory optimization and motion planning, nonlinear filtering and observer design, robust and adaptive control of nonlinear systems, industry applications of control theory

Abel Rodríguez
Bayesian nonparametrics, Bayesian time series and spatial models, machine learning, document modeling, public health, financial econometrics, structural proteomics, genomics

Assistant Professor

Lee Dongwook
Computational magnetohydrodynamics and gas dynamics; computational mathematics for large-scale scientific computing on high-performance parallel architectures; numerical algorithms for finite-volume, high-order shock capturing methods; Newton-Krylov-type iterative implicit solvers for stiff nonlinear system; nonlinear numerical methods for astrophysics and high-energy-density physics applications

Ju Hee Lee
Bayesian statistics, bayesian nonparametrics, modeling in biosciences and clinical trials

Associate Adjunct Professor

Robin Morris
Bayesian analysis of scientific data, with applications in Earth remote sensing, particle and astroparticle physics, signal processing and engineering

Visiting Assistant Professor

Tatiani Xifara
Bayesian and computational statistics, hidden Markov models, adaptive MCMC and MALA algorithms, statistical ecology

Lecturer

Yonatan Katznelson
Number theory

Bruno Mendes
Parameter and model uncertainty in geophysics and groundwater contamination modeling, Bayesian statistics, parallel computation

Valerie Poyner
Bayesian nonparametric modeling and inference, survival regression analysis, population dynamics, applications in neuroscience and fisheries ecology

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Douglas Bonett (Psychology)
Psychometrics and statistics

William Dunbar (Computer Engineering)
Theory and application of feedback control, single-molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Gabriel Elkaim (Computer Engineering)
Embedded systems; robust software architectures for real-time reactive systems; sensor fusion; guidance, navigation, and control (GNC) system identification; robust and advanced control schemes; feedback control systems; robotics; unmanned autonomous vehicles (UAVs); and cooperative control

Andrew T. Fisher (Earth Sciences)
Hydrogeology, crustal studies, coupled flows, modeling

Lise Getoor (Computer Science)
Machine learning, reasoning under uncertainty, analysis of graphs and networks, artificial intelligence, databases, data integration, visual analytics, data science

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Gary A. Glatzmaier (Earth Sciences)
Computer simulation of geodynamics and planetary dynamics

David Haussler (Biomolecular Engineering; Investigator, Howard Hughes Medical Institute; Director, Center for Biomolecular Science and Engineering; Distinguished Professor, Biomolecular Engineering; Director, Cancer Genomics Hub; Scientific Co-Director, California Institute for Quantitative Biosciences [QB3]; Consulting Professor, Biopharmaceutical Sciences, Stanford Medical School; Consulting Professor, Biopharmaceutical Sciences, UC San Francisco)
Bioinformatics, genomics, computational genomic data analysis, molecular evolution and comparative genomics, genomic and clinical data sharing and standards, cancer genomics, neurodevelopment, stem cell research, immunogenomics, information theory, pattern recognition, machine learning, artificial intelligence, information theory, theoretical computer science

David P. Helmbold (Computer Science)
Machine learning, computational learning theory, analysis of algorithms

Roberto Manduchi (Computer Engineering)
Computer vision and sensor processing, with application to assistive technology for the visually impaired, mobile and pervasive computing

Richard Montgomery (Mathematics)
Celestial mechanics, differential geometry, gauge theory, mechanics (quantum and classical), and control theory

Katia Obraczka (Computer Engineering)
Computer networks, distributed systems, operating systems, Internet information systems, mobile computing, wireless networks

Hamid Sadjadpour (Computer Engineering)
Wireless communication systems, network information theory and scaling laws, performance analysis of wireless ad hoc and sensor networks, routing and MAC protocol design for wireless networks

Manfred Warmuth (Computer Science)
Online learning, machine learning, statistical decision theory, game theory, analysis of algorithms

Peter Young (Physics)
Condensed matter theory, statistical mechanics

Yi Zhang (Technology and Information Management)
Large-scale information retrieval, recommendation systems, Internet advertising, data mining, natural language processing, and applied machine learning

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Art

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Elena Baskin Visual Arts Studios
Room E-104
(831) 459-2272
visart@ucsc.edu
http://art.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Patrick Aherne, Emeritus

Joyce Brodsky, Emerita

E. G. Crichton
Intermedia, electronic arts, photography, installation

Doyle Foreman, Emeritus

Frank Galuszka, Emeritus

Robin Hunicke, Visiting Associate Professor
Game design

Fred A. Hunnicutt, Emeritus

Jimin Lee
Etching, lithography, monoprinting, book arts, ukiyo-e

Norman Locks
Photography

Douglas E. McClellan, Emeritus

Jennie Lind McDade, Emerita

Kathryn E. Metz, Emerita

Jasper A. Rose, Emeritus

Elizabeth Stephens
Intermedia, electronic art, sculpture, and performance art

Lewis Watts, Emeritus

Donald L. Weygandt, Emeritus

David Yager

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Photography, design, print media

Jack Zajac, Emeritus

Associate Professor

Elliot Anderson
Electronic art, digital arts/new media

Melissa Gwyn
Painting, drawing

Dee Hibbert-Jones
Public art, sculpture

Kate O'Riordan
Theory, digital media technologies.

Jennifer Parker
Sculpture, installation, video, and performance art

Assistant Professor

Enrique Leal
Silkscreen, photogravure, intaglio, digital printmaking

Lecturer

Susan Friedman
Photography

Peter Loftus
Painting

Kathleen Perry
Intermedia, photography, sculpture

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Astronomy and Astrophysics

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Astronomy Department Office
211 Interdisciplinary Sciences Building
(831) 459-2844
http://www.astro.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor/Astronomer

Peter H. Bodenheimer, Emeritus

Michael J. Bolte
Dynamics of star clusters, ages of star clusters, chemical enrichment history of the galaxy, observations of interacting galaxies

Jean P. Brodie
Extragalactic globular clusters, galaxy formation, near-field cosmology

Harland W. Epps, Emeritus

Sandra M. Faber, Emeritus
Galaxies, stellar populations, cosmology, instrumentation

Puragra (Raja) GuhaThakurta
Galaxy formation and evolution: resolved stellar populations in the Local Group and distant galaxies. Globular clusters. Interstellar dust.

Garth D. Illingworth
High redshift galaxies, galaxy formation/evolution, science policy

Burton F. Jones, Emeritus

David C. Koo, Emeritus

Robert P. Kraft, Emeritus

Claire Max
Adaptive optics and high spatial resolution imaging, colliding galaxies, active galactic nuclei and their supermassive black holes

Joseph S. Miller, Emeritus

Jerry E. Nelson, Emeritus

Jason Prochaska
Damped Lya systems in quasars, Lyman limit systems, stellar abundances, thick disk imaging of our galaxy

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David M. Rank, Emeritus

Constance Rockosi
Galactic structure, stellar populations, CCD detectors, astronomical instrumentation

Graeme H. Smith
Stellar populations, chromospheric activity among late-type stars

Steven S. Vogt
Extrasolar planets, stellar, spectroscopy, instrumentation

Merle F. Walker, Emeritus

Astronomer

Lloyd B. Robinson, Emeritus

Professor

George R. Blumenthal
Cosmology, galaxy formation, high-energy astrophysics

Frank D. Drake, Emeritus

John Faulkner, Emeritus

Gregory Laughlin
Extra-solar planets, numerical astrophysics

Douglas N. C. Lin
Fluid dynamics, star formation, galactic structure, planetary systems, accretion disks, extra-solar planets

Piero Madau
Cosmology, high-energy astrophysics

Bruce H. Margon
High-energy astrophysics, space astronomy

William G. Mathews, Emeritus Research Professor

Enrico Ramirez-Ruiz
Stellar explosions, gamme-ray bursts accretion physics, near compact stars

Stanford E. Woosley
Supernovae, stellar evolution, nucleosynthesis

Associate Professor

Jonathan Fortney
Planetary atmospheres and interiors, extrasolar planets

Mark Krumholz
Star formation, interstellar medium, numerical methods

Lecturer

Adriane Steinacker
Planet formation, MHD simulations

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Professor

Anthony N. Aguirre (Physics)
Cosmology of the early and late universe: inflation and the global structure of cosmological models; the intergalactic medium and its enrichment with heavy elements; galaxy formation, evolution, and feedback processes; dark matter; theories of modified gravity

Nic Brummel (Applied Mathematics and Statistics)
Fluid dynamics;magnetohydrodynamics; numerical simulations of geophysical and astrophysical dynamics, especially solar interior physics; supercomputing

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Pascale Garaud (Applied Mathematics and Statistics)
Astrophysics, geophysics, fluid dynamics, numerical resolutions of differential equations, and mathematical modeling of natural flows

Gary Glatzmaier, Emeritus (Earth and Planetary Sciences)

Francis Nimmo (Earth and Planetary Sciences)
Icy satellites, accretion, Mars, planetary geophysics

Joel R. Primack (Physics)
Cosmology, galaxy, formation and evolution, particle astrophysics, nature of dark matter, gamma ray astronomy

Steven Ritz (Physics)
Particle physics and astrophysics

David M. Smith (Physics)
High-energy astrophysics; X-ray and gamma-ray detectors and instrumentation; solar, terrestrial, and planetary sources of gamma radiation

Associate Professor

Stefano Profumo (Physics)
Theory of particle physics and particle astrophysics

Assistant Professor

Ian Garrick-Bethell, (Earth and Planetary Sciences)
Planetary interiors, paleomagnetism

Tesla Jeltema
High-energy astrophysics and cosmology

Research Astronomer

Donald Gavel
Development of next generation adaptive optics for large telescopes, Director of Laboratory for Adaptive Optics

Brad Holden
Design, development, and oversight of UC Astronomy Data Center (all data obtained by UC astronomers at the Lick and Keck Observatories), early evolution of elliptical galaxies

Robert Kibrick
Development of computer software and wide-area networks in support of remote control and data-acquisition systems for telescopes and comlex astronomical instrumentation systems

Terry Mast
Development of large telescopes and their instrumentation

Drew Phillips
Extragalactic star-formation, gas-phase abundances, galaxy kinematics, and galaxy formation and evolutions; development of astronomical optics and instrumentation

Richard Stover
Development and construction of state-of-the-art detector systems for instruments at Lick Observatory and the Keck Observatory

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Bioengineering

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Baskin School of Engineering
335 Baskin Engineering Building
(831) 459-2158
http://www.soe.ucsc.edu

Program Description

Participating Faculty and Professional Interests

Mark Akeson (Biomolecular Engineering)
Development of nanopore sensors for single molecule identification, epigenetics, bioethics

Manuel Ares Jr. (Molecular, Cell, and Developmental Biology)
RNA processing, structure and function of RNA

Phillip Berman (Biomolecular Engineering)
Drug development, vaccines, AIDS, monoclonal antibody therapeutics, immunology, molecular cell/biology, recombinant protein production (commercial scale)

David Deamer (Biomolecular Engineering and Chemistry and Biochemistry; Emeritus, UC Davis)
Membrane biophysics, nanopore analysis, DNA sequencing, biomolecular self-assembly

David Draper (Applied Mathematics and Statistics)
Bayesian statistics, hierarchical modeling, Bayesian nonparametric methods, model specification and model uncertainty, quality assessment, risk assessment, statistical applications in the environmental, medical, and social sciences

William Dunbar (Computer Engineering)
Theory and application of feedback control, single-molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Camilla Forsberg (Biomolecular Engineering)
Hematopoietic stem cells, transcriptional regulation, chromatin, blood cell development, cell surface receptors, genomics

Alexander A. Grillo (SCIPP)
Neurophysiology, neural systems, high-energy particle physics

Grant Hartzog (Molecular, Cell, and Developmental Biology)
Biochemistry, genetics, chromatin and transcriptional regulation

David Haussler (Biomolecular Engineering; Investigator, Howard Hughes Medical Institute; Director, Center for Biomolecular Science and Engineering; Distinguished Professor, Biomolecular Engineering; Director, Cancer Genomics Hub; Scientific Co-Director, California Institute for Quantitative Biosciences [QB3]; Consulting Professor, Biopharmaceutical Sciences, Stanford Medical School; Consulting Professor, Biopharmaceutical Sciences, UC

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San Francisco)
Bioinformatics, genomics, computational genomic data analysis, molecular evolution and comparative genomics, genomic and clinical data sharing and standards, cancer genomics, neurodevelopment, stem cell research, immunogenomics, information theory, pattern recognition, machine learning, artificial intelligence, information theory, theoretical computer sciences

Richard Hughey (Biomolecular Engineering and Computer Engineering)
Chair, B.S. in Bioengineering
Bioinformatics, hidden Markov models, computer architecture, parallel computation

Michael Isaacson (Electrical Engineering)
Nano- and microfabrication technology and applications to biomedical and diagnostic devices, nanocharacterization of materials with emphasis on the development of microscopy tools, novel modes of imaging, electron and light optics; renewable energy systems; STEM education

Kevin Karplus (Biomolecular Engineering)
Genome assembly from next-generation sequence data (Formerly protein structure prediction), signal processing and statistics for nanopore signals

Douglas Kellogg (Molecular, Cell, and Developmental Biology)
Coordination of cell growth and cell division

Joel Kubby (Electrical Engineering)
Micro-Electro-Mechanical-Systems (MEMS), adaptive optics (AO), optical-MEMS, bio-MEMS, bio-imaging, AO microscopy, AO astronomy

Sri Kurniawan (Computer Engineering)
Human-computer interaction; human factors and ergonomics; accessibility; assistive technology; usability; empirical studies; human-centered design

Alan M. Litke (SCIPP)
Neural systems; retinal processing; development and prosthesis; technology development for neurophysiology; high-energy physics

Todd Lowe (Biomolecular Engineering)
Experimental and computational genomics, non-coding RNA gene finders, high-throughput small RNA sequencing, small RNA roles in cancer, evolution of RNA-based gene regulation

Roberto Manduchi (Computer Engineering)
Computer vision and sensor processing, with application to assistive technology for the visually impaired

Dominic W. Massaro, Emeritus (Psychology)

Glenn L. Millhauser (Chemistry and Biochemistry)
Electron spin resonance; nuclear magnetic resonance, melanocortin receptor signaling, agouti proteins, prions, peptide synthesis

Linda Ogren (Molecular, Cellular, and Developmental Biology)
Endocrinology

Eric Palkovacs (Ecology and Evolutionary Biology)
Freshwater ecology, eco-evolutionary dynamics, fisheries and fish ecology

Nader Pourmand (Biomolecular Engineering)
Director UCSC Genomoics Sequencing Center
Bioelectronics, biosensors, chemosensors, nanotechnology, single cell characterization, sequencing, genotyping, pathogen detection, DNA fingerprinting

Raquel Prado (Applied Mathematics and Statistics)
Bayesian non-stationary time series modeling, multivariate time series, biomedical signal processing and statistical genetics

Jacob Rosen (Computer Engineering)
Biorobotics; human-centered robotics; medical robotics; surgery and rehabilitation;

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wearable robotics (exoskeleton); teleoperation, haptics and virtual reality, biomechanics, neuromuscular control and human-machine interfaces

Wendy Rothwell (Biomolecular Engineering)
Biotechnology, molecular genetics

Holger Schmidt (Electrical Engineering)
Optofluidics, atom photonics, hollow-core photonics for biomedicine and quantum optics, nano-magnetism, nano-magneto-optics, single-particle spectroscopy, ultrafast optics

Andrea Steiner (Community Studies)
Health-care systems, health justice, critical public health, gerontology, ageism, long-term care

Joshua Stuart (Biomolecular Engineering)
Computational functional genomics, comparative analysis of gene regulation, cross-species inference of gene networks, probabilistic graphical models

Ellen Kappy Suckiel (Emerita, Philosophy)
Ethics, William James, American philosophy, genetic ethics, ethics of biotechnology

John Tamkun (Molecular, Cell, and Developmental Biology)
Transcriptional regulation, molecular genetics of Drosophila development, regulation of gene expression

John F. Vesecky (Electrical Engineering)
HF radar design and construction and observation of ocean surface winds, waves and currents with applications to coastal and deep water ocean processes; project MEDSAT

Alan M. Zahler (Molecular, Cell, and Developmental Biology)
Molecular biology, splice site selection, and alternative pre-mRNA processing

Jin Z. Zhang (Chemistry and Biochemistry)
Design, synthesis, characterization, and application of nanomaterials, including semiconductor and metal nanoparticles; femtosecond laser spectroscopy; ultrafast dynamics on surfaces and at interfaces; cancer biomarker detection; surface-enhanced Raman spectroscopy

Yi Zuo (Molecular, Cell, and Developmental Biology)
Glia-synapse interaction and synaptic plasticity in vivo

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Biochemistry and Molecular Biology

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Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Roger W. Anderson, Emeritus, Chemistry and Biochemistry

Manuel Ares Jr., Professor, Molecular, Cell, and Developmental Biology
Regulation of RNA processing, structure, function, and evolution of RNA-based systems

Alexander Ayzner, Assistant Professor, Chemistry and Biochemistry
Experimental physical chemistry; organic semiconductors; molecular spectroscopy; electron transfer dynamics; X-ray scattering and spectroscopy

Ilan Benjamin, Professor, Chemistry and Biochemistry
Theoretical chemistry, molecular dynamics of chemical reactions in liquids and at interfaces

Claude F. Bernasconi, Emeritus, Chemistry and Biochemistry

Needhi Bhalla, Assistant Professor, Molecular, Cell, and Developmental Biology
Meiotic chromosome dynamics

Hinrich Boeger, Associate Professor, Molecular, Cell, and Developmental Biology
Chromatin structure and the regulation of transcription

Roberto A. Bogomolni, Professor, Chemistry and Biochemistry
Biophysical chemistry, photobiology, light energy conversion and signal transduction in biological systems

Barry Bowman, Professor, Molecular, Cell, and Developmental Biology
Membrane biochemistry and genetics, biochemistry and molecular biology of membrane proteins

Rebecca Braslau, Professor, Chemistry and Biochemistry
Synthetic organic chemistry: new synthetic methodologies using free radicals; nitroxides, nitroxide mediated "living" polymerizations: design and functionalization of tailored polymers for biomedical applications and nanotechnology, profluorescent nitroxides as sensors, synthetically modified polymers, development of phthalate mimics

Bin Chen, Associate Professor, Molecular, Cell, and Developmental Biology
Mammalian brain development

Shaowei Chen, Professor, Chemistry and Biochemistry
Synthesis, characterization, and manipulation of novel functional nanomaterials (metals and

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semiconductors); surface engineering of nanoparticles; nanoscale electron transfer; applications in fuel cells, photocatalysis, photovoltaics, and nano optoelectronics.

Philip O. Crews, Research Professor, Chemistry and Biochemistry

Ólöf Einarsdóttir, Professor, Chemistry and Biochemistry
Time-resolved spectroscopy; biophysics and bioenergetics; heme-copper oxidases; electron transfer and ligand binding; application of photolabile NO and 02 donors; molecular dynamics simulations of ligand access channels in heme-copper oxidases

David Feldheim, Professor, Molecular, Cell, and Developmental Biology
Developmental neuroscience

Grant Hartzog, Professor, Molecular, Cell, and Developmental Biology
Biochemistry, genetics, chromatin and transcriptional regulation

Lindsay Hinck, Professor, Molecular, Cell, and Developmental Biology
Breast development and cancer, cell biology, development

Theodore R. Holman, Professor, Chemistry and Biochemistry
Biochemistry and bioinorganic chemistry; lipoxygenase enzymology, protein engineering, inhibitor discovery, computer inhibitor design, mass spectroscopy, electron paramagnetic resonance

Melissa Jurica, Professor, Molecular, Cell, and Developmental Biology
Structure and function of human splicing machinery

Rohinton T. Kamakaka, Professor, Molecular, Cell, and Developmental Biology
Nuclear organization, Chromatin domains, Epigenetic gene regulation and Insulators

Douglas R. Kellogg, Professor, Molecular, Cell, and Developmental Biology
Coordination of cell growth and cell division

David S. Kliger, Research Professor, Chemistry and Biochemistry

Joseph P. Konopelski, Professor, Chemistry and Biochemistry
Synthetic organic chemistry; heterocyclic chemistry, bioorganic chemistry

Yat Li, Associate Professor, Chemistry and Biochemistry
Experimental physical chemistry, materials chemistry, nanomaterials, nanoscale photonics and electronics, energy conversion

Roger G. Linington, Associate Professor, Chemistry and Biochemistry
Marine natural products; drugs for neglected diseases; chemical biology; chemical probes

R.Scott Lokey, Professor, Chemistry and Biochemistry
Organic chemistry; combinatorial synthesis, biotechnology, molecular cell biology

Robert A. Ludwig, Professor, Molecular, Cell, and Developmental Biology
Plant microbe interactions, photorespiration, genetic recombination in plants

Pradip Mascharak, Professor, Chemistry and Biochemistry
Bioinorganic chemistry, design of antitumor drugs, modeling of active sites of metalloenzymes, design of catalysts for hydrocarbon oxidation, studies on intermediates in non-heme oxygenase chemistry, design of NO-donors for photodynamic therapy

Glenn L. Millhauser, Professor, Chemistry and Biochemistry
Electron paramagnetic resonance; nuclear magnetic resonance, protein structure and function, peptide synthesis, prions, melanocortin signaling

Harry F. Noller, Professor, Molecular, Cell, and Developmental Biology
Ribosome structure and function; mechanisms of protein synthesis

Scott R. Oliver, Professor, Chemistry and Biochemistry
Materials chemistry: nanoporous inorganic and metal-organic materials for environmental cleanup of water, desulfurization of fueld and biomaterials

Carrie Partch, Assistant Professor, Chemistry and Biochemistry
Biochemistry and biophysics, nuclear magnetic resonance spectroscopy; molecular

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mechanism of circadian rhythmicity

Amy Ralston, Assistant Professor, Molecular, Cell, and Developmental Biology
Origins and regulation of mammalian stem cells

Jevgenij Raskatov, Assistant Professor, Chemistry and Biochemistry
Chemical biology, organic chemistry, molecular modeling, chemotherapy, inflammation

Michael Rexach, Professor, Molecular, Cell, and Developmental Biology
Structure and function of nuclear pore complex, nuclear transport

Seth M. Rubin, Associate Professor, Chemistry and Biochemistry
Biomolecular mechanisms of cell-cycle regulation and cancer; structural biology and biochemistry; macromolecular x-ray crystallography; nuclear magnetic resonance

Jeremy Sanford, Associate Professor, Molecular, Cell, and Developmental Biology
Genomic analysis of protein-RNA interactions

William M. Saxton, Professor, Molecular, Cell, and Developmental Biology
Cytoskeletal motors and active transport processes

Thomas W. Schleich, Emeritus, Chemistry and Biochemistry

William G. Scott, Professor, Chemistry and Biochemistry
Structure and function of RNA, proteins, and their complexes, origin of life

Bakthan Singaram, Professor, Chemistry and Biochemistry
Organic synthesis, organoborane chemistry, heterocyclic chemistry, organometallic chemistry, asymmetric synthesis, biosensors, and natural products chemistry

Michael Stone, Associate Professor, Chemistry and Biochemistry
Molecular basis of telomere length and telomerase-related diseases; biophysical characterization of nucleic acid-associated molecular motors; development of novel approaches for imaging enzymes in cells

Susan Strome, Professor, Molecular, Cell, and Developmental Biology
Chromatin and RNA regulation in C. elegans

William T. Sullivan, Professor, Molecular, Cell, and Developmental Biology
Cell cycle, cytoskeleton, and host-pathogen interactions

Eugene Switkes, Emeritus, Chemistry and Biochemistry

John W. Tamkun, Professor, Molecular, Cell, and Developmental Biology
Transcriptional regulation, molecular genetics of Drosophila development, regulation of gene expression

Zhu Wang
Prostate development and cancer, tissue stem cell

W. Todd Wipke, Emeritus, Chemistry and Biochemistry

Alan M. Zahler, Professor, Molecular, Cell, and Developmental Biology
Alternative pre-mRNA splicing and small RNA function

Jin Z. Zhang, Professor, Chemistry and Biochemistry
Design, synthesis, characterization, and application of nanomaterials, including semiconductors, metals, and metal oxides; ultrafast dynamics and laser spectroscopy; cancer diagnosis and therapy; solar energy conversion; surface-enhanced Raman spectroscopy (SERS).

Martha C. Zúñiga, Professor, Molecular, Cell, and Developmental Biology
Molecular, cellular, and developmental biology of the immune system

Yi Zuo , Associate Professor, Molecular, Cell, and Developmental Biology
Synaptic plasticity in learning and memory

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Biomolecular Engineering

2014-15 General Catalog

Baskin School of Engineering
335 Baskin Engineering Building
(831) 459-2158
http://www.soe.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Mark Akeson
Development of nanopore sensors for single molecule identification, epigenetics, bioethics

Phillip Berman
Distinguished Professor of Biomolecular Engineering
Drug development, vaccines, AIDS, monoclonal antibody therapeutics, immunology, molecular cell/biology, recombinant protein production (commercial scale)

David Haussler
Investigator, Howard Hughes Medical Institute; Director, Center for Biomolecular Science and Engineering; Distinguished Professor, Biomolecular Engineering; Director, Cancer Genomics Hub; Scientific Co-Director, California Institute for Quantitative Biosciences [QB3]; Consulting Professor, Biophamaceutical Sciences, Stanford Medical School; Consulting Professor, Biopharmaceutical Sciences, University of California, San Francisco
Bioinformatics, genomics, computational genomic data analysis, molecular evolution and comparative genomics, genomic and clinical data sharing and standards, cancer genomics, neurodevelopment, stem cell research, immunogenomics, information theory, pattern recognition, machine learning, artificial intelligence, information theory, theoretical computer science

Richard Hughey (joint with Computer Engineering)
Vice Provost and Dean of Undergraduate Education
Bioinformatics, hidden Markov models, computer architecture, parallel computation

Kevin Karplus
Genome assembly from next-generation sequence data (Formerly protein structure prediction), signal processing and statistics for nanopore signals

Todd Lowe
Experimental and computational genomics, non-coding RNA gene finders, and high-throughput small RNA sequencing small RNA roles in cancer, evolution of RNA-based gene regulation

Joshua Stuart
Associate Director, CBSE for Cancer and Stem Cell Genomics; Jack Baskin Endowed

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Professor, Biomolecular Engineering
Computational functional genomics, comparative analysis of gene regulation, cross-species inference of gene networks, probabilistic graphical models

Associate Professor

Camilla Forsberg
Hematopoietic stem cells. transcriptional regulation, chromatin, blood cell development, cell surface receptors, genomics

Nader Pourmand
Director, UCSC Genomics Sequencing Center
Bioelectronics, biosensors, chemosensors, nanotechnology, single-cell characterization, sequencing, genotyping, pathogen detection, DNA fingerprinting

Assistant Professor

Rebecca M. Dubois
Protein engineering; structural virology and biomedical applications

Richard “Ed” Green
Genomics, computational molecular biology, genome assembly, human evolutionary genetics, ancient DNA, high-throughput sequencing, mRNA-processing and alternative splicing

Research Professor

David W. Deamer (UC Davis Emeritus)
Membrane biophysics, nanopore analysis, DNA sequencing, biomolecular self-assembly

Adjunct Professor

Robert Coffman
Regulation of innate and adaptive immunity, systems biology of human immune responses, development of novel vaccines and oligonucleotide-based drugs

Jonathan Trent
Organic aggregates, marine snow, microbial physiology, microenvironments, robust proteins, genetic engineering for nanotechnology

Lecturer

Sandra Dreisbach
Ethics, moral psychology, ontology, philosophy of technology

Wendy Rothwell
Biotechnology, molecular genetics

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Manuel Ares, Jr. (Molecular, Cell, and Developmental Biology)
RNA processing, structure and function of RNA

Hinrich Boeger (Molecular, Cell, and Developmental Biology)
Chromatin structure and gene regulation

Manel Camps (Microbiology and Environmental Toxicology)
Molecular mechanisms of reactive DNA methylation toxicity

William Dunbar (Computer Engineering)
Theory and application of feedback control, single-molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Lars Fehren-Schmitz (Anthropology)
Palaeogenetics/anthropological genetics, human evolutionary ecology, evolutionary demography, gene-culture coevolution, migration theories, population history of the Americas, archaeology of South America

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A. Russell Flegal (Microbiology and Environmental Toxicology)
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Robert S. Lokey (Chemistry and Biochemistry)
Organic chemistry, combinatorial synthesis, biotechnology, molecular cell biology

Glenn L. Millhauser (Chemistry and Biochemistry)
Electron spin resonance; nuclear magnetic resonance, melanocortin receptor signaling, agouti proteins, prions, peptide synthesis

Karen Ottemann (Microbiology and Environmental Toxicology)
Bacterial pathogenesis, response of bacterial pathogens to their environments

Beth Shapiro (Ecology and Evolutionary Biology)
Evolutionary and molecular ecology, ancient DNA, genomics, pathogen evolution

John W. Tamkun (Molecular, Cell, and Developmental Biology)
Transcriptional regulation, molecular genetics of *Drosophila* development, regulation of gene expression

Hongyun Wang (Applied Mathematics and Statistics)
Single molecule studies and biophysics, statistical physics, stochastic processes and stochastic differential equations, classical analysis, numerical analysis

Manfred K. Warmuth (Computer Science)
Online learning, machine learning, statistical decision theory, game theory, analysis of algorithms

W. Todd Wipke, Emeritus (Chemistry and Biochemistry)

Fitnat H. Yildiz (Microbiology and Environmental Toxicology)
Microbiology, molecular genetics, genomics; the mechanism of persistence of survival of *Vibrio cholerae*

Alan M. Zahler (Molecular, Cell, and Developmental Biology)
Alternative pre-mRNA splicing and small RNA function

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Chemistry and Biochemistry

2014-15 General Catalog

Chemistry and Biochemistry Department
230 Physical Sciences Building
(831) 459-4125
http://chemistry.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Ilan Benjamin
Theoretical chemistry, molecular dynamics of chemical reactions in liquids and at interfaces

Roberto A. Bogomolni
Biophysical chemistry, photobiology, light energy conversion and signal transduction in biological systems

Rebecca Braslau
Synthetic organic chemistry: new synthetic methodologies using free radicals; nitroxides, nitroxide mediated "living" polymerizations: design and functionalization of tailored polymers for biomedical applications and nanotechnology, profluorescent nitroxides as sensors, synthetically modified polymers, development of phthalate mimics

Shaowei Chen
Synthesis, characterization, and manipulation of novel functional nanomaterials (metals and semiconductors); surface engineering of nanoparticles; nanoscale electron transfer; applications in fuel cells, photocatalysis, photovoltaics, and nano optoelectronics

Ólöf Einarsdóttir
Time-resolved spectroscopy; biophysics and bioenergetics; heme-copper oxidases; electron transfer and ligand binding; application of photolabile NO and 02 donors; molecular dynamics simulations of ligand access channels in heme-copper oxidases

Theodore R. Holman
Biochemistry and bioinorganic chemistry; lipoxygenase enzymology, protein engineering, inhibitor discovery, computer inhibitor design, mass spectroscopy, electron paramagnetic resonance

Joseph P. Konopelski
Synthetic organic chemistry; heterocyclic chemistry, bioorganic chemistry

R.Scott Lokey

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Organic chemistry; combinatorial synthesis, biotechnology, molecular cell biology

Pradip Mascharak
Bioinorganic chemistry, design of antitumor drugs, modeling of active sites of metalloenzymes, design of catalysts for hydrocarbon oxidation, studies on intermediates in non-heme oxygenase chemistry, design of NO-donors for photodynamic therapy

Glenn L. Millhauser
Electron paramagnetic resonance; nuclear magnetic resonance, protein structure and function, peptide synthesis, prions, melanocortin signaling

Scott R. Oliver
Materials chemistry: nanoporous inorganic and metal-organic materials for environmental cleanup of water, desulfurization of fuel and biomaterials

William G. Scott
Structure and function of RNA, proteins, and their complexes, origin of life

Bakthan Singaram
Organic synthesis, organoborane chemistry, heterocyclic chemistry, organometallic chemistry, asymmetric synthesis, biosensors, and natural products chemistry

Jin Z. Zhang
Design, synthesis, characterization, and application of nanomaterials, including semiconductors, metals, and metal oxides; ultrafast dynamics and laser spectroscopy; cancer diagnosis and therapy; solar energy conversion; surface-enhanced Raman spectroscopy (SERS)

Associate Professor

Yat Li
Experimental physical chemistry, nanomaterials, energy conversion and storage, microbial fuel cell technology

Roger G. Linington
Marine natural products; drugs for neglected diseases; chemical biology; chemical probes

Seth M. Rubin
Biomolecular mechanisms of cell-cycle regulation and cancer; structural biology and biochemistry; macromolecular x-ray crystallography; nuclear magnetic resonance

Michael Stone
Molecular basis of telomere length and telomerase-related diseases; biophysical characterization of nucleic acid-associated molecular motors; development of novel approaches for imaging enzymes in cells

Assistant Professor

Alexander Ayzner
Experimental physical chemistry; organic semiconductors; molecular spectroscopy; electron transfer dynamics; X-ray scattering and spectroscopy

Carrie Partch
Biochemistry and biophysics, nuclear magnetic resonance spectroscopy; molecular mechanism of circadian rhythmicity

Jevgenij Raskatov
Chemical biology, organic chemistry, molecular modeling, chemotherapy, inflammation

Chemistry and Biochemistry Research Professors

Philip O. Crews
Marine natural products chemistry, bioorganic chemistry, organic structural analysis by NMR, natural products of marine macro- and microorganisms

David S. Kliger
Time-resolved laser spectroscopy, biophysics, studies of visual transduction, protein function, and protein folding

Chemistry and Biochemistry Emeritus Faculty

Roger W. Anderson
Design of anti-reflection graded refractive index coatings for solar energy collection, achromatic focusing of molecules with external electric fields, discrete orthoganol polynomials in molecular collision theory, and semiclassical asymptotic analysis of Racah and Hahn polynomials

Frank C. Andrews

Claude F. Bernasconi
Kinetic studies of fast reactions, organic reaction mechanisms, acid-base catalysis, proton transfers, nucleophilic reactions, organometallic reactions, ab initio molecular orbital calculations

Joseph F. Bunnett
Physical organic chemistry, with special attention to mechanisms of aromatic nucleophilic substitution

Thomas W. Schleich
Biomedical magnetic resonance spectroscopy, magnetic resonance imaging, nuclear magnetic resonance spectroscopy, biophysical chemistry

Eugene Switkes
Quantum theory applied to problems in chemistry and biochemistry; visual information processing, spatial vision, color vision

Stanley M. Williamson

W. Todd Wipke
Molecular engineering for drug discovery; computational chemistry in improving cancer chemotherapy, solar energy conversion, and continuous glucose monitoring

Chemistry and Biochemistry Lecturers

Daniel Palleros

Randa Roland

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Adjuncts

William L. Fitch (Stanford, Roche Palo Alto)
Organic mass spectrometry, drug metabolism, metabolomics, bioanalytical chemistry

Jinghua Guo (Lawrence Berkeley National Laboratory)
Nanostructured materials, interfacial structure and chemistry in energy conversion, energy storage, and catalysis; electronic structure and synchrotron radiation based soft X-ray spectroscopy

Greg L. Hura (Lawrence Berkeley National Laboratory)
Mechanisms of biological macromolecules inspire nanoscale engineering strategies and provide insights into disease; biochemistry and biophysics

Affiliates

A. Russell Flegal (Microbiology and Environmental Toxicology)
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Donald R. Smith (Microbiology and Environmental Toxicology)
Neurotoxicity, cellular and organismal responses to environmental toxins

Manel Camps (Microbiology and Environmental Toxicology)
Molecular mechanisms of reactive DNA methylation toxicity

Phillip Berman (Biomolecular Engineering)
Drug development vaccines, AIDS, monoclonal antibody therapeutics, immunology, molecular cell/biology, recombinant protein production (commercial scale)

Holger Schmidt (Electrical Engineering)

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Chinese

2014-15 General Catalog

Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Christopher L. Connery, Chinese Literature
World literature and cultural studies, globalism and geographical thought, the 1960s, Marxism, pre-modern and modern Chinese cultural studies, cultural revolution

Lecturer

David L. Keenan
Chinese language, fiction, and history

Ting-Ting Wu
Sociolinguistics, Chinese novels, learning styles and teaching methodology for non-heritage speakers

Revised: 09/01/14

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Classical Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://classicalstudies.ucsc.edu/

Program Statement

Faculty and Professional Interests

Karen Bassi, Professor of Literature
Greek and Latin literatures; gender; literary and cultural theory; pre- and early modern studies; historiography; visual and performance studies

John Bowin, Associate Professor of Philosophy
Ancient philosophy, especially ancient science and metaphysics, and contemporary analytic metaphysics

Maria Evangelatou, Assistant Professor, History of Art and Visual Culture
Medieval visual culture, with emphasis on Byzantium and its periphery; manuscript illumination, Marian cult and iconography; ancient Greek and Roman visual culture; Islamic visual culture; gender studies

Mary-Kay Gamel, Professor of Literature
Performance studies, ancient Mediterranean performance, Greek and Latin literatures, myth, reception of Greek and Roman texts and artifacts, film, feminist approaches to literature and performance

Gildas Hamel, Security of Employment Lecturer of History, Emeritus

Charles W. Hedrick Jr., Professor of History
Greek and Roman history

Jennifer K. Lynn, Lecturer
Later Roman Republic and Principate; Homeric epic; Hellenistic and Augustan poetry; the lives of women in the ancient world

John P. Lynch, Professor of Literature, Emeritus

Dean Mathiowetz, Associate Professor of Politics
Ancient political thought, philosophies of language and affect, early-modern and late-modern political economy

Gary B. Miles, Professor of History, Emeritus

Daniel L. Selden, Professor of Literature
Afroasiatic languages and literatures, Greek and Latin, Hellenistic culture, the classical

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tradition, history of criticism, literary theory

Program Faculty Advisers

Karen Bassi, Professor of Literature

Mary-Kay Gamel, Professor of Literature

Charles W. Hedrick Jr., Professor of History

Jennifer Lynn, Lecturer

Daniel L. Selden, Professor of Literature

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Community Studies

2014-15 General Catalog

213 Oakes Academic Building
(831) 459-2371
http://communitystudies.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

William H. Friedland, Emeritus

Nancy Stoller, Emerita

David T. Wellman, Emeritus

Carter Wilson, Emeritus

Deborah A. Woo, Emerita

Lecturer

Andrea Steiner
Health policy, critical public health, social gerontology, ageism, women's health activism

Leslie Lopez
Political economy of education and cultural production, social movements in Latin America/U.S., journalism and oral history, literacy and language, immigration, youth

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Professor

David Brundage (History)
American immigration history, with particular focus on the Irish in America and on transnational immigrant politics; U.S. labor and social history; modern Irish history

Heather E. Bullock (Psychology)
Poverty and economic inequality, welfare policy, feminist psychology, intersections of classism, racism, and sexism

Nancy N. Chen (Anthropology)
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

Dana Frank (History)
U.S. social and economic history; women, labor, and working-class history; contemporary political economy

Julie Guthman (Social Sciences)

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Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, critical human geography

Craig W. Haney (Psychology)
Applications of social psychological principles to legal settings, assessment of the psychological effects of living and working in institutional environments, social contextual origins of violence, development of alternative legal and institutional forms

David E. Kaun, Emeritus

Regina D. Langhout (Psychology)
School-community-university collaboration; how schooling and neighborhood experiences are informed by social class, race, and gender; young people and empowerment; participatory action research

Craig Reinarman (Sociology)
Political sociology; law, crime, and social justice; drugs and society

Patricia Zavella, (Latin American and Latino Studies)
Transnational migration by Mexicans, poverty, family, sexuality, labor, social networks, feminist studies, Chicana/o-Latina/o studies, ethnographic research methods

Associate Professor

Eva Bertram, (Politics)
American politics, public policy, political economy, and political history, including social policy and the welfare state , and the changing character of work and labor markets in the United States.

Miriam Greenberg (Sociology)
Urban sociology, media studies, cultural studies, political economy, globalization, and urban political ecology

Steven McKay (Sociology)
Work and labor markets; globalization and social change; political sociology; race; masculinity; migration; ethnography/qualitative methods

Mary Beth Pudup (Social Sciences)
Urban and regional political economy, historical geography of the U.S., public policy, community gardening and urban agriculture, non-profit sector

Assistant Professor

Matthew Wolf-Meyer (Anthropology)
Anthropology and history of medicine and public health, science studies, American studies, popular culture, the United States and the United Kingdom

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Computer Engineering

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Alexandre Brandwajn, Emeritus

Gabriel Elkaim
Embedded systems; robust software architectures for real-time reactive systems; sensor fusion; guidance, navigation, and control (GNC) system identification; robust and advanced control schemes; feedback control systems; robotics; unmanned autonomous vehicles (UAVs); and cooperative control

F. Joel Ferguson
Fault diagnosis, failure analysis, logic fault modeling, digital test pattern generation, design-for-test of digital circuits and systems

J. J. García-Luna-Aceves (Department Chair)
Jack Baskin Endowed Professor of Computer Engineering
Director of Networking Sciences Institute
Principles of computer communication, Internet, mobile and pervasive computing, wireless networks, information-centric networks, network science

Richard Hughey (joint with Biomolecular Engineering)
(Vice Provost and Dean of Undergraduate Education)
Bioinformatics, hidden Markov models, computer architecture, parallel computation

Tracy Larrabee
Test-pattern simulation and generation, fault modeling, fault diagnosis, design verification, technical writing, logic simulation

Roberto Manduchi
Computer vision and sensor processing, with application to assistive technology for the visually impaired, mobile and pervasive computing

Patrick E. Mantey
Associate Dean, Industry Programs
Jack Baskin Endowed Professor of Computer Engineering
CITRIS Campus Director
Director of ITI
Multimedia systems, digital signal processing, sensor systems and networks, real-time

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monitoring and control, image systems, image processing, visualization, geographic information systems, decision support systems

Katia Obraczka
Computer networks, distributed systems, operating systems, Internet information systems, mobile computing, wireless networks, , mobile and pervasive computing

Martine D. F. Schlag
VLSI design tools and algorithms, VLSI theory, field-programmable gate arrays, FPGA-based computing engines

Anujan Varma
Computer networking, computer architecture, optical networks

Associate Professor

Pak K. Chan, Emeritus

William Dunbar
Theory and application of feedback control, single molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Matthew R. Guthaus
Health sensor systems, digital health, mobile health applications, integrated circuits and chip design (VLSI), electronic computer-aided design (ECAD), low-power circuits, mobile and pervasive computing

Sri Kurniawan
Human-computer interaction; human factors and ergonomics; accessibility; assistive technology; usability; empirical studies; human-centered design

Dejan Milutinović
Stochastic and nonlinear control, optimization, stochastic processes and estimation, hybrid and discrete event systems, signal processing and real-time computer control with applications to robotics, air-traffic and multi-agent systems

Jose Renau
Computer architecture, including design effort metrics and models, infrared thermal measurements and modeling, simulation, FPGA/ASIC design, mobile and pervasive computing

Ricardo Sanfelice
Modeling, stability, control, estimation, and simulation of nonlinear and hybrid systems with applications to autonomous vehicles, power systems, and biology

Adjunct Professor

Victoria Bellotti
Focus on user-centered design of context- and activity-aware computing systems

Renwick Curry
Control and optimization with special attention to aviation; air-traffic control; and collision-avoidance system design and analysis

Peter Danzig
Internet web caching, scalable techniques to stream internet media around the world, scalable mechanisms to dynamically transform web content as applied to security for residential and enterprise networks

Harwood G. Kolsky, Retired

Associate Adjunct Professor

Mircea Teodorescu
Dynamics, vibrations, contact mechanics, biomechanics

Assistant Adjunct Professor

Andrea Di Blas

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Parallel computer architectures, parallel applications and programming models, combinatorial optimization

David Pease
File systems, operating systems, storage, programming languages

Bruce Sawhill
Self-organizing systems, distributed control, dynamic scheduling, many-agent systems, agent-based simulation, game theory, computational logic, dynamics of social and economic networks, foundation of nonequilibrium economics

Cedric Westphal
Internet working and wireless networks, analytical modeling, mobile and pervasive computing

Lecturer

Gerald Moulds
Technical writing, professional communications

Stephen C. Petersen
Embedded controller systems, RF wireless systems, modulation and spectrum reuse, digital signal processing, circuit theory

Bradley Smith
Computer communications, distributed systems, policy-based routing, routing protocols, security and trust in distributed systems

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Luca De Alfaro (Computer Science)
Reputation systems, crowdsourcing, game theory, formal methods

Benjamin Friedlander (Electrical Engineering)
Digital communications, wireless communication system, array processing, adaptive signal processing

Qi Gong (Applied Mathematics and Statistics)
Computational methods for real-time control systems, trajectory optimization and motion planning, nonlinear filtering and observer design, robust and adaptive control of nonlinear systems, industry applications of control theory

Claire Gu (Electrical Engineering)
Fiber sensors for bio-applications, optical fiber communications, volume holographic data storage, liquid crystal displays, nonlinear optics, optical information processing

Kevin Karplus (Biomolecular Engineering)
Genome assembly from next-generation sequence data. (Formerly protein structure prediction), signal processing and statistics for nanopore signals

Suresh K. Lodha (Computer Science)
Data analytics and visualization, vision, innovation, technology for social good

Darrell D. E. Long (Computer Science)
Data storage systems, distributed computing, operating systems, performance evaluation, reliability, cyber security, data science, multimedia

Dominic W. Massaro, Emeritus

Charles E. McDowell (Computer Science)
Programming languages, parallel computing, and computer science education

Peyman Milanfar (Electrical Engineering)
Statistical signal, image, and video processing; computational vision and photography; modeling and inverse problems in imaging; detection and estimation theory

Ethan L. Miller (Computer Science)
Archival storage systems, non-hierarchical file systems and metadata management, non-volatile memory and next-generation storage, scalable file systems, reliable and secure

storage, distributed systems, information retrieval, computer security

John Musacchio (Technology and Information Management)
Control, analysis, and pricing of communications networks; applications of game theory in networking; wireless ad-hoc networks; and management of technology

Alex T. Pang (Computer Science)
Uncertainty visualization, tensor visualization, scientific visualization, comparative visualization, collaboration software, virtual reality interfaces

Ira Pohl, Emeritus

Hamid Sadjadpour (Electrical Engineering)
Wireless communication systems, network information theory and scaling laws, performance analysis of wireless and social networks, routing and MAC protocol design for wireless networks

Patrick Tantalo
Graph theory, combinatorics, optimization, algorithms

Linda Werner
Software engineering, computer-science education, testing, increasing diversity in computer science

E. James Whitehead, Jr. (Computer Science)
Software engineering, software evolution, software bug prediction, level design in computer games, procedural content generation

Donald Wiberg, Emeritus (UCLA)
Control systems, Kalman filtering, system parameter estimation, adaptive optics for large telescopes, and biomedical system modeling

Yi Zhang (Technology and Information Management)
Large-scale information retrieval, recommendation systems, internet advertising, data mining, language processing, and applied machine learing

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Computer Science

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Program Description | Course Descriptions | Games and Playable Media Courses

Faculty and Professional Interests

Professor

Martín Abadi, Emeritus

Dimitris Achlioptas
Analysis of algorithms, machine learning, random structures

Luca de Alfaro
Reputation systems, crowdsourcing, game theory, formal methods

Scott A. Brandt
Operating systems, storage systems, real-time systems

Cormac Flanagan
Programming languages, computer security, web programming, concurrency, verification, type systems, dynamic analysis

Lise Getoor
Machine learning, reasoning under uncertainty, analysis of graphs and networks, artificial intelligence, databases, data integration, visual analytics, data science

David P. Helmbold
Machine learning, computational learning theory, analysis of algorithms

Harry D. Huskey, Emeritus

Phokion G. Kolaitis, Distinguished Professor of Computer Science
Principles of database systems, logic in computer science, and computational complexity

Robert A. Levinson, Emeritus

Suresh K. Lodha
Data analytics and visualization, vision, innovation, technology for social good

Darrell D. E. Long, Kumar Malavalli Endowed Professor
Data storage systems, distributed computing, operating systems, performance evaluation, reliability, cyber security, data science, multimedia

Michael Mateas
Artificial Intelligence (AI) for art and entertainment, game AI, AI and creativity, AI-based

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interactive storytelling, autonomous characters

Charles E. McDowell
Programming languages, parallel computing, and computer science education

Ethan L. Miller
Archival storage systems, non-hierarchical file systems and metadata management, non-volatile memory and next-generation storage, scalable file systems, reliable and secure storage, distributed systems, information retrieval, and computer security

Alex T. Pang
Uncertainty visualization, tensor visualization, scientific visualization, comparative visualization, collaboration software, virtual reality interfaces

Ira Pohl, Emeritus

Neoklis Polyzotis
Databases, online database turning, crowdsourcing, and scientific data management

Wang-Chiew Tan
Database systems: data provenance, information integration

R. Michael Tanner, Emeritus

Allen Van Gelder
Logic programming algorithms, parallel algorithms, complexity, programming languages, automated theorem proving, scientific visualization

S.V.N. Vishwanathan
Analysis of algorithms, optimization of machine learning, structure prediction

Marilyn Walker
Dialogue systems, natural language processing, computer games, human-computer interaction, machine learning, artificial intelligence

Manfred K. Warmuth
Online learning, machine learning, statistical decision theory, game theory, analysis of algorithms

E. James Whitehead Jr.
Software engineering, software evolution, software bug prediction, level design in computer games, procedural content generation

Associate Professor

James E. Davis
Information and Communication Technologies for Development (ICTD), technology for global social issues, human computation, computational photography, computer vision, computer graphics

Noah Wardrip-Fruin
Digital media, computer games, electronic literature, software studies

Assistant Professor

Arnav Jhala
Artificial Intelligence: storytelling in games, intelligent machinima generation, smart graphics, and intelligent user interfaces

Seshadhri Comandur
Sublinear algorithms, theoretical foundations for massive data, social network analysis

Adjunct Professor

Brenda Laurel
Human-computer interaction and experience design, immersive and augmented reality environments, dramatic theory and interaction design, game design, gender and technology, interaction and the natural world

Linda Werner

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Software engineering, computer science education, children and computer game creation, testing, increasing diversity in computer science

Associate Adjunct

Carlos Maltzahn
Scalable file system data and metadata management, storage Quality of Service (QoS), data management games, network intermediaries, information retrieval and cooperation dynamics

Balder ten Cate
Data management, logic, algorithms, and complexity

Thomas Schwarz
Reliability and security in storage systems

Assistant Adjunct Professor

Thomas Kroeger
Predictive systems, network layer security protocols, large system monitoring

Lecturer

Wesley Mackey
Compiler construction, programming languages

Patrick Tantalo
Graph theory, combinatorics, optimization, algorithms

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Lawrence Andrews (Film and Digital Media)
Film and video production, documentary, installation and media art, sound, animation

Alexandre Brandwajn, Emeritus (Computer Engineering)

Pak K. Chan, Emeritus (Computer Engineering)

Gabriel Elkaim
Embedded systems; robust software architectures for real-time reactive systems; sensor fusion; guidance, navigation, and control (GNC) system identification; robust and advanced control schemes; feedback control systems; robotics; unmanned autonomous vehicles (UAVs); and cooperative control

F. Joel Ferguson (Computer Engineering)
Fault diagnosis, failure analysis, logic fault modeling, digital test pattern generation, design-for-test of digital circuits and systems

J. J. García-Luna-Aceves (Computer Engineering)
Chair of Computer Engineering
Jack Baskin Endowed Professor of Computer Engineering
Director of Networking Sciences Institute
Principles of computer communication, Internet, mobile and pervasive computing, wireless networks, information centric networks, network science

David Haussler (Biomolecular Engineering; Investigator, Howard Hughes Medical Institute; Director, Center for Biomolecular Science and Engineering; Distinguished Professor, Biomolecular Engineering; Director, Cancer Genomics Hub; Scientific Co-Director, California Institute for Quantitative Biosciences [QB3]; Consulting Professor, Biopharmaceutical Sciences, Stanford Medical School; Consulting Professor, Biopharmaceutical Sciences, UC San Francisco)
Bioinformatics, genomics, computational genomic data analysis, molecular evolution and comparative genomics, genomic and clinical data sharing and standards, cancer genomics, neurodevelopment, stem cell research, immunogenomics, information theory, pattern recognition, machine learning, artificial intelligence, information theory, theoretical computer science

Richard Hughey (Biomolecular Engineering and Computer Engineering)
(Vice Provost and Dean of Undergraduate Education)

Computer architecture, parallel processing, computational biology

Kevin Karplus (Biomolecular Engineering)
Genome assembly from next-generation sequence data (Formerly protein structure prediction), signal processing and statistics for nanopore signals

Tracy Larrabee (Computer Engineering)
Test-pattern simulation and generation, fault modeling, fault diagnosis, design verification, technical writing, logic simulation

Patrick E. Mantey (Computer Engineering)
(Baskin Professor of Computer Engineering)
Multimedia systems, digital signal processing, sensor systems and networks, real-time monitoring and control, image systems, image processing, visualization, geographic information systems, decision support systems

Katia Obraczka (Computer Engineering)
Computer networks, distributed systems, operating systems, Internet information systems, mobile computing, wireless networks

Warren Sack (Film and Digital Media)
Software design and media theory

Martine D. F. Schlag (Computer Engineering)
VLSI design tools and algorithms, VLSI theory, field-programmable gate arrays, FPGA-based computing engines

Barry Sinervo (Ecology and Evolutionary Biology)
Animal behavior, evolution, physiological ecology

Anujan Varma (Computer Engineering)
Computer networking, computer architecture, optical networks

W. Todd Wipke, Emeritus (Chemistry and Biochemistry)

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Critical Race and Ethnic Studies

2014–15 General Catalog

503 Humanities I
(831) 459–2696
http://humanities.ucsc.edu/

Program Statement | Course Descriptions

Faculty and Professional Interests

Principal Faculty

Neda Atanasoski, Feminist Studies
New media and film; critical race and ethnic studies; feminist theory; human rights and humanitarianism; war and nationalism; religion and secularism; post-socialist politics and culture in Central and Eastern Europe

Vilashini Cooppan, Literature
Postcolonial studies; comparative and world literature; literatures of slavery and diaspora; globalization studies; cultural theory of race and ethnicity

Christine Hong, Literature
Asian American literature and cultural criticism; African American literature and black freedom studies; Korean diasporic cultural production; Pacific Rim studies; postcolonial theory; critical race theory; human rights discourse; law and literature; narrative theory; film and visual studies

Steve McKay, Sociology
Work and labor markets; globalization and social change; political sociology; race; masculinity; migration; ethnography/qualitative methods

Marcia Ochoa, Feminist Studies
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, geography, multimedia production, graphic design, colonialism and modernity, Latin American studies—Colombia and Venezuela, social documentation

Juan Poblete, Literature
Latin(o) American literatures; transnational/global cultures (literature, radio, film); Latin(o) American cultural studies; 19th-century studies; the history of reading practices

Eric Porter, History/History of Consciousness
Black cultural and intellectual history; U.S. cultural history and cultural studies; critical race and ethnic studies; jazz and popular music studies; urban studies

Felicity Amaya Schaffer, Feminist Studies
Transnational feminisms; sexuality and migration, technology, and race; intimacy and globalization; Latin American/Latino studies; border studies; Chicana/o studies; biometrics

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and security studies

Karen Yamashita, Literature
History and anthropology of Japanese immigration to Brazil; Asian American literature; modern fiction; playwriting

Alice Yang, History
Historical memory, Asian American history, gender history, race and ethnicity, 20th-century U.S., oral history

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Mark Anderson, Anthropology
Racial formation, diaspora, nationalism, transnationalism, culture and power; Latin America, African diaspora

David Anthony, History
African and African American history, art, music, literature, and cinema; eastern and southern Africa; African languages; Indian Ocean world; African and African American linkages; Islamic civilization; African diaspora studies; world history

Bettina Aptheker, Feminist Studies
Feminist oral history and memoir; feminist pedagogy; African American feminist history; queer studies; feminist Jewish studies; feminist critical race studies

Anjali Arondekar, Feminist Studies
South Asian studies, colonial historiography; feminist theories; queer theory; critical race studies; 19th-century interdisciplinary studies

Gabriela Arredondo, Latin American and Latina/o Studies
Latina/o studies; Chicana/o history; U.S. immigration histories; U.S. social and cultural history; critical race and ethnicity theories; Chicana and Mexicana feminisms; "borderlands" studies; history of modern Mexico

Noriko Aso, History
Japanese social, intellectual, and cultural history, material culture, colonialism, nationalism, gender, race and ethnicity

Karen Bassi, Literature
Greek and Latin literatures; gender; literary and cultural theory; pre- and early modern studies; historiography; visual and performance studies

Dorian Bell, Literature
Nineteenth- and 20th-century French literature and intellectual history; histories of empire and anti-Semitism; literature and science; film studies; digital humanities

Martin Berger, History of Art and Visual Culture
Gender, race, and representation in U.S. culture

David Brundage, History
American immigration history, with particular focus on the Irish in America and on transnational immigrant politics; U.S. labor and social history; modern Irish history

Chris Chen, Literature
Twentieth- and 21st-century African American literature; Asian American literature; 20th and 21st-century US multiethnic poetry and poetics; comparative ethnic literary studies; literary formalisms and comparative racialization; contemporary experimental poetics and political theory

Nancy Chen, Anthropology
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

Alan Christy, History
Early modern and modern Japan; history of social sciences, colonialism, nationalism

Chris Connery, Literature

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World literature and cultural studies; globalism and geographical thought; the 1960s; Marxism; pre-modern and modern Chinese cultural studies; cultural revolution

Cynthia Cruz, Education
Feminist ethnography; community-based learning; decolonial pedagogies; LGBTQ street youth; women of color thought; cultural studies and education

Jon Daehnke, Anthropology
Archaeology of the North American Pacific Coast, cultural heritage politics and law, contemporary Native American politics, human-environment interaction, landscape and place, collaborative methodologies, NAGPRA implementation and compliance, public representations of heritage and memory

Grace Peña Delgado, History
Chicano/a History; Mexico-US-Canadian Borderlands; Latino/a Studies; Asian and Asian American Studies; Immigration; Gender and Sexuality; Modern Mexico and Latin America

Gina Dent, Feminist Studies
Africana literary and cultural studies, legal theory, popular culture

Jennifer Derr, History
Colonial and Post-colonial Middle Eastern history; Egypt; agricultural and environmental history; Ottoman history; spatial politics; African history; Islamic history

Nathaniel Deutsch, History
Modern Jewish history; Eastern European Jewish culture; ethnography, Hasidism; history of religions

Maria Elena Diaz, History
Atlantic world, Colonial Latin America and the Caribbean, Cuba; social and cultural, global and local histories; colonialism, slavery and freedom, race/ethnicity, gender and class; legal, political, popular, and religious culture

Sylvana Falcón, Latin American and Latina/o Studies
Human rights activism, racism/antiracism, globalization, gender, transnational feminism, contemporary Peru

Adrián Félix, Latin American and Latina/o Studies
International migration; Mexico-U.S. migration; migrant transnationalism; racial/ethnic politics and identity; politics of citizenship; Latino politics

Dana Frank, History
Late 19th- and 20th-century U.S. social history; women's, labor, and working-class history; race and ethnicitymodern Honduras; U.S. history in transnational perspective

Carla Freccero, Literature
Renaissance studies; French and Italian language and literature; early modern studies; postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

Rosa-Linda Fregoso, Latin American and Latina/o Studies
Human rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Hiroshi Fukurai, Sociology
Citizen participation in law, race and the law, indigenous approach to international law, decolonialism, Japan and East Asia, advanced quantitative methods, survey research

K.C. Fung, Economics
International trade and finance, WTO, foreign direct investment, global environmental economics, and Asia/Pacific economies

Susan Gillman, Literature
Nineteenth-century American literature and culture; theories of culture, race, and gender; world literature and cultural studies

Jennifer González, History of Art and Visual Culture
Contemporary theories of visual culture, semiotics, critical museum studies, photography,

public and activist art in the U.S.

Herman Gray, Sociology
Cultural studies, media and television studies, black cultural politics, social theory

Kirsten Silva Gruesz, Literature
Transnational Americas studies; Chicano/Latino literatures and cultures; 19th-century U.S. and Latin American literature; poetry; history of the book; reading and literacy; bilingualism

Lisbeth Haas, History
U.S.-Mexico borderlands and border studies, Chicano and Native American history; visual culture in the colonial Americas; California; historical memory, theory, and historical methodology

Karlton Hester, Music
Premeditated, electroacoustic, and spontaneous composition; flutes, saxophones, and interdisciplinary performance; improvisational and Afrocentric music theory, analysis and history. Artistic Director, Global African Music and Arts Festival/Symposium; UCSC/ISIM International Improvisation Festival/Conference

Catherine Jones, History
U.S. civil war and Reconstruction; slavery and emancipation; the American South; history of children; history of education; women and gender

L.S. Kim, Film and Digital Media
Television history and theory, racial discourse, feminist criticism, Asian-American cultural theory and production, industrial practices and social change in both mainstream Hollywood and alternative media

Norma Klahn, Literature
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Regina Langhout, Psychology
School-community-university collaboration; how schooling and neighborhood experiences are informed by social class, race, and gender; young people and empowerment; participatory action research

Kimberly Lau, Literature
Feminist theory; fairy tale studies; virtual worlds; social fictions; discourse analysis and ethnographic methods

Amy Lonetree, History
Indigenous history; museum studies; memory and history; Native American cultural production; public history; and Ho-Chunk tribal history

Boreth Ly, History of Art and Visual Culture
Visual cultures of Southeast Asia and its diaspora: religions and materiality, theory of visual narrative, the politics of cultural translation; (post) colonial and cultural studies; issues of gender, sexuality, race, and trauma

David Marriott, History of Consciousness
Poetics, black cultural studies, literary and psychoanalytic theory, visual culture studies, black cultural theory and philosophies of race, caribbean modernism, Fanon studies

Marc Matera, History
Britain and the British Empire; Modern Europe; world history; Atlantic World; western Africa; African diaspora studies; colonialism; race/ethnicity, gender, and sexuality

Lourdes Martinez-Echazabal, Latin American and Latina/o Studies
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found[n]ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Derek Murray, History of Art and Visual Culture
Theory and criticism of contemporary art, cultural theory, identity and representation, art of

the African diaspora, popular visual culture, contemporary photography, and the ethics of art history and visual studies

Matthew O'Hara, History
Colonial and modern Latin America; Mexico; religion; race, ethnicity, and identity; political culture; history of time

Greg O'Malley, History
Slavery and the slave trade; the colonial Americas; the Atlantic World; race, ethnicity, and encounters; Native American history; revolutionary America

Hector Perla, Latin American and Latina/o Studies
International relations; Latin American studies; Latino politics; 21st-century left in Central America; U.S. foreign policy; social and revolutionary movements; asymmetric conflicts; political psychology; transnational political mobilization

Catherine Ramírez, Latin American and Latina/o Studies
United States cultural history, with a focus on immigration and assimilation; theories of citizenship; Latino literature; comparative ethnic studies; feminist and gender studies; cultural studies

Jennifer Reardon, Sociology
Science studies; sociology of science, technology, and medicine; feminist theory; race/ethnicity/gender/sexuality/class; biology and society

Cecilia Rivas, Latin American and Latina/o Studies
Transnationalism; media and communication (Internet, newspapers); migration; globalization; race, ethnicity, and gender; bilingualism; consumption; El Salvador, Central America, Southern Mexico

Vanita Seth, Politics
Early modern and modern political theory, feminist theory, cultural history, race politics, postcolonial theory

Nirvikar Singh, Economics
Industrial organization, political economy, economic development, technology and innovation, South Asian immigrants in the U.S., Indian economy, Sikhs and the Punjab

Yiman Wang, Film and Digital Media
Theory of difference; film history and theory; colonial/semi-colonial/postcolonial/postsocialist modes of media production and exchange; border-crossing film remakes; silent cinema; translation theory and cinema; acting theory/practice and ethnic star studies with focus on Anna May Wong; transnational connections and ramifications of Chinese cinema and documentary; fan culture; East Asian cinemas

Lewis Watts, Professor Emeritus, Art

Marilyn Westerkamp, History
Colonial and revolutionary America; the Atlantic World; early modern cultural and religious history; U.S. religious history; gender studies; history of the body

Ronaldo Wilson, Literature
20th-century and contemporary African American literature; poetry; contemporary American poetry and poetics; Black visual culture; recent experimental writers and artists

Pat Zavella, Latin American and Latina/o Studies
Transnational migration by Mexicans, poverty, family, sexuality, labor, social networks, feminist studies, Chicana/o-Latina/o studies, ethnographic research methods

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Digital Arts and New Media

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DARC 204
(831) 459-1919
http://danm.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Ralph H. Abraham, Professor Emeritus, Mathematics

Elliot W. Anderson, Associate Professor, Art
Electronic art, digital arts/new media

Lawrence Andrews, Associate Professor, Film and Digital Media
Film and video production, documentary, installation and media art, sound, animation

Neda Atanasoski, Assistant Professor, Feminist Studies
New media and film; critical race and ethnic studies; feminist theory; human rights and humanitarianism; war and nationalism; religion and secularism; post-socialist politics and culture in Central and Eastern Europe

Gopal Balakrishnan, Associate Professor, History of Consciousness
Classics of political thought from Plato to Rousseau, early modern and modern European intellectual history, historical sociology, the history and future of capitalism, nationalism

Brandin Baron-Nusbaum, Associate Professor, Theater Arts
Costume design, history of design

Amy C. Beal, Professor, Music
American music, 20th-century music, experimental and improvisatory performance practices, postwar and Cold War culture, German new music festivals and radio stations, piano performance, contemporary music ensemble

Tandy Beal, Lecturer, Theater Arts (Dance)
Choreography, improvisation, technique, performance skills, collaborations with classical and jazz composers, circus, theater and video, children's productions

James H. Bierman, Professor, Theater Arts (Drama)
Playwriting, theater history and literature, classical and Renaissance drama, Chicano theater, digital media

Kirsten Brandt, Lecturer, Theater Arts (Drama)
Associate Artistic Director, San Jose Repertory Theatre

Benjamin L. Carson, Associate Professor, Music
Theories of consciousness and cognition, rhythm perception, Schoenberg, history of compositional method, subjectivity and identity

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- Electrical Engineering
- Environmental Studies
- Biological Sciences
- Feminist Studies
- Film and Digital Media
- French
- German
- German Studies
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Humanities
- Italian
- Italian Studies
- Japanese
- Jewish Studies
- Languages and Applied Linguistics
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Microbiology and Environmental Toxicology
- Biological Sciences
- Music
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- Philosophy
- Physical Education
- Physics
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Michael Chemers, Associate Professor, Theater Arts
Theater history and theory, playwriting, dramaturgy, acting

Nancy Chen, Professor, Anthropology
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

Alan Christy, Associate Professor, History
Early modern and modern Japan; history of social sciences, colonialism, nationalism

Christopher Connery, Professor, Literature
World literature and cultural studies, globalism and geographical thought, the 1960s, Marxism, pre-modern and modern Chinese cultural studies, cultural revolution

Vilashini Cooppan, Associate Professor, Literature
Postcolonial studies; comparative and world literature; literatures of slavery and diaspora; globalization studies; cultural theory of race and ethnicity

David H. Cope, Professor Emeritus, Music

Melanie Cordan, Lecturer, Digital Arts and New Media
Character animation, film, games, illustration, story boarding, 2-D animation, teaching

E. G. Crichton, Professor, Art
Intermedia, electronic arts, photography, installation

David L. Cuthbert, Associate Professor, Theater Arts
Lighting design, CADD, projection design, scenic design

Sharon A. Daniel, Professor, Film and Digital Media
Community-based public art in information and communications environments, social and political aspects of information technology, community networks, participatory culture, digital inclusion, net art, human-computer interface design

James E. Davis, Associate Professor, Computer Science
Computer graphics and computer vision, methods for acquiring and manipulating complex graphical models from the real world

Luca De Alfaro, Professor, Computer Science
Reputation systems, crowdsourcing, game theory, formal methods

Kate Edmunds, Professor, Theater Arts
Set design for theater and film

Shelly E. Errington, Professor, Anthropology
Globalization of folk art, visual and social semiotics, photography, film, the Internet and digital media, Southeast Asia, and Latin America

M. Kathleen Foley, Professor, Theater Arts (Drama)
Asian theater, Southeast Asian studies, performance studies, maskwork, puppetry, multicultural theater

Mark Franko, Professor, Theater Arts (Dance)
Dance history and theory, choreography, technique, performance studies, theatrical theory in historical and critical perspective

Carla Freccero, Professor, Feminist Studies, History of Consciousness, Literature
Renaissance studies; French and Italian language and literature; early modern studies; postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

Patty Gallagher, Associate Professor, Theater Arts (Dance)
Movement training for actors, circus and clown traditions, and Indonesian dance/performance

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Jennifer A. González, Professor, History of Art and Visual Culture
Contemporary theories of visual culture, semiotics, critical museum studies, photography, public and activist art in the U.S.

Shelby Graham, Lecturer, Digital Arts and New Media

Irene Gustafson, Associate Professor, Film and Digital Media
Producing across the boundaries between "theory" and "practice," non-fiction media, experimental film/video, production design, gender and queer studies

Helen Mayer Harrison, Visiting Eminent Professor, Arts Division and Art Department

Newton Harrison, Visiting Eminent Professor, Arts Division and Art Department

Karlton Hester, Associate Professor, Music
Premeditated, electroacoustic, and spontaneous composition; flutes, saxophones, and interdisciplinary performance; improvisational and Afrocentric music theory, analysis and history

Dee Hibbert-Jones, Associate Professor, Art
Public art, sculpture

Robin Hunicke, Visiting Associate Professor, Art
Game design

Donna M. Hunter, Associate Professor, History of Art and Visual Culture
European painting (especially French) from 1600 to the 1960s; German art and visual culture between the two world wars; art as social practice, portraiture

Robin James, Associate Professor, Philosophy (UNC Charlotte)
Contemporary continental philosophy, feminist theory, and critical race/postcolonial theory

Kimberly Jannarone, Professor, Theater Arts (Drama)
Directing, dramaturgy, dramatic theory and criticism, theater history, acting

Arnav Jhala, Assistant Professor, Computer Science
Artificial intelligence: video games, graphics, and intelligent user interfaces

David E. Jones, Professor, Music; Provost, Porter College
Composition and analysis, chamber opera, Balkan music, language and music, timbre and orchestration

David Kaun, Professor, Economics
Economics of art and culture; political economy of capitalism (including the quality of public discourse and its impact on public policy)

James Khazar, Lecturer, Art

Christine L. King, Lecturer, Kresge College

Mark Krumholz, Associate Professor, Astronomy and Astrophysics
Star formation, interstellar medium, numerical methods

Sri Kurniawan, Assistant Professor, Computer Engineering
Human-computer interaction; human factors and ergonomics; accessibility; assistive technology; usability; empirical studies; user-centered design

Brenda Laurel, Adjunct Professor, Computer Science
Research, design, and production management of interactive media

John Jota Leanos, Assistant Professor, Social Documentation
Documentary animation, social documentation, social art practice, community arts, Chicana/o art and culture, new media, critical media studies, cultural studies, documentary photography, installation art, public art and interventionist art practice

Norman Locks, Professor, Art
Photography

Charles L. Lord, Professor Emeritus, Film and Digital Media

Paul M. Lubeck, Professor Emeritus, Sociology

Irene Lusztig, Assistant Professor, Film and Digital Media
Film and video production, experimental documentary, ethnographic film, autobiographical film, editing

Dominic W. Massaro, Professor Emeritus, Psychology

Michael J. Mateas, Professor, Computer Science
Artificial Intelligence (AI) for art and entertainment, game AI, AI and creativity, AI-based interactive storytelling, autonomous characters

Charles McDowell, Professor, Computer Science; Associate Dean of Engineering for Undergraduate Affairs
Programming languages, parallel computing, and computer science education

Margaret E. Morse, Professor Emerita, Film and Digital Media

Derek C. Murray, Assistant Professor, History of Art and Visual Culture
Contemporary art, globalization, theory and criticism, African-diaspora art, visual-culture studies, cultural theory

Soraya Murray, Assistant Professor, Film and Digital Media
Contemporary visual culture and representation including: new media art; projected arts; photography; electronic games; theories of art and globalization; representations of migration and otherness

Spencer Nakasako, Lecturer, Social Documentation

Paul Nauert, Professor, Music
Theory, composition; rhythm and meter; music cognition; mathematical and computer models of the compositional process

Dard A. Neuman, Assistant Professor, Music; Kamil and Talat Hasan Endowed Chair in Classical Indian Music
Ethnomusicology; Hindustani music; colonialism, nationalism, technology and performance; sitar

A. Todd Newberry, Professor Emeritus, Ecology and Evolutionary Biology

Marcia Ochoa, Associate Professor, Feminist Studies
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, geography, multimedia production, graphic design, colonialism and modernity, Latin American studies—Colombia and Venezuela

Alex Pang, Professor, Computer Science
Uncertainty visualization, tensor visualization, scientific visualization, collaboration software, virtual reality interfaces

Jennifer Parker, Associate Professor, Art
Sculpture, installation, video, and performance art

Stephen C. Petersen, Lecturer, Computer Engineering
Embedded controller systems, RF wireless systems, modulation and spectrum reuse, digital signal processing, circuit theory

Larry Polansky, Professor, Music
Composition, post-tonal theory, algorithmic music, American music, tuning theory, contemporary music, ensemble performance and performance practice, acoustic and electric guitar music, music editing and publishing, interdisciplinary collaboration, music and scientific research

Eric Porter, Professor, American Studies
Black cultural and intellectual history; U.S. cultural history and cultural studies; critical race and ethnic studies; popular music and jazz studies

S. Ravi Rajan, Associate Professor, Environmental Studies
Environmental history and political ecology, risk and disaster studies, science and technology studies, North-South environmental conflicts, environmental social theory, environmental ethics

B. Ruby Rich, Professor, Social Documentation and Film and Digital Media
Documentary film and video, post-9/11 culture, new queer cinema, feminist film history, Latin American and Latin/a cinema, U.S. independent film and video, the essay film, the politics of film festival proliferation and the marketing of foreign films in the U.S.

Jennifer Reardon, Associate Professor, Sociology
Science studies; sociology of science, technology, and medicine; feminist theory; race/ethnicity/gender/sexuality/class; biology and society

Kate O'Riordan, Associate Professor, Art
Theory, digital media technologies.

Adrienne Roberts, Lecturer, Art

Warren Sack, Professor, Film and Digital Media
Software design and media theory

Daniel Scheie, Professor, Theater Arts (Drama)
Acting, directing, dramatic literature, theater history, Shakespeare, Wagner, gay studies

Barry Sinervo, Professor, Ecology and Evolutionary Biology
Animal behavior, evolution, physiological ecology

Elizabeth Stephens, Professor, Art
Intermedia, electronic art, sculpture, and performance art

Renee Tajima-Pena, Professor, Social Documentation
Documentary film and video focusing on Asian American and immigrant communities, media, and social change

Mircea Teodorescu, Adjunct Associate Professor, Computer Engineering
Dynamics, vibrations, contact mechanics, biomechanics

Gustavo Vazquez, Associate Professor, Film and Digital Media
Film and video production, documentary and experimental cross-cultural experiences in filmr

Fabian Wagmister, Associate Professor, Film and TV (UCLA)

Edward C. Warburton, Associate Professor, Theater Arts
Development of dance thought in action, creative processes, and technology in theater arts; dance technique, movement research and composition, and applied dance practices

Noah Wardrip-Fruin, Associate Professor, Computer Science
Digital media, computer games, electronic literature, software studies

Christina Waters, Research Associate, Digital Arts and New Media
Theory, writing

Zachary Watkins, Lecturer, Music
Music composition, engineering, sound art

Jeff Watson, Assistant Professor, Digital Futures (OCAD University)

Lewis G. Watts, Professor Emeritus, Art

Emmet J. Whitehead, Associate Professor, Computer Science
Software engineering, software configuration management, web, hypertext, collaborative authoring, hypertext versioning, Internet information systems

Don Williams, Director, Cultural Arts and Diversity Center
African American Theater Arts Troupe, Rainbow Theatre

Rob Wilson, Professor, Literature
Transnational and postcolonial literatures, especially as located and transformed in Asia/Pacific; cultural-political emergences as posited against empires of globalization; cultural poetics of America in the Pacific and Oceania; the sublime, Longinus to Hiroshima; poetics of experimental writing, especially poetry; the poetry and cultural poetics of Bob Dylan; Beat beatitude, social and literary, from Jesus to Juliana Spahr et al; San Francisco as Global City, with its literature read as archive of vision and critique; Pacific Rim cities from Hong Kong and Seoul to Taipei, Kaohsiung, Shanghai, Honolulu, San Francisco, and Los Angeles

Richard Wohlfeiler, Lecturer, Art
Printmaking, drawing

Susan Working, Lecturer, Digital Arts and New Media
Sculpture, design, arts administration

Laura Wright, Lecturer, Digital Arts and New Media
Technology and fiber arts, social and political practices, education, communication

David Yager, Professor, Art
Photography, design, and print media

Chris Yonge, Lecturer, Computer Science
Design and innovation, digital modeling, computer-based animation, 3-D printing

Erika Zavaleta, Associate Professor, Environmental Studies
Biodiversity and global change, biological invasions, terrestrial plant and ecosystem ecology, human ecology, conservation science

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Earth and Planetary Science

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A232 Earth and Marine Sciences Building
(831) 459-4089
http://www.eps.ucsc.edu

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Faculty, Researchers, and Professional Interests

Erik Asphaug, Professor Emeritus

Terrance Blackburn, Assistant Professor
Geochemistry, thermochronology, tectonics

Emily E. Brodsky, Professor
Earthquakes, volcanoes, fluid flow in fractured media

Kenneth L. Cameron, Professor Emeritus

Patrick Y. Chuang, Professor
Clouds, aerosols and climate

Matthew E. Clapham, Associate Professor
Paleobiology, geobiology

Robert S. Coe, Professor Emeritus

Daniel Farber, Lecturer
Paleogeomorphology using short-lived nuclides; high-pressure experiments with applications to Earth's deep interior

Noah J. Finnegan, Assistant Professor
Geomorphology, active tectonics

Andrew T. Fisher, Professor
Hydrogeology, crustal studies, coupled flows, modeling

Ian Garrick-Bethell, Assistant Professor
Planetary interiors, paleomagnetism

Robert E. Garrison, Professor Emeritus

James B. Gill, Professor Emeritus

Gary A. Glatzmaier, Professor Emeritus

Gary B. Griggs, Distinguished Professor, Earth Sciences; Director, Institute of Marine Sciences
Coastal processes, hazards and engineering

Jeremy K. Hourigan, Associate Professor

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Thermochonology, structural geology, tectonics

Elise Knittle, Professor
Mineral physics, experimental geophysics

Paul L. Koch, Professor
Isotope geochemistry, paleobiology and ecology

Don G. Korycansky. CODEP Research Planetary Scientist
Planetary impacts, asteroid dynamics

Marc G. Kramer, CRS Associate Research Earth Scientist
Biogeochemistry, Earth surface process, remote sensing

Mikhail Kreslavsky, CODEP Assistant Research Planetary Scientist
Mars surface evolution and planetary data analysis

Leo F. Laporte, Professor Emeritus

Thorne Lay, Distinguished Professor
Seismology, geophysics

Karen C. Mc Nally, Professor Emerita

J. Casey Moore, Professor Emeritus

Francis Nimmo, Professor
Icy satellites, accretion, Mars, planetary geophysics

Adina Paytan, Lecturer, IMS Research Scientist
Biogeochemistry, paleoceanography, environmental and aquatic chemistry

Dave Rubin, EPS, Researcher
Geomorphology

Hilde L. Schwartz, Senior Lecturer
Vertebrate paleontology, environmental geology, paleoecology, chemosynthetic ecosystems

Susan Y. Schwartz, Professor
Seismology, geophysics, active tectonics

Eli A. Silver, Professor
Marine geology and geophysics, active tectonics, remote sensing

Lisa Sloan, Professor
Past and future climate change, climate modeling, Earth system science

Othmar T. Tobisch, Professor Emeritus

Slawek M. Tulaczyk, Professor
Glaciology and glacial geology, soil mechanics

Steven N. Ward, IGPP Research Geophysicist
Seismology, geophysics

Gerald E. Weber, Lecturer Emeritus

Quentin Williams, Professor
Mineral physics, tectonophysics, experimental geochemistry

Ru-Shan Wu, CSIDE Research Geophysicist
Seismology, geophysics; wave propagation and subsurface imaging

Xiao-Bi Xie, CSIDE Research Geophysicist
Theoretical and applied seismology

James C. Zachos, Professor
Paleoceanography, marine stratigraphy

Xixi Zhao, Lecturer, Earth Sciences; CSIDE Research Geophysicist
Paleomagnetism and rock magnetism and their application to the history of Earth's

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magnetic field

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Kenneth W. Bruland, Professor Emeritus , Ocean Sciences

Weixin Cheng, Professor, Environmental Studies
Soil ecology, agroecology, biogeochemistry, global change ecology

Margaret (Peggy) L. Delaney, Professor, Ocean Sciences
Paleoceanography, marine geochemistry

A. Russell Flegal, Professor, Microbiology and Environmental Toxicology
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Jonathan Fortney, Associate Professor, Astronomy and Astrophysics
Planetary atmospheres and interiors, extrasolar planets

Michael Loik, Associate Professor, Environmental Studies
Plant physiological ecology, climate change ecology, biometeorology, ecohydrology

A. Christina Ravelo, Professor, Ocean Sciences
Stable isotope geochemistry and chemical oceanography, paleoclimatology

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East Asian Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://eastasianstudies.ucsc.edu

Program Statement

Associated Faculty

Noriko Aso, Associate Professor of History
Japanese social, intellectual, and cultural history, material culture, colonialism, nationalism, gender, race and ethnicity

Dilip Basu, Professor Emeritus of History

Raoul Birnbaum, Professor of History of Art and Visual Culture
Buddhist studies, especially Chinese practices from medieval times to the present; religion and visual culture in China

Nancy Chen, Professor of Anthropology
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

Alan Christy, Associate Professor of History
Early modern and modern Japan; history of social sciences, colonialism, nationalism

Christopher Connery, Professor of Literature
World literature and cultural studies; globalism and geographical thought; the 1960s; Marxism; pre-modern and modern Chinese cultural studies; cultural revolution

Sakae Fujita, Lecturer of Languages
Foreign language education, drama in education

Hiroshi Fukurai, Professor of Sociology
Citizen participation in law, race and the law, indigenous approach to international law, decolonialism, Japan and East Asia, advanced quantitative methods, survey research

K.C. Fung, Professor of Economics
International trade and finance, WTO, foreign direct investment, global environmental economics, and Asia/Pacific economies

Per Gjerde, Professor Emeritus of Psychology

June Gordon, Professor of Education
Urban education; international comparative education; the impact of economics, culture and politics on educational attitudes and expectations of immigrants; marginalized youth;

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Appendixes

schooling and society in Japan, China, India, the U.K., and the U.S.A.; sociology of education

Gail B. Hershatter, Professor of History
Modern Chinese social and cultural history; labor history; gender history; history of sexuality; feminist theory; history, memory, and nostalgia

Christine Hong, Assistant Professor of Literature
Asian American literature and cultural criticism; African American literature and black freedom studies; Korean diasporic cultural production; Pacific Rim studies; postcolonial theory; critical race theory; human rights discourse; law and literature; narrative theory; film and visual studies

Emily Honig, Professor of History
Gender, sexuality, and ethnicity in modern Chinese history; comparative labor history; Chicana history, nationalism, and sexuality in the Third World; oral history

Minghui Hu, Associate Professor of History
Early Modern China (1600–1900)

Junko Ito, Professor of Linguistics
Phonology, morphology, Germanic languages, Japanese

Stacy Kamehiro, Associate Professor of History of Art and Visual Culture
Visual cultures of Oceania; colonial cultures; visual culture ad identity; gender studies; museums and collecting; material culture

Hi Kyung Kim, Associate Professor of Music
Composition, theory, contemporary music, analysis, orchestration, Korean music, world music composition, Founder and Artistic Director, Pacific Rim Music Festival

L.S. Kim, Associate Professor of Film and Digital Media
Television history and theory, racial discourse, feminist criticism, Asian-American cultural theory and production, industrial practices and social change in both mainstream Hollywood and alternative media

Paul Lubek, Professor Emeritus of Sociology

Boreth Ly, Assistant Professor of History of Art and Visual Culture
Visual cultures of Southeast Asia and its diaspora: religions and materiality, theory of visual narrative, the politics of cultural translation; (post) colonial and cultural studies; issues of gender, sexuality, race, and trauma

David Keenan, Lecturer of Languages
Chinese language, fiction, and history

Shigeko Okamoto, Professor of Languages
Sociolinguistics, discourse analysis, pragmatics, language and gender, foreign language pedagogy, Japanese linguistics

Benjamin Read, Associate Professor of Politics
Comparative politics with special interest in the politics of China; theories of associations and social networks; communist and post-communist states; political participation and collective action

Lisa Rofel, Professor of Anthropology
Critical theory, anthropology of modernity, popular/public culture, gender and sexuality, queer theory, transnational capitalism, postcolonial and transnational feminism, China

Dana Y. Takagi, Professor of Sociology
Social inequality, affect, religion, race, quantitative analysis

Yiman Wang, Assistant Professor of Film and Digital Media
Theory of difference; film history and theory; colonial/semi-colonial/postcolonial/postsocialist modes of media production and exchange; border-crossing film remakes; silent cinema; translation theory and cinema; acting theory/practice and ethnic star studies with focus on Anna May Wong; transnational connections and ramifications of Chinese cinema and documentary; fan culture; East Asian cinemas

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Rob Wilson, Professor of Literature
Transnational and postcolonial literatures, especially as located and transformed in Asia/Pacific; cultural-political emergences as posited against empires of globalization; cultural poetics of America in the Pacific and Oceania; the sublime, Longinus to Hiroshima; poetics of experimental writing, especially poetry; the poetry and cultural poetics of Bob Dylan; Beat beatitude, social and literary, from Jesus to Juliana Spahr et al; San Francisco as Global City, with its literature read as archive of vision and critique; Pacific Rim cities from Hong Kong and Seoul to Taipei, Kaohsiung, Shanghai, Honolulu, San Francisco, and Los Angeles

Karen Yamashita, Professor of Literature
History and anthropology of Japanese immigration to Brazil; Asian American literature; modern fiction; playwriting

Alice Yang, Associate Professor of History
Historical memory, Asian American history, gender history, race and ethnicity, 20th-century U.S., oral history

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Economics

2014-15 General Catalog

401 Engineering 2
(831) 459-2743
http://economics.ucsc.edu

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Faculty and Professional Interests

Professor

Carlos E. Dobkin
Public health, public policy, and econometrics

Michael P. Dooley
International finance, monetary theory and policy

Robert W. Fairlie
Labor economics, entrepreneurship, education, applied econometrics

Daniel Friedman
Microeconomic theory, experimental economics, evolution and learning, financial markets

K.C. Fung
International trade and finance, WTO, foreign direct investment, global environmental economics, and Asia/Pacific economies

Michael M. Hutchison
International finance, open economy macroeconomics, emerging markets, European and Asian economies

Kenneth Kletzer
International economics, macroeconomics, economic development

Nirvikar Singh
Industrial organization, political economy, economic development, technology and innovation, South Asian immigrants in the U.S., Indian economy, Sikhs and the Punjab

Carl E. Walsh
Monetary theory and policy, macroeconomics

Donald A. Wittman
Economic theory, politics, law

Associate Professor

Carlos E. Dobkin
Public health, public policy, and econometrics

Bernard L. Elbaum

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Economic history

Justin G. Marion
Public economics, empirical industrial organization

Jonathan Robinson
Development economics, program evaluation and applied microeconomics

Alan Spearot
International trade; industrial organization, applied econometrics

Thomas Wu
International finance, macroeconomics, Brazilian macroeconomic policy

Assistant Professor

Eric Aldrich
Macroeconomics, finance, computational economics, financial econometrics

George Bulman
Public economics, labor economics, economics of education

Weishi Gu
Macroeconomics, international economics, labor economics and computational economics

Jennifer P. Poole
International trade; Latin American economics; applied microeconomics

Hikaru Saijo
Macroeconomics, applied econometrics

Ajay Shenoy
Development economics, economic growth, macroeconomics

Lecturer

Kate Erin
Financial accounting, managerial accounting, accountaing for sustainability

Julie Hupton Gonzalez
Environmental economics and policy, natural resource economics and policy, microeconomics, energy economics, managerial economics

Kai Pommerenke
Entrepreneurship and e-commerce; corporate finance, investments, financial engineering, and Chartered Financial Analyst examination

Emeriti

Robert F. Adams, Emeritus

Joshua Aizenman, Emeritus

Yin-Wong Cheung, Emeritus

Mary Flannery, Emerita Lecturer

Ronald E. Grieson, Emeritus

John W. Isbister, Emeritus

David E. Kaun, Emeritus

Lori G. Kletzer, Emerita

Jacob B. Michaelsen, Emeritus

Peggy B. Musgrave, Emerita

Robert J. Shepherd, Emeritus Senior Lecturer

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John T. Musacchio, Associate Professor of Information Systems Management
Control, analysis, and pricing of communications networks; applications of game theory in networking; wireless ad-hoc networks; and management of technology

Helen Shapiro, Associate Professor of Sociology
Political economy, Latin American economic history and development (with an emphasis on Brazil), industrial policy, the auto industry, the state and transnational corporations

Yi Zhang, Associate Professor of Technology and Information Management
Information retrieval, knowledge management, natural language processing, machine learning

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Education

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McHenry Library
Contact: (831) 459-3249
education@ucsc.edu
http://education.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Margaret (Greta) A. Gibson, Emerita

Ron Glass
Education as a practice of freedom; research for equity; ethical issues in collaborative research; moral and political philosophy and education; ideology and education; race and education; school reform; democracy and education

June A. Gordon
Urban education; international comparative education; the impact of economics, culture and politics on educational attitudes and expectations of immigrants; marginalized youth; schooling and society in Japan, China, India, the U.K., and the U.S.A.; sociology of education

Judit Moschkovich
Mathematical thinking and learning; student conceptions of functions; mathematical discourse; everyday mathematical practices; bilingual mathematics learners

Rodney Ogawa
Educational reform, the impact of social institutions on the structure of school organization, the impact of school organization on contexts for teaching and learning, and uses of information technology to redesign education

Brad Olsen
Teacher development (with emphasis on knowledge and identity), English education, and sociolinguistics

Art Pearl, Emeritus

Lucinda Pease-Alvarez
Language and literacy development, language-minority education, bilingualism, informal learning; teachers as policy makers

Trish Stoddart
Teacher education, science education, educational reform

David Swanger, Emeritus

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Kip Téllez
Preparation of teachers for linguistic and cultural diversity, second language learning, studies of the school curriculum, educational assessment

Roland G. Tharp, Emeritus

C. Gordon Wells, Emeritus

Associate Professor

Doris Ash
Informal science learning, teacher professional development, science discourse in and out of the classroom

Lora Bartlett
Educational policy and school reform, schools as workplaces for teachers, the conditions of teachers' commitment

George Bunch
Language and education in linguistically diverse settings, preparation of teachers for linguistic diversity, language policy, and bilingualism

Judith Scott
Literacy and language learning, particularly with students who depend on schools to learn about academic language; reading, writing, vocabulary development; vocabulary assessment; teachers' professional development through collaboration and inquiry

Jerome Shaw
Scientific inquiry, specifically examining the science education experiences of English language learners and their teachers; includes examining ways in which assessments in English measure content knowledge versus language proficiency

Assistant Professor

Cynthia Cruz
Feminist ethnography; community-based learning; decolonial pedagogies; LGBTQ street youth; women of color thought; cultural studies and education

Eduardo Mosqueda
Mathematics education of English learners; large-scale data set quantitative analysis; urban education issues

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Professor

Catherine R. Cooper (Psychology)
Cultural perspectives on child and adolescent development; linkages among families, peers, schools, and work; issues of diversity, ethnicity, and gender in identity; research, practice, and policy in university outreach programs; linking qualitative and quantitative research

Bruce N. Cooperstein (Mathematics)
Algebra, algebraic number theory

Barbara Rogoff (Psychology)
Human development in sociocultural activity; informal and formal arrangements for learning; adult/child and peer communication in families and schools in diverse cultural communities; learning through observation; cognitive development, especially problem solving, planning, and attention

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Electrical Engineering

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Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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Faculty and Professional Interests

Professor

Benjamin Friedlander
Digital communications, wireless communication system, array processing, adaptive signal processing

Claire Gu, Emeritus

Michael Isaacson
Nano- and microfabrication technology and applications to biomedical and diagnostic devices, nanocharacterization of materials with emphasis on the development of microscopy tools, novel modes of imaging, electron and light optics, renewable energy systems, STEM education

Sung-Mo (Steve) Kang
Low-power. High-speed VLSI circuit design and synthesis, RF circuits, biological circuits, mixed technology, mixed signal CAD

Nobuhiko P. Kobayashi
Physics and chemistry of complex functional materials; Group III-V compound semiconductor nanometer-scale structures and devices; mixed oxide nanometer-scale structures and devices; tailored nanomicrometer-scale hybrid semiconductor structures for energy conversion devices and advanced electronics, Science Director of Advanced studies Laboratories, UCSC and NASA Ames Research Center)

Joel Kubby (Department Chair)
Micro-Electro-Mechanical-Systems (MEMS), adaptive optics (AO), optical-MEMS, bio-MEMS, bio-imaging, AO microscopy, AO astronomy

Peyman Milanfar
Statistical signal, image, and video processing; computational vision and photography; modeling and inverse problems in imaging; detection and estimation theory

Kenneth Pedrotti
Integrated circuit design for communications, analog electronics, radio frequency integrated circuits, low-phase-noise oscillators, frequency synthesis, VLSI clock distribution, optical communications, high-speed electronics for lightwave systems, devices for all optical networking and imaging

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Arthur P. Ramirez (Divisional Dean)
Experimental materials physics encompassing a broad range of systems including semiconductors, superconductors, magnets, thermoelectrics, and dielectrics. Research that connects materials and devices, with a focus on oxides and organics. Many-body physics that arises from geometrical frustration of low energy degrees of freedom. Techniques include ultra-low temperatures and high magnetic fields, thermodynamic and transport measurements, defect spectroscopy, and device characterization.

Hamid Sadjadpour
Wireless communication systems, network information theory and scaling laws, performance analysis of wireless and social networks, routing and MAC protocol design for wireless networks

Holger Schmidt
Optofluidics, atom photonics, hollow-core photonics for biomedicine and quantum optics, nanomagnetism, nanomagneto-optics, single-particle spectroscopy, ultrafast optics

John F. Vesecky
HF radar design and construction and observation of ocean surface winds, waves and currents with applications to coastal and deep water ocean processes; project MEDSAT

Donald Wiberg, Emeritus (UCLA)

Assistant Professor

Allie Fletcher
Statistical signal processing, information theory, computational neuroscience

Ali A. Yanik
Nano-plasmonics and metamaterials. Lab-on-chip systems: optofluidic BioNEMS, nano-fluidics and label-free biosensors. Nano-spectroscopy: plasmonic nano-antennas and single molecule vibrational dynamics. Rare cell isolation and single cell analysis: circulating tumor cells, plasmonic nano-tweezers and phononic crystals for flow cytometry. Nano-fabrication, soft lithography and biopatterning. Nano-electronics, spintronics, and thermoelectricity

Adjunct Professor

Farid Dowla
RF communications, radar, and signal and image processing

Heinz Erzberger
Air traffic control

Ali Shakouri (Visiting Professor)
Quantum electronics; nano- and microscale heat and current transport in semiconductor devices; thermoelectric/thermionic energy conversion; renewable energy sources; thermal imaging; micro-refrigerators on a chip; and optoelectronic integrated circuits

Toshishige Yamada
Modeling of micro/nanoscale electronic materials and devices emphasizing energy-band and equivalent-circuit methods; comparison of modeling and experiments: InP, InSb, ZnO, In203, and GaAs semiconducting nanowires; carbon nanotubes/nanofibers devices; Si atomic chain devices; metallic nanoislands; strained Si/Ge channels; GaAs lateral surface superlattice; Josephson devices, etc.

Assistant Adjunct Professor

Kenneth Laws
HF radar sensing of ocean surface currents, HF radar detection of ships, other applications of radar remote sensing, development of autonomous ocean surface vehicles for coastal marine sensing, and development of renewable energy sources

Michael Oye
Nanotechnology-based materials and devices for applications involving solar, piezoelectric, graphene, lighting, and chemical sensors

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Sangho Shin
Energy-efficient analog/digital/mixed-signal hardware integrations, nanoelectronic analog/digital circuit technologies, post-CMOS VLSIs and computing systems, memristors and memristive systems, high-performance data-intensive memory systems, and neuromorphic computing and biosensor circuits/systems

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Sue Carter (Physics)
Experimental condensed matter physics, polymer physics, molecular electronics, phase transitions, electronic and optical properties of materials

David W. Deamer (joint with Chemistry and Biochemistry and Biomolecular Engineering, UC Davis Emeritus)
Membrane biophysics, nanopore analysis, DNA sequencing, biomolecular self-assembly

William Dunbar (Computer Engineering)
Theory and application of feedback control, single-molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Gabriel Elkaim, Emeritus

J.J. Garcia-Luna-Aceves
Chair of Computer Engineering
Jack Baskin Endowed Professor of Computer Engineering
Director of Networking Sciences Institute
Principles of computer communication, Internet, mobile and pervasive computing, wireless networks, information centric networks, network science

Matthew R. Guthaus (Computer Engineering)
Health sensor systems, digital health, mobile health applications, integrated circuits and chip design (VLSI), electronic computer-aided design (ECAD), low-power circuits, mobile and pervasive computing

Ronnie D. Lipschutz (Politics)
International relations; global political economy; globalization; foreign policy; resource/environmental politics; global political networks; global civil society and social movements; popular culture and politics; technology and society; risk society

Darrell D. E. Long (Computer Science)
Data storage systems, distributed computing, operating systems, performance evaluation, reliability, cyber security, data science, multimedia

Roberto Manduchi (Computer Engineering)
Computer vision and sensor processing, with application to assistive technology for the visually impaired, mobile and pervasive computing

Patrick E. Mantey (Computer Engineering)
(Baskin Professor of Computer Engineering)
CITRIS Campus Director
Multimedia systems, digital signal processing, sensor systems and networks, real-time monitoring and control, image systems, image processing, visualization, geographic information systems, decision support systems

Claire Max (Astronomy and Astrophysics and UCO/Lick Observatory)
Adaptive optics, planetary science

Jose Renau (Computer Engineering)
Health sensor systems, digital health, mobile health applications, integrated circuits and chip design (VLSI), electronic computer-aided design (ECAD), low-power circuits, mobile and pervasive computing

B. Shastry (Physics)
Condensed matter physics, strongly correlated matter, Mott-Hubbard physics, high Tc superconductivity, quantum magnetism, exactly integrable systems, exactly solvable models of many-body systems and in statistical mechanics, quantum chaos, geometric frustration

William T. Sullivan (Biology)
Genetics, cell biology, development of the Drosophila embryo

Jin Z. Zhang (Chemistry)
Design, synthesis, characterization, and application of nanomaterials, including semiconductor and metal nanoparticles; femtosecond laser spectroscopy; ultrafast dynamics on surfaces and at interfaces; cancer biomarker detection; surface-enhanced Raman spectroscopy

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Environmental Studies

2014-15 General Catalog

405 Interdisciplinary Sciences Building
(831) 459-2634
http://envs.ucsc.edu

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Faculty and Professional Interests

Professor

Weixin Cheng
Soil ecology, agroecology, biogeochemistry, global change ecology

Tim Duane
Environmental law and policy, renewable energy development, ecosystem-based management, land use planning and regulation, water law and policy, conservation easements

Margaret FitzSimmons
Social and spatial aspects of environmental change, the development and regulation of primary-sector activities and the regional integration of environmental planning and resources management institutions in urban and rural settings

Gregory S. Gilbert
Disease ecology, forest ecology, tropical ecology, biological invasions, conservation biology, applied evolutionary ecology

Brent Haddad
Fresh-water economics, policy, and communications; economic institutions and the environment; climate-change mitigation and adaptation; institutional and ecological economics

Karen D. Holl
Restoration ecology, conservation biology, landscape ecology

Sheldon Kamieniecki
Environmental politics and policy; agenda building; strategic regulatory planning; business and interest group influence; political campaigns and elections; research methodology

Deborah K. Letourneau
Agroecology, tropical biology, insect-plant interactions, biological conservation for ecosystem services, biological processes as an alternative to pesticides, environmental risks of genetically engineered organisms, redwood forest community ecology

Daniel M. Press
U.S. environmental politics and policy, water quality, industrial ecology, resources management, policy analysis

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Carol Shennan
Agroecology, ecosystem processes, organic agriculture, participatory research, agricultural development with a focus on Africa

Andrew Szasz
Environmental sociology (environmental movements, policy, environmental justice), theory

Erika Zavaleta
Biodiversity and global change, biological invasions, terrestrial plant and ecosystem ecology, human ecology, conservation science

Associate Professor

Jeffrey T. Bury
Political ecology; sustainable development; Latin America; extractive industries; climate change; new models of conservation

Michael E. Loik
Plant physiological ecology, climate change ecology, biometeorology, ecohydrology

Flora Lu
Ecological anthropology, indigenous resource management and household economics, conservation, market integration, environmental justice, Amazon rainforest, Ecuador

Stacy M. Philpott
Agroecology, biodiversity, climate change, community ecology, conservation biology, ecosystem services, food sovereignty, landscape ecology, insects, tropical biology, urban ecology

S. Ravi Rajan
Environmental history and political ecology, risk and disaster studies, science and technology studies, North-South environmental conflicts, environmental social theory, environmental ethics

Christopher C. Wilmers
Wildlife ecology, conservation biology, global change ecology, ecological modeling

Assistant Professor

Adam Millard-Ball
Transportation planning and policy, environmental economics, urban sustainability, climate change policy

Zdravka Tzankova
Environmental policy and politics (United States and comparative), especially: scientific expertise and environmental decision-making; non-state market-based governance; interactions between public and private regulation (dynamics and conservation consequences); marine policy

Associate Adjunct Professor

Catherine Burns
Conservation biology, mammals, birds, population and community ecology

Renee Kidson
Hydrology, water resource management, urban water supply training, climate change and Antarctic science, military history

Heather Tallis
Natural resource management, ecosystem services, social ecological systems, environmental impact assessment and mitigation, economics, environmental psychology

Environmental Studies Emeritus Faculty

Robert R. Curry

Bryan H. Farrell

Stephen R. Gliessman

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David Goodman

Paul L. Niebanck

James E. Pepper

Alan Richards

Michael E. Soulé

Environmental Studies Lecturers

Sarah Rabkin
Environmental and science journalism, the literary and visual arts in natural history practice

Andrew Schiffrin
Environmental assessment, transportation, land use planning, water supply planning

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Doris Ash (Education)
Informal science learning, teacher professional development, science discourse in and out of the classroom

Giacomo Bernardi (Ecology and Evolutionary Biology)
Fish biology, phylogenetics, evolution

Michael K. Brown, Emeritus (Politics)

Kenneth W. Bruland, Emeritus (Ocean Sciences)

Edmund Burke III, Emeritus (History)

Melissa L. Caldwell (Anthropology)
Poverty and public health; welfare, charity, and assistance; food and consumption; gardens, nature, and landscapes; religion; socialism and postsocialism; Russia, the former Soviet Union, and Eastern Europe

Mark Cioc (History)
German history, modern European history, environmental history

Daniel P. Costa (Ecology and Evolutionary Biology)
Physiological ecology of marine mammals and birds

Donald Croll (Ecology and Evolutionary Biology)
Ecology and conservation of islands and seabirds

Ben Crow (Sociology)
International development, sociology of water and markets, global inequality, South Asia and East Africa, political economy, and green enterprise

E. Melanie DuPuis (Sociology)
Economic sociology, sociology of consumption, sociology of development, political sociology, sociology of the environment, technological change, historical sociology, social theory, food and social change, agriculture sustainability

Kent Eaton (Politics)
Comparative politics, Latin America, international relations, political economy, public policy, political institutions

James Estes (Ecology and Evolutionary Biology, and Ocean Sciences)
Marine sciences, community ecology, species interactions

Andrew Fisher (Earth and Planetary Sciences)
Hydrogeology, crustal studies, heat flow, modeling

Jonathan A. Fox (Latin American and Latino Studies)
Latin American and Latino politics, including issues of democratization, accountability, social movements, transnational civil society, social and environmental policy, and immigration

Laurel R. Fox (Ecology and Evolutionary Biology)
Terrestrial population and community ecology, plant-animal interactions

Diane Gifford-Gonzalez (Anthropology)
Neolithic Africa and Eurasia, colonial New Mexico, origins of food production, pastoralists, zooarchaeology, history of archaeology, interpretive theory, visual anthropology

James B. Gill, Emeritus (Earth and Planetary Sciences)

Gary B. Griggs (Earth and Planetary Sciences)
Coastal processes, hazards and engineering

Daniel Guevara (Philosophy)
Kant, moral philosophy, moral psychology, environmental ethics, history of modern philosophy

Julie H. Guthman (Social Sciences)
Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, epigenetics and environmental health, critical nutrition, critical human geography

Donna J. Haraway, Emerita (History of Consciousness and Feminist Studies)

Susan Harding, Emerita (Anthropology)

A. Marm Kilpatrick (Ecology and Evolutionary Biology)
Disease ecology, population biology, conservation

Paul L. Koch, Professor (Earth and Planetary Sciences)
Isotope biogeochemistry, vertebrate paleontology

Ronnie D. Lipschutz (Politics)
International relations; global political economy; foreign policy; resource/environmental politics; global political networks; global civil society and social movements; popular culture and politics; technology and society; risk society, state transformation and global governmentality

Paul M. Lubeck, Emeritus (Sociology)

Andrew Salvador Mathews (Anthropology)
Environmental anthropology, science and technology studies, conservation and development, climate change, environmental history, Mexico, Latin America, Italy

Ingrid M. Parker (Ecology and Evolutionary Biology)
Plant ecology, plant-pathogen interactions, biological invasions

Adina Paytan, IMS Research Scientist (Earth and Planetary Sciences)
Biogeochemistry, paleoceanography, environmental and aquatic chemistry

Grant H. Pogson (Ecology and Evolutionary Biology)
Molecular population genetics, ecological genetics, marine invertebrates and fishes

Donald C. Potts (Ecology and Evolutionary Biology)
Coral reef ecology, genetics, evolution, and geological history; marine biodiversity; tropical biology, global change, and remote sensing

Peter T. Raimondi (Ecology and Evolutionary Biology)
Marine ecology, evolutionary ecology, experimental design, applied ecology

Jennifer E. Reardon (Sociology)
Science studies; sociology of science, technology, and medicine; feminist theory; race/ethnicity/gender/sexuality/class; biology and society

Danilyn Rutherford (Anthropology)
Borders and frontiers, colonialism, nationalism, ethnicity, kinship, performance, Christianity, secularism, sovereignty, publics, affect, technology, governancy, theory and method in anthropology, West Papua, Indonesia, the U.S.

Lisa C. Sloan (Earth and Planetary Sciences)

Paleoclimatology, climate change, Earth system science, surficial processes

Donald R. Smith (Microbiology and Environmental Toxicology)
Neurotoxicity, cellular and organismal responses to environmental toxins

Dana Y. Takagi (Sociology)
Social inequality, affect, religion, race, quantitative analysis

Anna Tsing (Anthropology)
Culture and politics; feminist theory; globalization; multi-species anthropology; social landscapes and forest ethnoecologies; multi-sited ethnography; Indonesia, Southeast Asia, and the U.S.

Slawek M. Tulaczyk (Earth and Planetary Science)
Glaciology and glacial geology, soil mechanics

Terrie M. Williams (Ecology and Evolutionary Biology)
Large mammal physiology, bioenergetics, exercise and environmental physiology

Patricia Zavella (Latin American and Latino Studies)
Transnational migration by Mexicans, poverty, family sexuality, labor, social networks, feminist studies, Chicana/o-Latina/o studies, ethnographic research methods

Revised: 09/01/14

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Biological Sciences

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Physical and Biological Sciences Undergraduate Affairs Office
387 Thimann Laboratories
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

EEB Graduate Program Description | EEB Faculty

Ecology and Evolutionary Biology

Faculty and Professional Interests

Suzanne Alonzo
Sexual selection, social behavior and the evolution and ecology of reproduction

Giacomo Bernardi
Fish biology, phylogenetics, evolution

Mark H. Carr
Marine ecology, applied marine ecology

Daniel P. Costa
Physiological ecology of marine mammals and birds

Donald Croll
Ecology and conservation of islands and seabirds

Jim Estes
Marine sciences, community ecology, species interactions

Laurel R. Fox
Terrestrial population and community ecology, plant-animal interactions

Kathleen M. Kay
Plant evolutionary ecology

A. Marm Kilpatrick
Disease ecology, population biology

Kristy Kroeker
Global change biology, community ecology, applied marine ecology, climate change, ocean acidification, multiple stressors

Bruce E. Lyon
Behavioral ecology, evolutionary ecology, avian ecology

Rita Mehta
Comparative marine physiology

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Eric P. Palkovacs
Freshwater ecology, eco-evolutionary dynamics, fisheries and fish ecology

Ingrid M. Parker
Plant ecology, plant-pathogen interactions, biological invasions

Jarmila Pittermann
Plant physiology

Grant H. Pogson
Molecular population genetics, ecological genetics, marine invertebrates and fishes

Donald C. Potts
Coral reef ecology, genetics, evolution, and geological history; marine biodiversity; tropical biology, global change, and remote sensing

Peter T. Raimondi
Marine ecology, evolutionary ecology, experimental design, applied ecology

Beth Shapiro
Evolutionary and molecular ecology, ancient DNA, genomics, pathogen evolution

Barry Sinervo
Animal behavior, evolution, physiological ecology

John N. Thompson
Coevolution, evolutionary ecology and genetics of species interactions, organization of biodiversity

Terrie M. Williams
Large mammal physiology, bioenergetics, exercise and environmental physiology

Ecology and Evolutionary Biology Emeritus Faculty

William Jackson Davis
William Doyle
Lynda J. Goff
Ralph Hinegardner
Jean Langenheim
Burney LeBoeuf
Charles (Leo) Ortiz
A. Todd Newberry
John Pearse

Ecology and Evolutionary Biology Lecturers

Robin Dunkin

Baldo Marinovic

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Adjuncts

Catherine Burns (Environmental Studies)
Conservation biology, mammals, birds, population and community ecology

Claudio Campagna (Ecology and Evolutionary Biology)
Marine conservation; species conservation, philosophical aspects of nature conservation

James Estes (Ecology and Evolutionary Biology)
Marine sciences, community ecology, species interactions

Samantha Forde (Ecology and Evolutionary Biology; Gordon and Betty Moore Foundation)
Experimental evolutionary ecology

Winifred Frick (Ecology and Evolutionary Biology)
Population ecology, conservation biology, ecology and behavior of bats

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Steven Haddock (Ecology and Evolutionary Biology; MBARI)
Bioluminescence, biodiversity and molecular phylogenetics of deep-sea and open ocean gelatinous zooplankton

Elliott Hazen (NOAA/NMFS/SWFSC; Adjunct Faculty, Duke University Marine Lab)
Marine ecology, birds and mammals, conservation biology: focusing on predator-prey dynamics and their response to environmental variability and global change

Joseph Merz (Ecology and Evolutionary Biology; Cramer Fish Sciences)
Relationships between aquatic species and their environments and the effects of anthropogenic influences on those relationships.

Stephan B. Munch (NOAA Southwest Fisheries Science Center, Stony Brook University)
Population and ecosystem dynamics, contemporary evolution of life histories, transgenerational thermal plasticity

Devon Pearse (Ecology and Evolutionary Biology; NOAA Fisheries Service's; Southwest Fisheries Science Center)
Evolutionary and ecological genetics, conservation biology

Luiz Rocha (California Academy of Sciences)
Fish ecology, systematics and evolution

Bernie Tershy (Ecology and Evolutionary Biology)
Ecology and conservation of seabirds and island ecosystems

M. Tim Tinker (Ecology and Evolutionary Biology; Western Ecological Research Center, USGS)
Foraging ecology and demography of the southern sea otter

Kerstin Wasson (Ecology and Evolutionary Biology; Elkhorn Slough National Estuarine Research Reserve)
Evolutionary ecology, invasion biology, conservation science

Affiliates

Greg Gilbert (Environmental Studies)
Disease ecology, conservation biology, tropical forest ecology, microbial ecology

Karen D. Holl (Environmental Studies)
Restoration ecology, conservation biology, landscape ecology

Paul L. Koch (Earth Sciences)
Isotope biogeochemistry, vertebrate paleontology

Raphael Kudela (Ocean Sciences)
Ecological modeling and remote sensing, satellite oceanography, phytoplankton ecology and harmful algal blooms

Marc Mangel (Applied Mathematics and Statistics)
Mathematical modeling of biological phenomena, especially the evolutionary ecology of growth, aging, and longevity; quantitative issues in fishery management; mathematical and computational aspects of disease

Christopher Wilmers (Environmental Studies)
Population and community ecology; wildlife conservation; predator-prey dynamics; climate change impacts on biodiversity.

Jonathan Zehr (Ocean Sciences)
Aquatic microbial ecology, biological oceanography

Departmental Affiliated Researchers

Kristen Ruegg
Evolutionary biology and conservation genetics

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Feminist Studies

2014-15 General Catalog

416 Humanities 1
(831) 459-2461
fmst@ucsc.edu
mwylie@ucsc.edu
http://feministstudies.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Bettina Aptheker, Professor of Feminist Studies and History
Feminist oral history and memoir; feminist pedagogy; African American feminist history; queer studies; feminist Jewish studies; feminist critical race studies

Anjali Arondekar, Associate Professor of Feminist Studies
South Asian studies, colonial historiography; feminist theories; queer theory; critical race studies; 19th-century interdisciplinary studies

Neda Atanasoski, Associate Professor of Feminist Studies
New media and film; critical race and ethnic studies; feminist theory; human rights and humanitarianism; war and nationalism; religion and secularism; post-socialist politics and culture in Central and Eastern Europe

Karen Barad, Professor of Feminist Studies, History of Consciousness, and Philosophy
Feminist science studies, materialism, deconstruction, poststructuralism, posthumanism, multi-species studies, science and justice, physics, 20th-century continental philosophy, epistemology, ontology, ethics, philosophy of physics, feminist, queer, and trans theories

Gina Dent, Associate Professor of Feminist Studies, History of Consciousness, and Legal Studies
Africana literary and cultural studies, legal theory, popular culture

Margaret M. Downes-Baskin, Research Associate in Feminist Studies
Presidential leadership styles, elections and the media, women's political and corporate leadership style, intergenerational relations

Lisbeth Haas, Profesor of Feminist Studies, and Professor of History
U.S.-Mexico borderlands and border studies; Chicano and Native American history; visual culture in the colonial Americas; California; historical memory, theory, and historical methodology

Marcia Ochoa, Associate Professor of Feminist Studies
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, geography, multimedia production, graphic design, colonialism and modernity, Latin American studies—Colombia and Venezuela, social documentation

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Felicity Amaya Schaeffe, Associate Professor of Feminist Studies
Transnational feminisms; sexuality and migration, technology, and race; intimacy and globalization; Latin American/Latino studies; border studies; Chicana/o studies; biometrics and security studies

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Angela Y. Davis, Emerita, Professor of History of Consciousness and Feminist Studies
Feminism, African American studies, critical theory, popular music culture and social consciousness, philosophy of punishment (women's jails and prisons)

Carla Freccero, Professor and Chair of Literature, History of Consciousness; Professor of Feminist Studies
Renaissance studies; French and Italian language and literature; early modern studies; postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

Rosa Linda Fregoso, Professor of Latin American and Latino Studies, Feminist Studies, and Film and Digital Media
Human rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Jody Greene, Professor of Literature and Feminist Studies
Seventeenth- and 18th-century British literature and culture; pre- and early modern studies; critical theory, especially Derrida; poststructuralism and ethics; gender studies; history of authorship; history of the book; human property

Donna J. Haraway, Emerita, Professor of History of Consciousness and Feminist Studies
Feminist theory, cultural and historical studies of science and technology, relation of life and human sciences, human-animal relations, and animal studies

Helene Moglen, Emerita, Professor of Literature
The English novel; feminist, critical, cultural, and psychoanalytic theory; gender and genre in social and psychological contexts

Affiliated Faculty

Gabriela Arredondo, Associate Professor of Latin American and Latino Studies
U.S. social and cultural history; Chicana/o history; critical race and ethnicity theories; im/migration history; Latina/os in the U.S.; Chicana feminisms; "borderlands" studies, modern Mexico history

Lora Bartlett, Associate Professor of Education
Educational policy and school reform, schools as workplaces for teachers, the conditions of teachers' commitment

Karen Bassi, Professor of Classics (Literature)
Greek and Latin literatures, Greek drama, Hellenistic poetics, feminist interpretation, literary and cultural theory, pre- and early modern studies, historiography

Julie Bettie, Associate Professor of Sociology
Cultural theory and popular culture; race, gender, class, and cultural politics; sexuality and sex work; critical qualitative methodologies

Heather Bullock, Professor of Psychology
Social class, poverty and economic inequality, welfare policy, feminist psychology, discrimination

Julianne Burton-Carvajal, Emerita, Professor of Literature
American visual media, particularly film; melodrama as a transnational form; gender and authorship; history, cultures, and representations of California, particularly the Central Coast

Nancy N. Chen, Professor of Anthropology
Medical anthropology, visual anthropology, urban anthropology, Asian American identity, mental health, food, China

Vilashini Cooppan, Associate Professor of Literature

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Postcolonial studies, comparative and world literature, literatures of slavery and diaspora, globalization studies, cultural theory of race and ethnicity

E. G. Crichton, Professor of Art
Intermedia, electronic arts, photography, installation

Faye J. Crosby, Professor of Psychology
Gender; social identity; and social justice, especially affirmative action

Cynthia Cruz, Assistant Professor of Education
Street ethnography; community-based learning and pedagogies; decolonial feminist pedagogies; Chicana studies and epistemologies; U.S.-Third World Feminisms; cultural studies and education

Teresa de Lauretis, Emerita, Professor of History of Consciousness
Semiotics, psychoanalysis, feminism, film theory, literary theory, queer studies

Sylvanna Falcón, Assistant Professor of Latin American and Latino Studies
Human rights, racism/antiracism, globalization, gender, transnational feminism, Latin America (Mexico, Peru), United States

Mayanthi Fernando, Associate Professor of Anthropology
Religion and secularism; anthropology of Islam; gender and sexuality; multiculturalism/pluralism; modernity and its "Others"; ethnography and ethics; colonial and post-colonial France/Europe; theory and methods in the study of religion

Dana Frank, Professor of History
U.S. social and economic history; women, labor, and working-class history; contemporary political economy

Marge Frantz, Emerita, Lecturer in American Studies and Feminist Studies

Pascale Gaitet, Emerita, Professor of Literature and Language Studies
Nineteenth- and 20th-century French literature, sociolinguistics, political history, Celine, Genet

Mary-Kay Gamel, Professor of Classics and Comparative Literature
Performance studies, ancient Mediterranean performance, Greek and Latin literatures, myth, reception of Greek and Roman texts and artifacts, film, feminist approaches to literature and performance

Diane Gifford-Gonzalez, Professor of Anthropology
Paleolithic and Neolithic Africa and Eurasia, colonial New Mexico, origins of food production, pastoralists, zooarchaeology, history of archaeology, interpretive theory, visual anthropology

Susan Gillman, Professor of American Literature
Nineteenth-century American literature and culture; theories of culture, race, and gender; world literature and cultural studies

Jennifer A. González, Professor of History of Art and Visual Culture
Contemporary theories of visual culture, semiotics, critical museum studies, photography, public and activist art in the U.S.

June Gordon, Professor of Education
Urban education; international comparative education; the impact of economics, culture and politics on educational attitudes and expectations of immigrants; marginalized youth; schooling and society in Japan, China, India, the U.K., and the U.S.A.; sociology of education

Deborah Gould, Associate Professor of Sociology
Political emotion; social movements and contentious politics; classic and contemporary social theory; sexualities; lesbian/gay/queer studies; feminist and queer theory

Shelly A. Grabe, Assistant Professor of Psychology
Cultural objectification of women and women's bodies as a pervasive global phenomenon played out in different ways across different cultures; how "embodied oppression" affects women's psychological well-being and empowerment

Herman Gray, Professor of Sociology
Cultural studies, media and television studies, black cultural politics, social theory

Irene Gustafson, Associate Professor of Film and Digital Media
Producing across the boundaries between "theory" and "practice," non-fiction, gender and queer studies, production design

Julie Guthman, Professor of Community Studies
Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, critical human geography

Margo Hendricks, Emerita, Professor of Literature
Early modern English literature and culture; theories and discourses of race, gender, drama, and theory; women playwrights; pre- and early modern studies

Gail B. Hershatter, Professor of History
Modern Chinese social and cultural history; labor history; gender history; history of sexuality; feminist theory; history, memory, and nostalgia

Emily Honig, Professor of History
Gender, sexuality, and ethnicity in modern Chinese history; comparative labor history; Chicana history, nationalism, and sexuality in the Third World; oral history

Jocelyn Hoy, Lecturer in Philosophy
Feminist philosophy, 19th- and 20th-century continental philosophy

Akasha Hull, Emerita, Professor of Feminist Studies and Literature

Donna Hunter, Associate Professor of History of Art and Visual Culture
European painting (especially French) from 1600 to the 1960s; German art and visual culture between the two world wars; art as social practice, portraiture

Aida Hurtado, Professor of Psychology
Social identity, feminist theory, social psychology of education, survey methodology

Stacy Kamehiro, Associate Professor of History of Art and Visual Culture
Visual cultures of the Pacific, 19th-century Hawai'i, (inter)nationalism, culture contact; (post)colonialism

L. S. Kim, Associate Professor of Film and Digital Media
Television history and theory, racial discourse, feminist criticism, Asian-American media production, industrial practices and social change in both mainstream Hollywood and alternative media

Norma Klahn, Professor of Literature
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Campbell Leaper, Professor of Psychology
The developmental and social psychology of gender in childhood, adolescence, and adulthood; self-concept and social identity; language and social interaction; social relationships, academic achievement; media; perceptions and consequences of sexism

Peter Limbrick, Associate Professor of Film and Digital Media
International cinemas, especially Arab and Middle Eastern cinemas and Australasian cinemas; postcolonial theories and settler colonialism; theories of globalization and transnationalism; intersections of race, gender, and sexuality; queer theory; film and video history and historiography

Jennie Lind McDade, Professor of Art
Drawing, painting

Carolyn Martin Shaw, Emerita, Professor of Anthropology
African societies, colonial discourse, social theory, anthropology of women, sexuality

Lourdes Martínez-Echazábal, Professor of Latin American and Latino Studies
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found[n]ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Tanya Merchant, Assistant Professor of Music
Ethnomusicology, musics of Central Asia and the former Soviet Union, music and gender, identity, nationalism, globalization, and the institutionalization of music

Leta E. Miller, Professor of Music
Renaissance and baroque music history and performance practices, 20th-century American music, modern and baroque flute, 16th-century chanson and madrigal, music and science, 18th- and 20th-century flute literature and performance styles, music of C.P.E. Bach and Lou Harrison

Megan Moodie, Assistant Professor of Anthropology
South Asian studies, feminist theory, reproductive and population politics, kinship, development, legal identities, tribal communities

Margaret Morse, Emerita, Professor of Film and Digital Media
Digital and electronic media theory and criticism, media art, media history, technology and culture, film history and theory, German cinema, documentary and science fiction

Catherine Ramirez, Associate Professor of Latin American and Latino Studies
United States cultural history, with a focus on immigration and assimilation; theories of citizenship; Latino literature; comparative ethnic studies; feminist and gender studies; cultural studies

Jennifer E. Reardon, Associate Professor of Sociology
Issues of social identity as influenced by the new sciences of genetics and genomics; intersection of the sociology of science and knowledge and the sociology of race, gender, and class

B. Ruby Rich, Professor of Social Documentation and Film and Digital Media
Documentary film and video, post-9/11 culture, new queer cinema, feminist film history, Latin American and Latin/a cinema, U.S. independent film and video, the essay film, the politics of film festival proliferation and the marketing of foreign films in the U.S.

Cecilia Rivas, Assistant Professor of Latin American and Latino Studies
Transnationalism; media and communication (Internet, newspapers); migration; globalization; race, ethnicity, and gender; bilingualism; consumption; El Salvador, Central America, Southern Mexico

Pamela Ann Roby, Emerita, Professor of Sociology
Sociology of learning, women and work, leadership and social change, sociology of emotions, feminist research, inequality and social policy

Lisa Rofel, Professor of Anthropology
Critical theory, anthropology of modernity, popular/public culture, gender and sexuality, cultures of capitalism, postcolonial feminist anthropology, China

Vanita Seth, Associate Professor of Politics
Early modern and modern political theory, feminist theory, cultural history, race politics, postcolonial theory

Deanna Shemek, Professor of Literature
Renaissance Italian literature and culture; early modern feminism; humanism; letter-writing and epistolary culture; early modern literacy and media; Renaissance theater; the northern court circles; digital humanities

Mary W. Silver, Emerita, Professor of Ocean Sciences

Shelley Stamp, Professor of Film and Digital Media
Film history, theory, and criticism; silent cinema; early Hollywood; women's filmmaking; film censorship; histories of moviegoing; feminist approaches to cinema

Elizabeth Stephens, Professor of Art
Intermedia, electronic art, sculpture, and performance art

Nancy Stoller, Emerita, Professor of Community Studies
Race and gender aspects of health, the AIDS epidemic, community organizing, sexualities, and medicine in prisons

Avril Thorne, Professor of Psychology
Identity development through personal memory telling, development of meaning in adolescents' self-defining memory narratives, family storytelling and the development of a sense of self, narrative co-construction of identity and intimacy

Nina K. Treadwell, Associate Professor of Music
Renaissance through early baroque music history and performance practices, early plucked-string instruments (theorbo, renaissance, and baroque guitar; renaissance lute), 16th- and 17th-century Italian theatrical music, gender studies, women and music, literary and critical theory

Anna Tsing, Professor of Anthropology
Culture and politics; feminist theory; globalization; multi-species anthropology; social landscapes and tropical forest ethnoecologies; multi-sited ethnography; Indonesia, Southeast Asia, and the U.S.

Candace West, Professor of Sociology
Language and social interaction, sociology of gender, conversation analysis, microanalysis and medicine

Marilyn J. Westerkamp, Professor of History
Colonial and revolutionary America; the Atlantic World; early modern cultural and religious history; U.S. religious history; gender studies; history of the body

Rob Wilson, Professor of Literature
Transnational and postcolonial literatures, especially as located and transformed in Asia/Pacific; cultural-political emergences as posited against empires of globalization; cultural poetics of America in the Pacific and Oceania; the sublime, Longinus to Hiroshima; poetics of experimental writing, especially poetry; the poetry and cultural poetics of Bob Dylan; Beat beatitude, social and literary, from Jesus to Juliana Spahr et al; San Francisco as Global City, with its literature read as archive of vision and critique; Pacific Rim cities from Hong Kong and Seoul to Taipei, Kaohsiung, Shanghai, Honolulu, San Francisco, and Los Angeles

Alice Yang, Associate Professor of History
Historical memory, Asian American history, gender history, race and ethnicity, 20th-century U.S., oral history

Patricia Zavella, Professor of Latin American and Latino Studies
Relationship between women's work and domestic labor, poverty, family, sexuality and social networks, feminist studies, ethnographic research methods, and transnational migration of Mexicana/o workers and U.S. capital

Eileen Zurbriggen, Professor of Psychology
Connections between power and sex; sexual aggression and abuse; trauma; sexual decision-making; sexuality and media, the sexualization of girls and women; power in romantic relationships; adolescent sexual development; authoritarianism; feminist political psychology; quantitative methods in social psychology

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Film and Digital Media

2014-15 General Catalog

101 Communications Building
(831) 459-3204
film@ucsc.edu
http://film.ucsc.edu

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Faculty and Professional Interests

Professor

Sharon Daniel
Community-based public art in information and communications environments, social and political aspects of information technology, new media documentary and database documentary, participatory culture, digital inclusion, net art, human-computer interface design

Eli E. Hollander, Professor Emeritus

Charles L. Lord, Professor Emeritus

Margaret Morse, Professor Emerita

B. Ruby Rich
Documentary film and video, new queer cinema, feminist film history, Latin American and Latina/o cinema, U.S. independent film and video, the essay film, film festival studies, and the making/marketing of foreign films in the U.S.

Warren Sack
Software design and media theory

Shelley Stamp
Film history, theory, and criticism; silent cinema; early Hollywood; women's filmmaking; film censorship; histories of moviegoing; feminist approaches to cinema

Gustavo Vazquez
Film and video production, documentary and experimental cross-cultural experiences in film

Associate Professor

Lawrence Andrews
Film and video production, documentary, installation and media art, sound, animation

Irene Gustafson
Producing across the boundaries between "theory" and "practice," non-fiction media, experimental film/video, production design, gender and queer studies

Jonathan Kahana

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Documentary film and media; film and politics; American film history; essay film; cultural and social theory; media publics; arts of historical re-enactment; war and cultural memory; audio culture; disciplines of listening

L. S. Kim
Television history and theory, racial discourse, feminist criticism, Asian-American cultural theory and production, industrial practices and social change in both mainstream Hollywood and alternative media

John Jota Leaños
Documentary animation, social documentation, social art practice, community arts, Chicana/o art and culture, new media, critical media studies, cultural studies, documentary photography, installation art, public art and interventionist art practice

Peter Limbrick
International cinemas, especially Arab and Middle Eastern cinemas and Australasian cinemas; postcolonial theories and settler colonialism; theories of globalization and transnationalism; intersections of race, gender, and sexuality; queer theory; film and video history and historiography

Irene Lusztig
Film and video production, experimental ethnography and essayistic nonfiction; representations of historical memory; archives, propaganda and training films; feminist film practices; medical film; autobiographical filmmaking; interactive documentary; editing

Rick Prelinger
Critical archival studies; personal and institutional recordkeeping; access to the cultural record; media and social change; ephemeral cinema; amateur and home movies; participatory documentary; digital scholarship; cinema and public history

Yiman Wang
Theory of difference; film history and theory; colonial/semi-colonial/postcolonial/postsocialist modes of media production and exchange; border-crossing film remakes; silent cinema; translation theory and cinema; acting theory/practice and ethnic star studies with focus on Anna May Wong; transnational connections and ramifications of Chinese cinema and documentary; fan culture; East Asian cinemas

Assistant Professor

Jennifer Horne
Media citizenship; non-theatrical film and film exhibition; archives and technologies of information; film preservation; mass media and humanitarianism; cinema and media history and historiography; institutions, disciplinarity, and the politics of knowledge

Soraya Murray
Contemporary visual culture and representation including: new media art; projected arts; photography; electronic games; theories of art and globalization; representations of migration and otherness

Susana Ruiz
Game design; games as forms of activism and art; animation; participatory culture; social art practice; non-fiction storytelling; theory/practice hybridity; Theatre of the Oppressed; expanded documentary; interaction design; worldbuilding; transmedia production, scholarship and activism

Jennifer Maytorena Taylor
Social documentation, Latino and Latin American communities, public education, popular culture, religion, incarceration and justice, urban and community development, collaborative practices in journalism and production, transmedia

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Professor

Julianne Burton-Carvajal, Professor Emerita, Literature

Teresa de Lauretis, Professor Emerita, History of Consciousness

Nondiscrimination Statement

Search the Catalog

Rosa Linda Fregoso, Latin American and Latino Studies
Human rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Herman S. Gray, Sociology
Cultural studies, media and television studies, black cultural politics, social theory

Donna J. Haraway, Professor Emerita, History of Consciousness and Feminist Studies

David S. Marriott, History of Consciousness
Literary theory, psychoanalysis, black cultural theory and philosophies of race, literary and visual cultures of modernism

Associate Professor

Neda Atanasoski, Feminist Studies
New media and film; critical race and ethnic studies; feminist theory; human rights and humanitarianism; war and nationalism; religion and secularism; post-socialist politics and culture in Central and Eastern Europe

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French

2014-15 General Catalog

Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Faculty and Professional Interests

Professor

Carla Freccero (Literature, History of Consciousness, Feminist Studies)
Renaissance studies; French and Italian language and literature; early modern studies; postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

Pascale Gaitet, Emerita (Literature)
Nineteenth- and 20th-century French literature, sociolinguistics, political history, Celine, Genet

Sharon Kinoshita (Literature)
Mediterranean studies; medieval francophone and Mediterranean literature; literature, translation, and empire; postcolonial and globalization theory; Marco Polo; world literature and cultural studies

Richard Terdiman, Emeritus

Associate Professor

Bryan Donaldson (French)
Word order variation in second-language French and historical French through the lens of information structure, discourse analysis, and sociolinguistics

Lecturer

Angela Elsey
Francophonie, 19th-century French history and civilization, French and Francophone cinema

Greta Hutchison
Foreign language pedagogy, second language acquisition, 20th-century French history and civilization, medieval French literature, 19th-century literature and art

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German

2014-15 General Catalog

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http://language.ucsc.edu

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Faculty and Professional Interests

Associate Professor

Zsuzsanna Abrams
Applied linguistics, language pedagogy, second language acquisition, intercultural communication, discourse analysis, computer-mediate communication

Loisa Nygaard (Literature)
Eighteenth- and early 19th-century German literature; romanticism; aesthetics and politics of landscape; military theory

Assistant Professor

A. Hunter Bivens (Literature)
Twentieth- and 21st-century German literature and film, Marxism and critical theory, psychoanalysis, lyric poetry, literary realism, the novel

Lecturer

Walter Campbell
Language teaching, 18th- and 19th-century German literature, history of German

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German Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://germanstudies.ucsc.edu/

Program Description

Faculty and Professional Interests

Program Faculty

Zsuzsanna Abrams, Associate Professor of Languages and Applied Linguistics
Applied linguistics, language pedagogy, second language acquisition, intercultural communication, discourse analysis, computer-mediate communication

Amy Beal, Professor, Music
American music, 20th-century music, experimental and improvisatory performance practices, postwar and Cold War culture, German new music festivals and radio stations, piano performance, contemporary music ensemble

A. Hunter Bivens, Assistant Professor in Literature
Twentieth- and 21st-century German literature and film, Marxism and critical theory, psychoanalysis, lyric poetry, literary realism, the novel

Walter Campbell, Lecturer in German Language
Language teaching, 18th- and 19th-century German literature, history of German

Mark Cioc, Professor of History
German history, modern European history, environmental history

Jocelyn Hoy, Lecturer, Philosophy
Feminist philosophy, 19th- and 20th-century continental philosophy

Donna Hunter, Associate Professor of History of Art and Visual Culture
European painting (especially French) from 1600 to the 1960s; German art and visual culture between the two world wars; art as social practice, portraiture

Virginia Jansen, Emerita, History of Art and Visual Culture

Margaret Morse, Professor, Film and Digital Media
Digital and electronic media theory and criticism, media art, media history, technology and culture, film history and theory, German cinema, documentary, science fiction, and silent comedy

Loisa Nygaard, Associate Professor of Literature
Eighteenth- and early 19th-century German literature; romanticism; aesthetics and politics of landscape; military theory

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Program Faculty Advisers

Mark Cioc, Professor of History

Loisa Nygaard, Associate Professor of German Literature

A.Hunter Bivens, Assistant Professor of German Literature

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Greek

2014-15 General Catalog

History Department
201 Humanities
(831) 459-2982
http://history.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Karen Bassi (Literature)
Greek and Latin literatures; gender; literary and cultural theory, pre- and early modern studies, historiography; visual and performance studies

Mary-Kay Gamel (Literature)
Performance studies, ancient Mediterranean performance, Greek and Latin literatures, myth, reception of Greek and Roman texts and artifacts, film, feminist approaches to literature and performance

Gildas Hamel (History), Emeritus

Charles W. Hedrick Jr. (History)
Greek and Roman history

John P. Lynch (Literature), Emeritus

Jennifer Lynn (History)
Later Roman Republic and Principate; Homeric epic; Hellenistic and Augustan poetry; the lives of women in the ancient world; the lives of women in the ancient world

Daniel Selden (Literature)
Afroasiatic languages and literatures, Greek and Latin, Hellenistic culture, the classical tradition, history of criticism, literary theory

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Hebrew

2014-15 General Catalog

Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Lecturer

Tammi Rossman-Benjamin
Hebrew language and culture, biblical Hebrew syntax and semantics, the Hebrew Bible, Jewish thought, psycholinguistics, second-language acquisition and bilingualism

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History

2014-15 General Catalog

201 Humanities
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http://history.ucsc.edu/

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Faculty and Professional Interests

Professor

Dilip K. Basu, Emeritus

Jonathan F. Beecher, Emeritus

Robert F. Berkhofer Jr., Emeritus

David Brundage
American immigration history, with particular focus on the Irish in America and on transnational immigrant politics; U.S. labor and social history; modern Irish history

Edmund Burke III, Emeritus

Pedro G. Castillo, Emeritus

Mark Cioc
German history, modern European history, environmental history

Nathaniel Deutsch
Modern Jewish history; Eastern European Jewish culture; ethnography, Hasidism; history of religions

Dana Frank
Late 19th- and 20th-century U.S. social history; women's, labor, and working-class history; race and ethnicitymodern Honduras; U.S. history in transnational perspective

Lisbeth Haas
U.S.-Mexico borderlands and border studies, Chicano and Native American history; visual culture in the colonial Americas; California; historical memory, theory, and historical methodology

Charles W. Hedrick Jr.
Greek and Roman history

Gail B. Hershatter
Modern Chinese social and cultural history; labor history; gender history; history of sexuality; feminist theory; history, memory, and nostalgia

Emily Honig
Gender, sexuality, and ethnicity in modern Chinese history; comparative labor history;

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Chicana history, nationalism, and sexuality in the Third World; oral history

Peter Kenez, Emeritus

Bruce Levine, Emeritus

Gary B. Miles, Emeritus

Eric Porter
Black cultural and intellectual history; U.S. cultural history and cultural studies; critical race and ethnic studies; jazz and popular music studies; urban studies

Buchanan Sharp, Emeritus

David G. Sweet, Emeritus

Mark Traugott, Emeritus

Marilyn J. Westerkamp
Colonial and revolutionary America; the Atlantic World; early modern cultural and religious history; U.S. religious history; gender studies; history of the body

Associate Professor

David Henry Anthony III
African and African American history, art, music, literature, and cinema; eastern and southern Africa; African languages; Indian Ocean world; African and African American linkages; Islamic civilization; African diaspora studies; world history

Noriko Aso
Japanese social, intellectual, and cultural history, material culture, colonialism, nationalism, gender, race and ethnicity

Alan S. Christy
Early modern and modern Japan; history of social sciences, colonialism, nationalism

Maria Elena Diaz
Atlantic world, Colonial Latin America and the Caribbean, Cuba; social and cultural, global and local histories; colonialism, slavery and freedom, race/ethnicity, gender and class; legal, political, popular, and religious culture

Minghui Hu
Early Modern China (1600–1900)

Amy Lonetree
Indigenous history; museum studies; memory and history; Native American cultural production; public history; and Ho-Chunk tribal history

Catherine A. Jones
U.S. civil war and Reconstruction; slavery and emancipation; the American South; history of children; history of education; women and gender

Matthew D. O'Hara
Colonial and modern Latin America; Mexico; religion; race, ethnicity, and identity; political culture; history of time

Gregory O'Malley
Slavery and the slave trade; the colonial Americas; the Atlantic World; race, ethnicity, and encounters; Native American history; revolutionary America

Cynthia Polecritti
Medieval, Renaissance, and Modern Italy, Mediterranean urban and cultural history, ritual and popular devotion

Alice Yang
Historical memory, Asian American history, gender history, race and ethnicity, 20th-century U.S., oral history

Assistant Professor

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Grace Peña Delgado
Chicano/a History; Mexico-US-Canadian Borderlands; Latino/a Studies; Asian and Asian American Studies; Immigration; Gender and Sexuality; Modern Mexico and Latin America

Jennifer Derr
Colonial and Post-colonial Middle Eastern history; Egypt; agricultural and environmental history; Ottoman history; spatial politics; African history; Islamic history

Marc Matera
Britain and the British Empire; Modern Europe; world history; Atlantic World; western Africa; African diaspora studies; colonialism; race/ethnicity, gender, and sexuality

Maya Peterson
Russian and Soviet history; environmental history; comparative empire; colonialism; global exchanges of scientific knowledge and expertise; technology transfer; historical geography, spatial history and mapping, Central Asia; Silk Roads

Juned Shaikh
Modern South Asian social and cultural history, urban history, labor history, history of caste, Dalit studies, intellectual history, development studies, social theory, and agrarian studies

Elaine Sullivan
Pharaonic Period Egypt; Greek and Roman Egypt; women and gender; material culture; Digital Humanities and the use of emerging technologies in studying the ancient world

Lecturer

Gildas Hamel, Emeritus

Matthew Lasar
U.S. and international political, social, and economic history; broadcasting and telecommunications

Jennifer K. Lynn
Later Roman Republic and Principate; Homeric epic; Hellenistic and Augustan poetry; the lives of the women in the ancient world

Bruce Thompson
European intellectual and cultural history, Jewish intellectual and cultural history, French history, British and Irish history, history of cinema, history of espionage and intelligence, urban history, and environmental history

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Professor

Bettina Aptheker (Feminist Studies)
Feminist oral history and memoir; feminist pedagogy; African-American feminist history; queer studies; feminist Jewish studies; feminist critical race studies

Christopher Connery (Literature)
World literature and cultural studies, globalism and geographical thought, the 1960s, Marxism, pre-modern and modern Chinese cultural studies, cultural revolution

John Dizikes, Emeritus (American Studies)

Barbara L. Epstein, Emerita (History of Consciousness)

Sharon Kinoshita (Literature)
Mediterranean studies; medieval francophone and Mediterranean literature; literature, translation, and empire; postcolonial and globalization theory; Marco Polo; world literature and cultural studies

Paul M. Lubeck, Emeritus (Sociology)

Daniel Selden (Literature)
Afroasiatic languages and literatures, Greek and Latin, Hellenistic culture, the classical tradition, history of criticism, literary theory

Associate Professor

Gabriela Arredondo (Latin American and Latino Studies)
U.S. social and cultural history; Chicana/o history; critical race and ethnicity theories; im/migration history; Latina/os in the U.S.; Chicana feminisms; "borderlands" studies, modern Mexico history

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History of Art and Visual Culture

2014–15 General Catalog

D–201 Porter College
(831) 459–4564
havc@ucsc.edu
http://havc.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Harry Berger Jr., Emeritus

Martin A. Berger
Gender, race, and representation in U.S. culture

Raoul Birnbaum,
Buddhist studies, especially Chinese practices from medieval times to the present; religion and visual culture in China

Elisabeth Cameron, Patricia and Rowland Rebele Chair in History of Art and Visual Culture (2008–2014)
Visual cultures of Central Africa, issues of gender, post-colonialism, iconoclasm

Carolyn Dean
Cultural histories of the native Americas and colonial Latin America

Jennifer A. González
Contemporary theories of visual culture, semiotics, critical museum studies, photography, public and activist art in the U.S.

John Hay, Emeritus

Virginia Jansen, Emerita

Jasper A. Rose, Emeritus

Catherine M. Soussloff, Emerita

Associate Professor

Maria Evangelatou
Medieval visual culture with emphasis on Byzantium and its periphery; manuscript illumination, Marian cult and iconography; ancient Greek and Roman visual culture; Islamic visual culture; gender studies

Donna M. Hunter
European painting (especially French) from 1600 to the 1960s; German art and visual culture between the two world wars; art as social practice; portraiture; monuments,

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counter-monuments, and anti-monuments

Stacy L. Kamehiro
Visual cultures of Oceania; colonial cultures; visual culture ad identity; gender studies; museums and collecting; material culture

Assistant Professor

Boreth Ly
Visual cultures of Southeast Asia and its diaspora: religions and materiality, theory of visual narrative, the politics of cultural translation; (post) colonial and cultural studies; issues of gender, sexuality, race, and trauma

Derek Conrad Murray
Theory and criticism of contemporary art, cultural theory, identity and representation, art of the African diaspora, popular visual culture, contemporary photography, and the ethics of art history and visual studies

Albert Narath
Modern and Contemporary architecture and design; environmental history, theories of technology, historiography of modernism, anthropology and architecture

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Professor

Karen Bassi (Literature)
Greek and Latin literatures; gender; literary and cultural theory; pre- and early modern studies; historiography; visual and performance studies

James Clifford (History of Consciousness,Distinguished Professor Emeritus)
Anthropology, indigeneity, museum studies, exoticism

Shelly Errington (Anthropology)
Globalization of folk art, visual and social semiotics, photography, film, the Internet and digital media, Southeast Asia, and Latin America

Kathy Foley (Theater Arts)
Southeast Asian drama and dance; puppetry

Dianne Gifford-Gonzalez (Anthropology)
Zooarchaeology, African archaeology, pastoralism, colonial New Mexico, interpretive theory, visual anthropology, emergence of pastoralism in East Africa; foodways as cultural practices in colonial encounters

David Marriott (History of Consciousness)
Literary theory, psychoanalysis, black cultural theory and philosophies of race, literary and visual cultures of modernism

Warren Sack (Film and Digital Media)
Theory and practice of digital media, software design and media theory

Shelly Stamp (Film and Digital Media)
Silent cinema, female filmmakers, film censorship, histories of moviegoing, early Hollywood

Associate Professor

Noriko Aso (History)
Japanese history, cultural studies, gender and history, race and ethnicity, colonialism, nationalism, Korean history, and popular culture

Irene Gustafson (Film and Digital Media)
Producing across the boundaries between "theory" and "practice," non-fiction, gender and queers, production design

Peter Limbrick (Film and Digital Media)
Postcolonial and transnational cinemas, race, gender, sexuality, queer theory

Assistant Professor

Nondiscrimination Statement

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Hunter Bivens (Literature)
Twentieth- and twenty-first century German literature, culture, and film, Marxism and critical theory, socialist realism and proletarian literature, modernism and left avant-gardes, novel theory

Christine Hong (Literature)
Asian American literature and cultural criticism; African American literature and black freedom studies; Korean diasporic cultural production; Pacific Rim studies; postcolonial theory; critical race theory; human rights discourse; law and literature; narrative theory; film and visual studies

Soraya Murray (Film and Digital Media)
New media art, theory, and criticism; visual culture including digital, film, video, and electronic games; theories of technology and globalization; media representations of technological and scientific advancement; representations of otherness, migration, citizenship

Revised: 09/01/14

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History of Consciousness

2013-14 General Catalog

415 Humanities 1
(831) 459-2757
http://histcon.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Gopal Balakrishnan, Associate Professor of History of Consciousness
Classics of political thought from Plato to Rousseau, early modern and modern European intellectual history, historical sociology, the history and future of capitalism, nationalism

Barbara L. Epstein, Professor Emerita of History of Consciousness
Social movements and theories of social movements, 20th-century U.S. politics and culture, Marxism and related theories of social change; modern Jewish history

Carla Freccero, Professor and Chair of Literature, Professor and Chair of History of Consciousness, and Feminist Studies
Renaissance studies; French and Italian language and literature; early modern studies, postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

David S. Marriott, Professor of History of Consciousness
Poetics, black cultural studies, literary and psychoanalytic theory, visual culture studies, black cultural theory and philosophies of race, caribbean modernism, Fanon studies

Robert L. Meister, Professor of Politics and History of Consciousness
Critical human rights theory; moral philosophy; political jurisprudence; political theology; political economy; psychoanalysis; Marxian theory; financialization; 21st-century capitalism; institutional analysis; historical justice; and antidiscrimination law

Eric Porter, Professor of History, and History of Consciousness
Black cultural and intellectual history; U.S. cultural history and cultural studies; critical race and ethnic studies; jazz and popular music studies; urban studies

Victor Burgin, Professor Emeritus of History of Consciousness

James T. Clifford, Professor Emeritus of History of Consciousness

Angela Y. Davis, Professor Emerita of History of Consciousness and Feminist Studies

Teresa de Lauretis, Professor Emerita of History of Consciousness, Literature, and Film and Digital Media

Donna J. Haraway, Professor Emerita of History of Consciousness and Feminist Studies

Hayden White, Professor Emeritus of History of Consciousness

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Affiliated Faculty

Martin Berger, Professor of History of Art and Visual Culture
Gender, race, and representation in U.S. culture

Christopher Connery, Professor of Literature
World literature and cultural studies, globalism and geographical thought, the 1960s, Marxism, pre-modern and modern Chinese cultural studies, cultural revolution

Nathaniel Deutsch, Professor of Literature and History
Modern Jewish history; Eastern European Jewish culture; ethnography, Hasidism; history of religions

Jennifer A. González, Associate Professor of History of Art and Visual Culture
Contemporary theories of visual culture, semiotics, critical museum studies, photography, public and activist art in the U.S.

Deborah Gould, Associate Professor of Sociology,
Political emotion; social movements and contentious politics; classic and contemporary social theory; sexualities; lesbian/gay/queer studies; feminist and queer theory

Megan Thomas, Associate Professor of Politics
Political theory, especially of the 19th century; nationalist thought; Orientalism; comparative colonialism; Southeast Asia

Tyrus Miller, Professor of Literature
Modernist, avant-garde, and postmodernist literature; the interrelations of the arts in the 20th century; aesthetics theory; communist and post-communist society, intellectual history, and culture, especially in East-Central and Southern Europe; cinema and film theory; the Frankfurt School; György Lukács; contemporary poetry and language arts

Jennifer Reardon, Associate Professor of Sociology
Issues of social identity as influenced by the new sciences of genetics and genomics; intersection of the sociology of science and knowledge and the sociology of race, gender, and class

Vanita Seth, Associate Professor of Politics
Early modern and modern political theory, feminist theory, cultural history, race politics, postcolonial theory

Associated Faculty

Anjali Arondekar, Associate Professor of Feminist Studies
South Asian studies, colonial historiography; feminist theories; queer theory; critical race studies; 19th-century interdisciplinary studies

Karen Barad, Professor of Feminist Studies
Feminist science studies, materialism, deconstruction, poststructuralism, posthumanism, multi-species studies, science and justice, physics, 20th-century continental philosophy, epistemology, ontology, ethics, philosophy of physics, feminist, queer, and trans theories

A. Hunter Bivens, Assistant Professor of Literature
Twentieth- and 21st-century German literature and film, Marxism and critical theory, psychoanalysis, lyric poetry, literary realism, the novel

Vilashini Cooppan, Associate Professor of Literature
Postcolonial studies, comparative and world literature, literatures of slavery and diaspora, globalization studies, cultural theory of race and ethnicity

Gina Dent, Associate Professor of Feminist Studies, History of Consciousness, and Legal Studies
Africana literary and cultural studies, legal theory, popular culture

Mayanthi Fernando, Associate Professor of Anthropology
Anthropology of religion, secularism, Islam, multiculturalism/pluralism; colonial and post-colonial France, Europe

Rosa-Linda Fregoso, Professor of Latin American and Latino Studies

Nondiscrimination Statement

Search the Catalog

Human-rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Susan Gillman, Professor of Literature
Nineteenth-century American literature and culture; theories of culture, race, and gender; world literature and cultural studies

Wlad Godzich, Professor of Literature
Theory of literature; philosophy and literature; emergent literature; translation theory; globalization and culture; European integration; knowledge society; literatures of Africa, the Caribbean, Europe (Central, Eastern, and Western), Brazil, Canada; detective and crime fiction; science fiction; medicine and literature

Herman S. Gray, Professor of Sociology
Cultural studies, media and television studies, black cultural politics, social theory

Jody Greene, Professor of Literature and Feminist Studies
Seventeenth- and 18th-century British literature and culture; pre- and early modern studies; critical theory, especially Derrida; poststructuralism and ethics; gender studies; history of authorship; history of the book; human property

Susan Harding, Professor Emerita of Anthropology

Gail Hershatter, Professor of History
Modern Chinese social and cultural history; labor history; gender history; history of sexuality; feminist theory; history, memory, and nostalgia

David C. Hoy, Professor of Philosophy
Kant, Hegel, Nietzsche, Heidegger, Derrida, Foucault, phenomenology, poststructuralism, and contemporary European philosophy

Kimberly Jannarone, Professor of Theater Arts
Directing, dramaturgy, dramatic theory and criticism, theater history, acting

Sharon Kinoshita, Professor of Literature
Mediterranean studies; medieval francophone and Mediterranean literature; literature, translation, and empire; postcolonial and globalization theory; Marco Polo; world literature and cultural studies

Kimberly Lau, Professor of Literature; Provost, Oakes College
Feminism, discourse, and power; feminist theory; discourse, analysis, and ethnographic methods; folklore and narrative; globalization

Dean Mathiowetz, Associate Professor of Politics
Political theory, philosophy of language, classical and critical political economy

Helene Moglen, Professor Emerita of Literature and Feminist Studies

Triloki Nath Pandey, Professor of Anthropology
Native peoples of North America, cultures of India, political anthropology, anthropological theories and comparisons; native North America; tribal India; Nepal

Ravi Rajan, Associate Professor of Environmental Studies
Environmental history and political ecology, risk and disaster studies, science and technology studies, North-South environmental conflicts, environmental social theory, environmental ethics

B. Ruby Rich, Professor of Community Studies
Documentary film and video, post-9/11 culture, new queer cinema, feminist film history, Latin American and Latin/a cinema, U.S. independent film and video, the essay film, the politics of film festival proliferation and the marketing of foreign films in the U.S.

Warren Sack, Professor of Film and Digital Media
Software design and media theory

Daniel Selden, Professor of Literature
Afroasiatic languages and literatures, Greek and Latin, Hellenistic culture, the classical tradition, history of criticism, literary theory

Richard Terdiman, Professor Emeritus

Anna Tsing, Professor of Anthropology
Culture and politics; feminist theory; globalization; multi-species anthropology; social landscapes and tropical forest ethnoecologies; multi-sited ethnography; Indonesia, Southeast Asia, and the U.S.

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Humanities

2014-15 General Catalog

503 Humanities I
(831) 459-2696
http://humanities.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Jerome Neu
Moral psychology; emotions, culture, and insults; philosophy of law; Freud and psychoanalytic theory

Forrest G. Robinson, Emeritus

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Italian

2014-15 General Catalog

Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Margaret Brose, Emerita

Deanna Shemek (Literature)
Renaissance Italian literature and culture; early modern feminism; humanism; letter-writing and epistolary culture; early modern literacy and media; Renaissance theater; the northern court circles; digital humanities

Lecturer

Giulia Centineo
Italian culture and civilization; history of Italian language; Italian linguistics, syntax, and semantics; language pedagogy, Italian cinema, dubbing, Italian migrations

Maria (Tonia) Prencipe
Technology and foreign language pedagogy; modern Italian culture, history, literature, and cinema; creative writing; promotion of Italian language and culture of K-12

Revised: 09/01/14

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Italian Studies

2014-15 General Catalog

Department of Literature
303 Humanities 1
(831) 459-4778

Program Description

Core Program Faculty

Giulia Centineo, Lecturer in Italian

Cynthia Polecritti, Associate Professor of History

Maria (Tonia) Prencipe, Lecturer in Italian

Deanna Shemek, Professor of Literature

Affiliated Faculty

Murray Baumgarten, Professor of English and Comparative Literature

Maria Evangelatou, Assistant Professor of History of Art and Visual Culture

Carla Freccero, Professor of Literature and Feminist Studies

Mary-Kay Gamel, Professor of Literature

Charles W. Hedrick Jr., Professor of History

Donna Hunter, Professor of History of Art and Visual Culture

Allan Langdale, Lecturer of History of Art and Visual Culture

Tyrus Miller, Professor of Literature

Eleonora Pasotti, Associate Professor of Politics

Daniel Selden, Professor of Literature and Classics

Nina Treadwell, Associate Professor of Music

James Wilson, Lecturer with Security of Employment in Writing

Emerita Faculty

Margaret R. Brose, Emerita, Literature

Virginia Jansen, Emerita, History of Art and Visual Culture

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Japanese

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Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Faculty and Professional Interests

Professor

Shigeko Okamoto
Sociolinguistics, discourse analysis, pragmatics, language and gender, foreign language pedagogy, Japanese linguistics

Associate Professor

Noriko Aso
Japanese social, intellectual, and cultural history, material culture, colonialism, nationalism, gender, race and ethnicity

Alan S. Christy
Early modern and modern Japan; history of social sciences, colonialism, nationalism

Lecturer

Mariko Bohn
Sociolinguistics, language and gender, bilingualism, modern Japanese literature, language pedagogy.

Sakae Fujita
Foreign language education, drama in education

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Jewish Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://jewishstudies.ucsc.edu

Program Description

Principal Faculty

Bettina Aptheker, Professor of Feminist Studies
Feminist oral history and memoir; feminist pedagogy; African-American feminist history; queer studies; feminist Jewish studies; feminist critical race studies

Murray Baumgarten, Professor of English and Comparative Literature, Neufeld-Levin Co-Chair
Dickens, Victorian literature and culture, the Bible, translation, modern Jewish writing, the Holocaust

Dorian Bell, Assistant Professor of Literature
Nineteenth- and 20th-century French literature and intellectual history; histories of empire and anti-Semitism; literature and science; film studies; digital humanities

Margaret Brose, Emerita Professor of Literature

Mark Cioc, Professor of History
German history, modern European history; environmental history

Paula Daccarett, Lecturer in History
Jewish modernity, Mediterranean Jewish history, Latin American Jewish history, Jewish women's history, Levantine cultures/spaces

Nathaniel Deutsch, Professor of Literature and History
Modern Jewish history; Eastern European Jewish culture; ethnography, Hasidism; history of religions

Barbara Epstein, Professor Emerita of History of Consciousness

Gildas Hamel, Lecturer Emeritus in History and Classical Languages

Johnathan Levitow, Lecturer in Yiddish
Yiddish language and literature

Peter Kenez, Professor Emeritus of History, Neufeld-Levin Co-Chair

Tammi Rossman-Benjamin, Lecturer in Hebrew
Hebrew language and culture; biblical Hebrew syntax and semantics; the Hebrew Bible; Jewish thought; psycholinguistics; second language acquisition and bilingualism

Dan Selden, Professor of Literature

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Research on Classical and Hellenistic Judaism and medieval Jewish mysticism

Bruce Thompson, Continuing Lecturer in History
European intellectual and cultural history, French history, Jewish intellectual and cultural history, British and Irish history, history of cinema, history of espionage, environmental history

Faculty Advisers

Murray Baumgarten, Professor of English and Comparative Literature

Nathaniel Deutsch, Professor of Literature and History

Bruce Thompson, Lecturer in History

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Raoul Birnbaum, Professor of History of Art and Visual Culture
Buddhist studies, especially Chinese practices from medieval times to the present; religion and visual culture in China

A. Hunter Bivens, Assistant Professor of Literature
Twentieth- and 21st-century German literature and film; Marxism and critical theory; psychoanalysis, lyric poetry; literary realism; the novel

Ryan Coonerty, Lecturer in Politics
American political history, law and international relations

Maria Evangelatou, Assistant Professor of History of Art and Visual Culture
Medieval visual culture, with emphasis on Byzantium and its periphery; manuscript illumination, Marian cult and iconography; ancient Greek and Roman visual culture; Islamic visual culture; gender studies

Laurel Fox, Professor of Ecology and Evolutionary Biology
Terrestrial population and community ecology, plant-animal interactions

Robert Goff, Associate Professor Emeritus of Philosophy

Margo Hendricks, Professor Emerita of Literature

Loisa Nygaard, Associate Professor of Literature
Eighteenth- and early 19th-century German literature; Goethe; Romantic fiction; landscape and landscape aesthetics; xenophobia in Germany

Paul Roth, Professor of Philosophy
Philosophy of social science, Quine, phiosophy of history, philosophy and sociology of science, epistemology, history of analytic philosophy

Avi Tchamni, Lecturer in Music
Composition, Jewish music, computer and electronic music, Middle Eastern music, theory, algorithmic music and generative musical syntax, orchestration, ethnomusicology

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Languages and Applied Linguistics

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218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Faculty and Professional Interests

Chinese

David Keenan
Chinese language, fiction, and history

Ting Ting Wu
Sociolinguistics, Chinese novels, learning styles and teaching methodology for non-heritage speakers

French

Bryan Donaldson
Word order variation in second-language French and historical French through the lens of information structure, discourse analysis, and sociolinguistics

Angela Elsey
Francophonie, 19th-century French history and civilization, French and Francophone cinema

Greta Hutchison
Foreign language pedagogy, second language acquisition, 20th-century French history and civilization, medieval French literature, 19th-century literature and art

German

Zsuzsanna Abrams
Applied linguistics, language pedagogy, second language acquisition, intercultural communication, discourse analysis, computer-mediated communication

Walter Campbell
Language teaching, 18th- and 19th-century German literature, history of German

Hebrew

Tammi Rossman-Benjamin
Hebrew language and culture, biblical Hebrew syntax and semantics, the Hebrew Bible, Jewish thought, psycholinguistics, second-language acquisition and bilingualism

Italian

Giulia Centineo

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Italian culture and civilization; history of Italian language; Italian linguistics, syntax, and semantics; language pedagogy; Italian cinema; dubbing; Italian migrations

Tonia Prencipe
Technology and foreign language pedagogy; modern Italian culture, history, literature, and cinema; creative writing; promotion of Italian language and culture of K–12

Japanese

Mariko Bohn
Sociolinguistics, language and gender, bilingualism, modern Japanese literature, language pedagogy

Sakae Fujita
Foreign language education, drama in education

Shigeko Okamoto
Sociolinguistics, discourse analysis, pragmatics, language and gender, foreign language pedagogy, Japanese linguistics

Portuguese

Ana Maria Seara
Portuguese language; literature, film, and music of Brazil and the Portuguese-speaking world; acquisition and teaching of foreign, second, and heritage languages

Spanish and Spanish for Spanish Speakers

Mark Amengual
Bilingualism and language contact; acoustic phonetics; sociophonetics; L2 acquisition; language variation and change; Spanish and Romance linguistics

Byron Barahona
Language acquisition and teaching methodology, Latin American literature and culture

Carlos Calierno
Intercultural communication and languages; Latin American culture; history of the conquest, music, art, and cinematography

María Victoria González-Pagani
Language teaching methodology; Spanish syntax; computer-assisted foreign language learning; Latin American cultural studies, especially women's contributions

Marta Navarro
Spanish language pedagogy for heritage speakers and non-native speakers; theatre; Mexican popular culture

Ariel A. Pérez
Language acquisition and teaching methodology, computer-assisted language learning, teaching language for proficiency, oral proficiency assessment; Latin American current affairs

Alvaro Romero-Marco
Spanish literature of the 19th- and 20th-centuries; film, cultural studies

Eve Zyzik
Spanish linguistics, second language acquisition, cognitive linguistics, language pedagogy and curriculum design

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Latin

2014-15 General Catalog

History Department
201 Humanities
(831) 459-2982
http://history.ucsc.edu/

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Faculty and Professional Interests

Karen Bassi (Literature)
Greek and Latin literatures; gender literary and cultural theory, pre- and early modern studies, historiography; visual and performance studies

Mary-Kay Gamel (Literature)
Performance studies, ancient Mediterranean performance, Greek and Latin literatures, myth, reception of Greek and Roman texts and artifacts, film, feminist approaches to literature and performance

Gildas Hamel (History), Emeritus

Charles W. Hedrick Jr. (History)
Greek and Roman history

John P. Lynch (Literature), Emeritus

Jennifer Lynn (History)
Later Roman Republic and Principate; Homeric epic; Hellenistic and Augustan poetry; the lives of women in the ancient world

Daniel Selden (Literature)
Afroasiatic languages and literatures, Greek and Latin, Hellenistic culture, the classical tradition, history of criticism, literary theory

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Latin American and Latino Studies

2014-15 General Catalog

32 Merrill College
(831) 459-4284
http://lals.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Core Faculty

Gabriela Arredondo, Associate Professor of Latin American and Latino Studies
Latina/o studies; Chicana/o history; U.S. immigration histories; U.S. social and cultural history; critical race and ethnicity theories; Chicana and Mexicana feminisms; "borderlands" studies; history of modern Mexico

John G. Borrego, Professor Emeritus of Latin American and Latino Studies

Sylvanna Falcón, Assistant Professor of Latin American and Latino Studies
Human rights activism, racism/antiracism, globalization, gender, transnational feminism, contemporary Peru

Adrián Félix, Assistant Professor of Latin American and Latino Studies
International migration; Mexico-U.S. migration; migrant transnationalism; racial/ethnic politics and identity; politics of citizenship; Latino politics

Jonathan Fox, Professor Emeritus of Latin American and Latino Studies

Rosa-Linda Fregoso, Professor of Latin American and Latino Studies
Human rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Walter L. Goldfrank, Professor Emeritus of Latin American and Latino Studies and Sociology

Fernando Leiva, Associate Professor of Latin American and Latino Studies
Political economy of Latin American capitalism; critical cultural political economy; social movements; state-society articulations under neoliberalism and post-neoliberalism; social network analysis

Lourdes Martínez-Echazábal, Professor of Latin American and Latino Studies
Latin American and Caribbean literatures; Afro-Latin American literatuers, cultures, and societies; found[n]ational narratives; Brazilian literature; literatuers of Cuba and the Cuban diaspora, cinema and social change in Cuba; critical race theory, queer literature and cinema in Latin America

Hector Perla, Jr., Assistant Professor of Latin American and Latino Studies
International relations; Latin American studies; Latino politics; 21st-century left in Central America; U.S. foreign policy; social and revolutionary movements; asymmetric conflicts; political psychology; transnational political mobilization

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- Italian Studies
- Japanese
- Jewish Studies
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Catherine Ramirez, Associate Professor of Latin American and Latino Studies
United States cultural history, with a focus on immigration and assimilation; theories of citizenship; Latino literature; comparative ethnic studies; feminist and gender studies; cultural studies

Cecilia M. Rivas, Assistant Professor of Latin American and Latino Studies
Transnationalism; media and communication (Internet, newspapers); migration; globalization; race, ethnicity, and gender; bilingualism; consumption; El Salvador, Central America, Southern Mexico

Jessica K. Taft, Assistant Professor of Latin American and Latino Studies
Youth activism; childhood and youth studies; social movements; participatory democracy; girls studies; Latin American radicalisms; feminist theory; qualitative and participatory research methods

Patricia Zavella, Professor of Latin American and Latino Studies
Transnational migration by Mexicans, poverty, family, sexuality, labor, social networks, feminist studies, Chicana/o–Latina/o studies, ethnographic research methods

Participating Faculty

Mark D. Anderson, Associate Professor of Anthropology
Racial formation, diaspora, nationalism, transnationalism, indigeneity, consumption, Central America, Honduras, Latin America, African diaspora

Jeffrey T. Bury, Associate Professor of Environmental Studies
Political ecology; sustainable development; Latin American studies; international relations; institutional dimensions of natural resource conservation in the global south

Pedro G. Castillo, Associate Professor Emeritus of History

Cynthia Cruz, Assistant Professor of Education
Feminist ethnography; community-based learning; decolonial pedagogies; LGBTQ street youth; women of color thought; cultural studies and education

Kent H. Eaton, Professor of Politics
Comparative politics, Latin America international relations, political economy, public policy,political institutions

Lisbeth Haas, Professor of History, Professor of Feminist Studies
U.S.–Mexico borderlands, Chicano and Native American history; visual culture in the colonial Americas; the U.S. West and California; historical memory, theory, and historical methodology

Norma Klahn, Professor of Literature
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Flora Lu, Associate Professor of Environmental Studies
Ecological anthropology, human behavioral ecology, Amazon rainforest, indigenous peoples, conservation, Ecuador, culture change, market integration, indigenous resource management, political ecology, environmental justice

Eduardo Mosqueda, Assistant Professor of Education
Mathematics education of English learners; large-scale dataset quantitative analysis; urban education issues

Olga Nájera-Ramírez, Professor of Anthropology
Folklore theory, ritual, festival, dance, greater Mexican culture, history and folklore, transnationalism, identity; expressive culture, ethnomusicology, bilingual communication, gender, history, and culture of Latin America, the U.S., and Mexico

Marcia Ochoa, Associate Professor of Feminist Studies
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, multimedia production, Latin American

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studies—Colombia and Venezuela, political philosophy, geography

Juan Poblete, Professor of Literature
Latin(o) American literatures; transnational/global cultures (literature, radio, film); Latin(o) American cultural studies; 19th-century studies; the history of reading practices

Renya K. Ramirez, Associate Professor of Anthropology
Native American studies, Indian identity, Native Americans and anthropology, urban Indians, Native American women, cultural citizenship, expressive culture, and anti-racist education

B. Ruby Rich, Professor of Social Documentation and Film and Digital Media
Documentary film and video, post-9/11 culture, new queer cinema, feminist film history, Latin American and Latin/a cinema, U.S. independent film and video, the essay film, the politics of film festival proliferation and the marketing of foreign films in the U.S.

Barbara Rogoff, Professor of Psychology
Human development in sociocultural activity; informal and formal arrangements for learning; adult/child and peer communication in families and schools in diverse cultural communities (especially in Guatemala, Mexico, and the U.S.); learning through observation and collaboration

Felicity Amaya Schaeffer, Associate Professor of Feminist Studies
Transnational feminism, migration, Latin American/Latino studies, Chicana/o studies, Internet, technology and the body, sexuality, gender and globalization

Helen Shapiro, Associate Professor of Sociology
Political economy, Latin American economic history and development (with an emphasis on Brazil), industrial policy, the auto industry, the state and transnational corporations

Affiliated Faculty

Jorge Aladro Font, Professor of Spanish Literature
Spanish mysticism, theory and historical developments of imagery in the Middle Ages to the baroque period, Renaissance and baroque Hispanic literature, Italian ideas in the Spanish Renaissance, Cervantes

Chelsea Blackmore, Assistant Professor of Anthropology
Pre-Columbian archaeology (Mesoamerican focus), identity formation, complex societies, class and state formation, gender, feminist/queer theory

Carolyn Dean. Professor of History of Art and Visual Culture
Cultural histories of the native Americas and colonial Latin America

Maria Elena Diaz, Associate Professor of History
Atlantic world, Colonial Latin America and the Caribbean, Cuba; social and cultural, global and local histories; colonialism, slavery and freedom, race/ethnicity, gender and class; legal, political, popular, and religious culture

Robert W. Fairlie, Associate Professor of Economics
Labor economics, entrepreneurship, education, applied econometrics

Dana Frank, Professor of History
U.S. social and economic history; women, labor, and working-class history; contemporary political economy; modern Central America

Gregory S. Gilbert, Professor of Environmental Studies
Disease ecology, forest ecology, tropical ecology, biological invasions, conservation biology, applied evolutionary ecology

María Victoria González-Pagani, Lecturer in Spanish Language
Language teaching methodology; Spanish syntax; computer-assisted foreign language learning; Latin American cultural studies, especially women's contributions

Shelly Grabe, Associate Professor of Psychology
Structural and individual components of women's rights violations and social justice in the context of globalization; partnership with grassroots women's organizations; embodied oppression

Miriam Greenberg, Associate Professor of Sociology
Urban sociology, media studies, cultural studies, political economy, globalization, and urban political ecology

Kirsten Silva Gruesz, Professor of Literature
Chicano/Latino literatures and cultures, Comparative Americas studies, language ideologies and bilingualism in literature

Daniel Guevara, Associate Professor of Philosophy
Kant, moral philosophy, moral psychology, environmental ethics, history of modern philosophy

Craig Haney, Professor of Psychology
Applications of social psychological principles to legal settings, assessment of the psychological effects of living and working in institutional environments, social contextual origins of violence, development of alternative legal and institutional forms

Karen D. Holl, Pepper-Giberson Professor, Environmental Studies
Restoration ecology, conservation biology, landscape ecology

Regina D. Langhout, Associate Professor of Psychology
School-community-university collaboration; how schooling and neighborhood experiences are informed by social class, race, and gender; participatory action research

John Leaños, Assistant Professor of Social Documentation
Documentary animation, social documentation, social art practice, community arts, Chicana/o art and culture, new media, critical media studies, cultural studies, documentary photography, installation art, public art and interventionist art practice

Deborah Letourneau, Professor of Environmental Studies
Agroecology, tropical biology, insect-plant interactions, biological conservation for ecosystem services, biological processes as an alternative to pesticides, environmental risks of genetically engineered organisms, redwood forest community ecology

Daniel T. Linger, Professor Emeritus of Anthropology

Paul M. Lubeck, Professor Emeritus of Sociology

Andrew Salvador Mathews, Associate Professor of Anthropology
Environmental anthropology, science and technology studies, conservation and development, climate change, environmental history, Mexico, Latin America, Italy

Judit Moschkovich, Professor of Mathematics Education
Mathematical thinking and learning; student conceptions of functions; mathematical discourse; everyday mathematical practices; bilingual mathematics learners

Matthew D. O'Hara, Associate Professor of History
Modern Latin America and Mexico; late colonial Latin America; religion, spirituality, and ritual; urban history; race, ethnicity, and identity; political culture

Lucinda Pease-Alvarez, Professor of Education
Language and literacy development, language-minority education, bilingualism, informal learning, teachers as policy makers

Jennifer Poole, Assistant Professor of Economics
International trade, Latin American economics, applied microeconomics

Daniela Sandler, Assistant Professor of History of Art and Visual Culture
Modern and contemporary architecture and urbanism; visual and cultural studies; social inequality in space; architectural preservation; history and memory in the built environment; architecture and visual culture in Latin America and Europe, with foci on Brazil and Germany

Ana Maria Seara, Lecturer, Portuguese Language
Portuguese language; literature, film, and music of Brazil and the Portuguese-speaking world; acquisition and teaching of foreign, second, and heritage languages

Dana Y. Takagi, Professor of Sociology

Social inequality and identity, research methods, race relations, nationalism and social movements

Kip Telléz, Professor of Education
Preparation of teachers for linguistic and cultural diversity, second language learning, studies of the school curriculum, educational assessment

Gustavo Vazquez, Associate Professor of Film and Digital Media
Film and video production, documentary and experimental cross-cultural experiences in film

Rasmus Winther, Associate Professor of Philosophy
Philosophy of science, philosophy of biology, philosophy of mind, pragmatism, Latin American philosophy, continental philosophy, philosophy of multiculturalism, post-colonial theory, feminism, ontology, evolutionary theory, cognitive science

Thomas Wu, Assistant Professor of Economics
International finance, macroeconomics, Brazilian macroeconomic policy

Karen Tei Yamashita, Professor of Literature (Creative Writing)
History and anthropology of Japanese immigration to Brazil, Asian American literature, modern fiction, playwriting

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Legal Studies

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27 Merrill College
(831) 459–2056
legalstudies@ucsc.edu
Department web site

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Faculty and Professional Interests

Donald Brenneis, Professor of Anthropology
Linguistic anthropology, folklore, legal anthropology, ethnomusicology, overseas Indians, South Asia, disputing and dispute management, legal language, bureaucratic institutions, knowledge production, improvisation

Ryan Coonerty, Lecturer, Legal Studies
American political history, law and international relations

Gina Dent, Associate Professor, Feminist Studies, History of Consciousness, and Legal Studies
Africana literary and cultural studies, legal theory, popular culture

Hiroshi Fukurai, Professor of Sociology
Citizen participation in law, race and the law, indigenous approach to international law, decolonialism, Japan and East Asia, advanced quantitative methods, survey research

Craig W. Haney, Professor of Psychology, Director of Legal Studies
Applications of social psychological principles to legal settings, assessment of the psychological effects of living and working in institutional environments, social contextual origins of violence, development of alternative legal and institutional forms

Ruth Langridge, Lecturer, Legal Studies
Water resource issues, including control over, access to, and management of water; climate change; groundwater management, and broader theoretical and political issues related to property; institutions form and change; the social, political and environmental impacts and beneficiaries of current rules; and the consequences of proposed changes

Mark Fathi Massoud, Assistant Professor of Politics
Law and society; human rights; international law and development, with a special interest in Sudan; field research, with an emphasis on qualitative and ethnographic methods

Triloki Nath Pandey, Professor of Anthropology
Native peoples of North America, cultures of India, political anthropology, anthropological theories and comparisons

Daniel M. Press, Professor of Environmental Studies
U.S. environmental politics and policy, social capital and democratic theory, industrial ecology, land and species conservation, regionalism

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Craig Reinarman, Professor of Sociology
Political sociology; law, crime, and social justice; drugs and society

Daniel J. Wirls, Professor of Politics
American politics, including national political institutions (Congress) and the President; public policy (military and foreign policy) and political history

Donald A. Wittman, Professor of Economics
Economic theory, politics, law

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Dane Archer, Emeritus

John Dizikes, Emeritus

Walter L. Goldfrank, Emeritus

Michael E. Urban, Emeritus

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Linguistics

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241 and 243 Stevenson College
(831) 459–2905
(831) 459–4988
http://linguistics.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Judith Aissen, Research Professor, Emerita
Syntax, morphology, Mayan languages

Sandra Chung
Syntax, semantics, Austronesian languages

Donka Farkas
Semantics, morphology, syntax, Romance languages, Hungarian

Jorge Hankamer
Syntax, morphology, computational linguistics, Turkish

Junko Ito
Phonology, morphology, Germanic languages, Japanese

William A. Ladusaw
Semantics, syntax, pragmatics

James McCloskey
Syntax, semantics, sociolinguistics, Irish

Armin Mester
Phonology, prosodic morphology, Japanese, Latin

Jaye Padgett
Phonology, phonetics, Russian, Slavic, Irish

Geoffrey K. Pullum, Emeritus

Associate Professor

Pranav Anand
Semantics, pragmatics, syntax, computational linguistics

Adrian Brasoveanu
Semantics, pragmatics, probabilistic models of cognition, philosophical logic, optimality

Matthew Wagers
Psycholinguistics, language comprehension, memory

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Assistant Professor

Amy Rose Deal
Syntax, formal semantics, morphology, Nez Perce

Grant McGuire
Phonetics, phonology, psycholinguistics

Maziar Toosarvandani
Syntax, semantics, pragmatics, Numic (Uto-Aztecan) and Iranian languages

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Literature

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303 Humanities 1
(831) 459-4778
http://literature.ucsc.edu/

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Faculty and Professional Interests

Professor

Jorge Aladro Font
Spanish mysticism; theory and historical developments of imagery in the Middle Ages to the baroque period; Renaissance and baroque Hispanic literature; Italian ideas in the Spanish Renaissance; Cervantes

George T. Amis, Emeritus

Karen Bassi
Greek and Latin literatures; gender; literary and cultural theory; pre- and early modern studies; historiography; visual and performance studies

Murray Baumgarten
Dickens; Victorian literature and culture; the Bible; translation; modern Jewish writing; the Holocaust

Harry Berger, Jr., Emeritus

Margaret R. Brose, Emerita

Julianne Burton-Carvajal, Emerita

Christopher Connery
World literature and cultural studies; globalism and geographical thought; the 1960s; Marxism; pre-modern and modern Chinese cultural studies; cultural revolution

Robert M. Durling, Emeritus

John M. Ellis, Emeritus

Carla Freccero
Renaissance studies; French and Italian language and literature; early modern studies; postcolonial theories and literature; contemporary feminist theories and politics; queer theory; U.S. popular culture; posthumanism; animal studies

Pascale Gaitet, Emerita

Mary-Kay Gamel
Performance studies; ancient Mediterranean performance; Greek and Latin literatures; myth; reception of Greek and Roman texts and artifacts; film; feminist approaches to

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literature and performance

Susan Gillman
Nineteenth-century American literature and culture; theories of culture, race, and gender; world literature and cultural studies

Wlad Godzich
Theory of literature; philosophy and literature; emergent literature; translation theory; globalization and culture; European integration; knowledge society; literatures of Africa, the Caribbean, Europe (Central, Eastern, and Western), Brazil, Canada; detective and crime fiction; science fiction; medicine and literature

Jody Greene
Seventeenth- and 18th-century British literature and culture; pre- and early modern studies; critical theory, especially Derrida; poststructuralism and ethics; gender studies; history of authorship; history of the book; human property

Kirsten Silva Gruesz
Transnational Americas studies; Chicano/Latino literatures and cultures; 19th-century U.S. and Latin American literature; poetry; history of the book; reading and literacy; bilingualism

Margo Hendricks, Emerita

John O. Jordan, Emeritus

Sharon Kinoshita
Mediterranean studies; medieval Francophone and Mediterranean literature; literature, translation, and empire; postcolonial and globalization theory; Marco Polo; world literature and cultural studies

Norma Klahn
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Kimberly J. Lau
Feminist theory; fairy tale studies; virtual worlds; social fictions; discourse analysis and ethnographic methods

H. Marshall Leicester, Jr.
Psychoanalysis; poststructuralism; gender theories; theory of cultural change; cultural studies and popular culture: opera, film, American country music; history, theory, and interpretation of horror film; affect and affect theory

John P. Lynch, Emeritus

Nathaniel E. Mackey, Emeritus

Tyrus Miller
Modernist, avant-garde, and postmodernist literature; the interrelations of the arts in the 20th century; aesthetics theory; communist and post-communist society, intellectual history, and culture, especially in East-Central and Southern Europe; cinema and film theory; the Frankfurt School; György Lukács; contemporary poetry and language arts

Helene Moglen, Emerita

Madeline Moore, Emerita

Micah Perks
Reading and writing contemporary fiction; memoir and historical fiction; alternative communities

Juan Poblete
Latin(o) American literatures; transnational/global cultures (literature, radio, film); Latin(o) American cultural studies; 19th-century studies; the history of reading practices

Daniel Selden
Afroasiatic languages and literatures; Greek and Latin; Hellenistic culture; the classical

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tradition; history of criticism; literary theory; film history, theory, and analysis

Priscilla W. Shaw, Emerita

Deanna Shemek
Renaissance Italian literature and culture; early modern feminism; humanism; letter-writing and epistolary culture; early modern literacy and media; Renaissance theater; the northern court circles; digital humanities

Paul N. Skenazy, Emeritus

S. Page Stegner, Emeritus

Richard Terdiman, Emeritus

Thomas A. Vogler, Emeritus

Michael J. Warren, Emeritus

Rob Wilson
Transnational and postcolonial literatures, especially as located and transformed in Asia/Pacific; cultural-political emergences as posited against empires of globalization; cultural poetics of America in the Pacific and Oceania; the sublime, Longinus to Hiroshima; poetics of experimental writing, especially poetry; the poetry and cultural poetics of Bob Dylan; Beat beatitude, social and literary, from Jesus to Juliana Spahr et al; San Francisco as Global City, with its literature read as archive of vision and critique; Pacific Rim cities from Hong Kong and Seoul to Taipei, Kaohsiung, Shanghai, Honolulu, San Francisco, and Los Angeles

Karen Tei Yamashita
History and anthropology of Japanese immigration to Brazil; Asian American literature; modern fiction; playwriting

Associate Professor

Vilashini Cooppan
Postcolonial studies; comparative and world literature; literatures of slavery and diaspora; globalization studies; cultural theory of race and ethnicity

Sean Keilen
Shakespeare; Ovid; the classical tradition; early British literature; Renaissance humanism; poetry and poetics, imitation; theory of literature; interpretation and its history; the division of the arts and sciences; creative criticism; literature and the fine arts; literature and ethics; psychoanalysis; the passions; the senses; beauty

Loisa Nygaard
Eighteenth- and early 19th-century German literature; Goethe; Romantic fiction; landscape and landscape aesthetics; xenophobia in Germany

Assistant Professor

Dorian Bell
Nineteenth- and 20th-century French literature and intellectual history; histories of empire and anti-Semitism; literature and science; film studies; digital humanities

A. Hunter Bivens
Twentieth- and 21st-century German literature and film; Marxism and critical theory; psychoanalysis; lyric poetry; literary realism; the novel

Christopher Chen
Twentieth- and 21st-century African American literature; Asian American literature; 20th and 21st-century US multiethnic poetry and poetics; comparative ethnic literary studies; literary formalisms and comparative racialization; contemporary experimental poetics and political theory

Martin Devecka
Greek and Latin languages and literatures; cultural history; Arabic language and literature; animal studies; history of technology; Renaissance studies

Camilo Gomez-Rivas
Medieval and Mediterranean studies; western Mediterranean historical and cultural studies; refugees, law and society, and religious identity; Arabic literature and cultural history; medieval Iberian literature and culture

Christine Hong
Asian American literature and cultural criticism; African American literature and black freedom studies; Korean diasporic cultural production; Pacific Rim studies; postcolonial theory; critical race theory; human rights discourse; law and literature; narrative theory; film and visual studies

G.S. Sahota
Postcolonial studies, world literature; Indian literary and intellectual history (especially in Urdu, Sanskrit, Punjabi, Hindi, and English); religion and modernity (Islam, Hinduism, Sikhism); romanticism; Marxism; translation

Ronaldo V. Wilson
20th-century and contemporary African American literature; poetry; contemporary American poetry and poetics; Black visual culture; recent experimental writers and artists

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Professor

Charles W. Hedrick Jr. (History)
Greek and Roman history; epigraphy; historiography; political theory

Lourdes Martinez-Echazabal (Latin American and Latino Studies)
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found[n]ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Associate Professor

Anjali Arondekar (Feminist Studies)
South Asian studies, colonial historiography; feminist theories; queer theory; critical race studies; 19th-century interdisciplinary studies

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Mathematics

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4111 McHenry
(831) 459-2969
http://www.math.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Robert Boltje
Group theory, representation theory, algebraic number theory

Bruce N. Cooperstein
Groups of Lie type, incidence geometry

Chongying Dong
Infinite-dimensional Lie algebras and their representations, conformal field theory

Torsten Ehrhardt
Functional analysis, Operator theory, Random matrix theory, Banach algebras, Wiener-Hopf factorization, Toeplitz and Hankel operators

Viktor Ginzburg
Global analysis, symplectic topology; Hamiltonian dynamical systems, Poisson geometry, symmetries, and group actions

Debra Lewis
Geometric Hamiltonian mechanics, geometric integration, bifurcation theory, applications of variational methods, control theory

Geoffrey Mason
Vertex operator algebras and applications to conformal field theory and string theory; modular forms; group theory; quasi-Hopf algebras

Richard Montgomery
Celestial mechanics, differential geometry, gauge theory, mechanics (quantum and classical), and singularity theory

Jie Qing
Nonlinear analysis, harmonic analysis, partial differential equations with applications to differential geometry, mathematical physics

Hirotaka Tamanoi
Algebraic topology, string topology, topological quantum field theory, mathematical aspects of string theory

Anthony J. Tromba

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Global nonlinear analysis, calculus of variations, minimal surfaces and Plateau's problem, Riemann surfaces

Associate Professor

Samit Dasgupta
Algebraic number theory, arithmetic geometry, special values of L-functions

Martin H. Weissman
Representation theory, automorphic forms, number theory

Assistant Professor

Longzhi Lin
Geomtric analysis and geometric partial differential equations

Junecue Suh
Number theory and arithmetic algebraic geometry

Emeriti

Ralph H. Abraham

Nicholas Burgoyne

Arthur E. Fischer

Marvin J. Greenberg

Al Kelley

Edward M. Landesman

Tudor S. Ratiu

Gerhard Ringel

Maria Schonbek

Marshall Sylvan

Harold Widom

Lecturer

Frank Bäuerle

Abraham Berman

Nandini Bhattacharya

Mark R. Eastman

Yonatan Katznelson

Edward Migliore

Richard R. Mitchell

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Microbiology and Environmental Toxicology

2014-15 General Catalog

430 Physical Sciences Building
Telephone (831) 459-4719
FAX (831) 459-3524
http://www.metx.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Victoria Auerbuch Stone, Assistant Professor
Interactions between the pathogen *Yersinia pseudotuberculosis* and the innate immune system

Manel Camps, Associate Professor
Molecular mechanisms of chemotherapeutic agent action and resistance

A. Russell Flegal, Professor
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Karen Ottemann, Professor
Bacterial pathogenesis, response of bacterial pathogens to their environments

Chad Saltikov, Professor
Microbial processes that influence the biotransformation of pollutants in the environment

Donald R. Smith, Professor
Neurotoxicity, cellular and organismal responses to environmental toxins

Fitnat Yildiz, Professor
Microbiology, molecular genetics, functional genomics, signal transduction, biofilm formation

Adjunct Professor

Lynn Rothschild
Astrobiology research at NASA Ames

Ron Oremland
Microbial metabolism of reduced gases and of toxic elements

Assistant Adjunct Professor

Myra Finkelstein
Human impacts to wildlife with an emphasis on contaminant-induced effects

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Affiliated Faculty Who Sponsor METX Students

Roberto Bogomolni (Chemistry and Biochemistry)
Biophysical chemistry, photobiology, light energy conversion and signal transduction in biological systems

Adina Paytan, Research Scientist, Institute of Marine Sciences
Biogeochemistry, paleoceanography, environmental and aquatic chemistry

Jonathan Zehr (Ocean Sciences)
Aquatic microbial ecology, biological oceanography

Additional Affiliated Faculty

Environmental Toxicology

Don Croll (Ecology and Evolutionary Biology)
Foraging ecology of marine sea birds and mammals, island conservation/ecology

Andrew Fisher (Earth and Planetary Sciences)
Hydrology, crustal studies, heat flow modeling

Raphael Kudela (Ocean Sciences)
Ecological modeling and remote sensing, satellite oceanography, phytoplankton ecology and harmful algal blooms

Matthew McCarthy (Ocean Sciences)
Marine organic geochemistry and chemical oceanography, global biogeochemical cycles, compound-specific isotopes and radio carbon

Peter T. Raimondi (Ecology and Evolutionary Biology)
Applied marine ecology

Cellular Toxicology

Lindsay Hinck (Molecular, Cell, and Developmental Biology)
Breast development and cancer, cell biology, and development

Theodore Holman (Chemistry and Biochemistry)
Bioinorganics and biological chemistry

Pradip K. Mascharak (Chemistry and Biochemistry)
Bioinorganic chemistry, design of antitumor drugs, modeling of active sites of metalloenzymes, design of catalysts for hydrocarbon oxidation, studies on intermediates in non-heme oxygenase chemistry, design of NO-donors for photodynamic therapy

Glenn Millhauser (Chemistry and Biochemistry)
Electron paramagnetic resonance; nuclear magnetic resonance, protein structure and function, peptide synthesis, prions, melanocortin signaling

Martha Zuniga (Molecular, Cell, and Developmental Biology Biology)
Molecular, cellular, and developmental biology of the immune system

Microbiology

Grant Hartzog (Molecular, Cell, and Developmental Biology)
Biochemistry, genetics, chromatin and transcriptional regulation

Douglas R. Kellogg (Molecular, Cell, and Developmental Biology)
Coordination of cell growth and cell division

Roger Linington (Chemistry and Biochemistry)
Marine Natural Products, Drugs for Neglected Diseases, Chemical Biology, Chemical Probes

Todd Lowe (Biomolecular Engineering)
Experimental and computational genomics, ncRNA gene finders, and high-throughput RNA sequencing to study the biology of extremophile archaea and bacteria

Nader Pourmand (Biomolecular Engineering)

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Director, UCSC Genomics Sequencing Center
Development of new tools and technologies that integrate biology, electronics, and nanofabrication for the detection and study of genes and proteins

Joshua Stuart (Biomolecular Engineering)
Computational genomics

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Biological Sciences

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Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

MCDB Graduate Program Description | MCDB Faculty

Molecular, Cell, and Developmental Biology

Faculty and Professional Interests

Manuel Ares Jr.
Regulation of RNA processing; structure, function and evolution of RNA-based systems

Needhi Bhalla
Meiotic chromosome dynamics

Hinrich Boeger
Chromatin structure and the regulation of transcription

Barry Bowman
Membrane biochemistry and genetics, biochemistry and molecular biology of membrane proteins

Bin Chen
Mammalian brain development

David Feldheim
Developmental neuroscience

Grant Hartzog
Biochemistry, genetics, chromatin and transcriptional regulation

Lindsay Hinck
Breast development and cancer, cell biology, development

Melissa Jurica
Structure and function of human splicing machinery

Rohinton T. Kamakaka
Nuclear organization, chromatin domains, epigenetic gene regulation and insulators

Douglas R. Kellogg
Coordination of cell growth and cell division

Jeremy Lee
Molecular biology education and curriculum development; *Drosphila* models of neurodegeneration

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Robert A. Ludwig
Plant microbe interactions, photorespiration, genetic recombination in plants

Amy Ralston
Origins and regulation of mammalian stem cells

Michael Rexach
Structure and function of nuclear pore complex, nuclear transport

Jeremy Sanford
Genomic analysis of protein–RNA interactions

William M. Saxton
Cytoskeletal motors and active transport processes

Susan Strome
Chromatin and RNA regulation in C. elegans

William T. Sullivan
Cell cycle, cytoskeleton, and host–pathogen interactions

John W. Tamkun
Transcriptional regulation, molecular genetics of Drosophila development, regulation of gene expression

Zhu Wang
Prostate development and cancer, tissue stem cells

Alan M. Zahler
Alternative pre–mRNA splicing and small RNA function

Martha C. Zúñiga
Molecular, cellular, and developmental biology of the immune system

Yi Zuo
Synaptic plasticity in learning and memory

Research Faculty

Harry Noller
Ribosome structure and function; mechanisms of protein synthesis

Molecular, Cell, and Developmental Biology Emeritus Faculty

Charles Daniel
Robert Edgar
Jerry F. Feldman
Kivie Moldave
Clifton A. Poodry
Lincoln Taiz
Frank J. Talamantes
Howard H. Wang

Molecular, Cell, and Developmental Biology Lecturers

Linda Ogren

Giulia Ruben

Mary Zavanelli

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Victora Auerbach–Stone (Microbiology and Environmental Toxicology)
The interaction between the gut pathogen Yersinia pseudotuberculosis and the mammalian immune system

Camilla Forsberg (Biomolecular Engineering)
Hematopoietic stem cells; transcriptional regulation; chromatin; blood cell development;

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cell surface receptors; genomics

Richard “Ed” Green (Biomolecular Engineering)
Genomics, computational molecular biology, genome assembly, human evolutionary genetics, ancient DNA, high-throughput sequencing, mRNA-processing and alternative splicing

David Haussler (Biomolecular Engineering)
Bioinformatics, genomics, computational genomic data analysis, molecular evolution and comparative genomics, genomic and clinical data sharing and standards, cancer genomics, neurodevelopment, stem cell research, immunogenomics, information theory, pattern recognition, machine learning, artificial intelligence, information theory, theoretical computer science

Scott Lokey (Chemistry and Biochemistry)
Organic chemistry; combinatorial synthesis, biotechnology, molecular cell biology

Todd M. Lowe (Biomolecular Engineering)
Experimental and computation genomics, ncRNA gene finders, DNA microarrays to study the biology of Archaea

Karen Ottemann (Microbiology and Environmental Toxicology)
Environmental responses of pathogenic bacteria

Seth Rubin (Chemistry and Biochemistry)
Biomolecular mechanisms of cell-cycle regulation and cancer; structural biology and biochemistry; macromolecular x-ray crystallography; nuclear magnetic resonance

William G. Scott (Chemistry and Biochemistry)
Structure and function of RNA, proteins, and their complexes

Beth Shapiro (Ecology and Evolutionary Biology)
Evolutionary and molecular ecology, ancient DNA, genomics, pathogen evolution

Alexander Sher (Physics)
Development of experimental techniques for the study of neural function

Michael Stone (Chemistry and Biochemistry)
Single-molecule Biophysics and Enzymology; Structure, function, and assembly of the telomerase ribonucleoprotein, Fluorescence Resonance Energy Transfer (FRET), optical/magnetic trapping, sub-diffraction optical imaging of telomeres and the nucleus

Fitnat Yildiz (Microbiology and Environmental Toxicology)
Microbiology, molecular genetics, genomics; the mechanism of persistence of survival of *Vibrio cholerae*

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Music

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244 Music Center
(831) 459-2292
music@ucsc.edu
http://music.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Amy C. Beal
American music, 20th-century music, experimental and improvisatory performance practices, postwar and Cold War culture, German new music festivals and radio stations, piano performance, contemporary music ensemble

Linda C. Burman-Hall, Research Professor

David H. Cope, Emeritus

Sherwood Dudley, Emeritus

Karlton E. Hester
Premeditated, electroacoustic, and spontaneous composition; flutes, saxophones, and interdisciplinary performance; improvisational and Afrocentric music theory, analysis and history. Artistic Director, Global African Music and Arts Festival/Symposium; UCSC/ISIM International Improvisation Festival/Conference.

Edward F. Houghton, Emeritus

David Evan Jones
Instrumental and computer-assisted composition, electro-acoustic music, world music composition, chamber opera, language and music, timbre and orchestration

Hi Kyung Kim
Composition, theory, contemporary music, analysis, orchestration, Korean music, world music composition, Founder and Artistic Director, Pacific Rim Music Festival

Anatole Leikin
Classical and romantic music history, theory, and performance practices, piano and fortepiano, Russian music

Leta E. Miller
Twentieth-century American music in the United States, 16th-century chanson and madrigal, music and science in the baroque period; C.P.E. Bach, Lou Harrison, music in San Francisco, modern and baroque flute

Gordon Mumma, Emeritus

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Paul Nauert
Theory, composition; rhythm and meter; music cognition; mathematical and computer models of the compositional process

Nicole A. Paiement
Conducting; world premiere performance and recordings; contemporary chamber opera; interdisciplinary art; Founder and Artistic Director, Ensemble Parallèle

Larry Polansky
Composition, post-tonal theory, algorithmic music, American music, tuning theory, contemporary music, ensemble performance and performance practice, acoustic and electric guitar music, music editing and publishing, interdisciplinary collaboration, music and scientific research

John M. Schechter, Emeritus

Associate Professor

Benjamin L. Carson
Theory and composition, music perception, empiricism and subjectivity, Schoenberg, popular music, improvisation

Dard Neuman, Kamil and Talat Hasan Endowed Chair in Classical Indian Music
Ethnomusicology; Hindustani music; colonialism, nationalism, technology and performance; sitar

Nina Treadwell
Renaissance through early baroque music history and performance practices, early plucked-string instruments (theorbo, renaissance, and baroque guitar; renaissance lute), 16th- and 17th-century Italian theatrical music, gender studies, women and music, literary and critical theory

Assistant Professor

David Dunn
Sound art and design, music and the environment, acoustic ecology, compositional linguistics, live electro-acoustic performance, composition, bio-acoustic research, history of electronic music practice, art and science, audio engineering and location recording

Nicol C. Hammond
South African music, popular music studies, ethnomusicology, voice, nationalism, postcolonialism,gender and sexuality, queer studies, world music, music of sub-Saharan Africa, music of the Global South

Tanya H. Merchant
Ethnomusicology, musics of Central Asia, the former Soviet Union, and the Balkans, music and gender, identity, nationalism, globalization, and the institutionalization of music

Lecturer

Nathaniel A. Berman
Concert choir

Bill Kalinkos
Clarinet

Paul D. Contos
Saxophone

William D. Coulter
Classical guitar

Greer Ellison
Flute, baroque and classical flutes

Maria V. Ezerova
Piano

Barry L. Green

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String bass

Thomas Horning
Trombone

Erin Irvine
Bassoon

Robert Klevan
Wind ensemble, large jazz ensemble

Patrice L. Maginnis
Voice

Roy T. Malan
Violin, viola

George E. Marsh
Drumset, improvisation, rhythm theory, Inner Drumming, game theory, polyrhythms, Deep Listening

Patricia L. Mitchell
Oboe

Stan E. Poplin
String bass, jazz ensembles

Richard Roper
Trumpet

Vanessa Ruotolo
Cello

Brian J. Staufenbiel
Voice, university opera theater

Undang Sumarna
West Javanese gamelan

Avi Tchamni
Theory, ethnomusicology

Susan C. Vollmer
Horn

William K. Winant
Orchestral percussion, percussion ensemble

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Visiting Professor

Aashish Khan
North Indian classical music

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Ocean Sciences

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A312 Earth and Marine Sciences Building
(831) 459-4730
http://oceansci.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Kenneth W. Bruland (Emeritus)

Margaret L. (Peggy) Delaney
Paleoceanography, marine geochemistry

Christopher A. Edwards
Physical oceanography, numerical modeling of coastal physical and biological processes, data assimilation

Robert E. Garrison (Emeritus)

Raphael M. Kudela
Biological oceanography, ecological modeling, ocean optics, phytoplankton ecology and harmful algal blooms

Andrew M. Moore
Physical oceanography; numerical ocean modeling; air-interaction; ocean prediction

A. Christina Ravelo
Stable isotope geochemistry and chemical oceanography, paleoclimatology

Mary W. Silver (Emeritus)

Jonathan P. Zehr
Aquatic microbial ecology, biological oceanography

Associate Professor

Matthew D. McCarthy
Marine organic geochemistry and chemical oceanography, global biogeochemical cycles, compound-specific stable isotopes and radiocarbon

Assistant Professor

Phoebe Lam
Particle geochemistry, biological carbon pump, cycling of trace elements and isotopes, chemical oceanography

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Carl Lamborg
Trace metal (esp. mercury) biogeochemistry, historical reconstructions of environmental chemistry using natural archives, aquatic chemistry

Marilou Sison-Mangus
Microbial ecology, evolutionary biology, biological oceanography

Adjunct Professor

Steven Haddock
Ecology of bioluminescence and gelatinous zooplankton from blue-water and deep-sea environments

Randall S. Wells
Behavioral ecology and conservation biology of small cetaceans

Associate Adjunct Professor

John Carlos Garza
Population and community ecology, plant-herbivore interactions

Sean A. Hayes
Behavior, ecology, genetics and population dynamics with a particular interest in salmon and pinnipeds

Jeffrey D. Paduan
Coastal ocean dynamics, physical oceanographic modeling from high-frequency radar data

Alexandra Worden
Mechanisms and controls of microbial population dynamics with an emphasis on carbon cycling in marine ecosystems

Assistant Adjunct Professor

Michael Beck
Marine conservation, regional biodiversity planning, habitat restoration, marine proprietary rights

Lecturer

Baldo Marinovic
Plankton biology, Euphausiid (krill) population biology, zooplankton ecology, pelagic food web dynamics, climate change, potential impacts of climate change on zooplankton and fisheries

Adina Paytan
Biogeochemistry, paleoceanography, environmental and aquatic chemistry

Carrie Pomeroy
Marine policy and fisheries management

Colleen Reichmuth
Behavioral, sensory, and cognitive ecology of marine mammals

Scott Shaffer
Links between ecology, morphology, and physiological adaptations of marine vertebrates, particularly how animals use and allocate energy

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Affiliated Professors

Giacomo Bernardi (Ecology and Evolutionary Biology)
Fish biology, phylogenetics, evolution

Mark Carr (Ecology and Evolutionary Biology)
Marine ecology, applied marine ecology

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Daniel P. Costa (Ecology and Evolutionary Biology)
Physiological ecology of marine mammals and birds

Phillip Crews (Chemistry and Biochemistry)
Marine natural products chemistry, bioorganic chemistry, organic structural analysis by NMR, natural products of marine macro- and microorganisms

Donald Croll (Ecology and Evolutionary Biology)
Foraging ecology of marine birds and mammals, island conservation/ecology

Andrew T. Fisher (Earth and Planetary Sciences)
Hydrogeology, crustal studies, coupled flows, modeling

Stanley M. Flatté (Emeritus, Physics)

A. Russell Flegal (Microbiology and Environmental Toxicology)
Anthropogenic perturbations of biogeochemical cycles, applications of isotopic tracers in anthropology and archaeology

Laurel R. Fox (Ecology and Evolutionary Biology)
Terrestrial population and community ecology, plant-animal interactions

James B. Gill (Emeritus, Earth and Planetary Sciences)

Gary B. Griggs (Earth and Planetary Sciences)
Coastal processes, hazards and engineering

Donald C. Potts (Ecology and Evolutionary Biology)
Coral reef ecology, genetics, evolution, and geological history; marine biodiversity; tropical biology, global change, and remote sensing

Grant H. Pogson (Ecology and Evolutionary Biology)
Molecular population genetics, ecological genetics, marine invertebrates and fishes

Peter Raimondi (Ecology and Evolutionary Biology)
Marine ecology, evolutionary ecology, experimental design, applied ecology

Eli A. Silver (Earth and Planetary Sciences)
Marine geology and geophysics, active tectonics, remote sensing

Lisa Sloan (Earth and Planetary Sciences)
Paleoclimatology, climate change, Earth system science, surficial processes

Donald R. Smith (Microbiology and Environmental Toxicology)
Neurotoxicity, cellular and organismal responses to environmental toxins

Terrie M. Williams (Ecology and Evolutionary Biology)
Vertebrate locomotor and thermoregulatory physiology; marine biodiversity; comparative vertebrate energetics, exercise physiology

James C. Zachos (Earth and Planetary Sciences)
Paleoceanography, marine stratigraphy, geochemistry

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Philosophy

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Cowell College
(831) 459-2070
http://philosophy.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

W. Emmanuel Abraham, Emeritus

David C. Hoy, Distinguished Professor, Emeritus

S. Paul Kashap, Emeritus

Richard E. Otte
Philosophy of religion, formal epistemology, philosophy of science, philosophical logic

Paul A. Roth
Philosophy of social science, Quine, philosophy of history, philosophy and sociology of science, epistemology, history of analytic philosophy

Ellen Kappy Suckiel, Emerita

Richard A. Wasserstrom, Emeritus

Associate Professor

John F. Bowin
Ancient philosophy, especially ancient science and metaphysics, and contemporary analytic metaphysics

Jonathan Ellis
Philosophy of mind, epistemology, philosophy of psychology, philosophy of language, Wittgenstein

Robert A. Goff, Emeritus

Daniel Guevara
Kant, moral philosophy, moral psychology, environmental ethics, history of modern philosophy

Abraham D. Stone
Nineteenth- and early 20th-century German philosophy (continental and analytic), philosophy of science and mathematics, medieval philosophy, metaphysics, Kant

Rasmus G. Winther
Philosophy of science, philosophy of biology, philosophy of mind, pragmatism, Latin American philosophy, continental philosophy, philosophy of multiculturalism, post-colonial

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Archive of General Catalogs

theory, feminism, ontology, evolutionary theory , cognitive science

Assistant Professor

Janette Dinishak
Philosophy and history of psychology, Wittgenstein, philosophy of mind, philosophy of science, disability studies, ethical theory

Samantha Matherne
Kant, 20th-century European philosophy (especially phenonmenology, neo-Kantians), aesthetics

Nicoletta Orlandi
Philosophy of mind, philosophical psychology, epistemology, philosophy of cognitive science

Lecturer

Jocelyn Hoy
Feminist philosophy, 19th- and 20th-century continental philosophy

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Professor

Karen M. Barad (Feminist Studies)
Feminist science studies, materialism, deconstruction, poststructuralism, posthumanism, multi-species studies, science and justice, physics, 20th-century continental philosophy, epistemology, ontology, ethics, philosophy of physics, feminist, queer, and trans theories

Sandra Chung (Linguistics)
Syntax, semantics, Austronesian languages

Jerome Neu (Humanities)
Philosophy of mind; emotions, culture, and insults; philosophy of law; Freud and psychoanalytic theory

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Physical Education

2014-15 General Catalog

East Field House
(831) 459-2531
http://www.ucsc.edu/opers

Program Description | Course Descriptions

Faculty and Professional Interests

Director

Andrea M. Willer, Ed.D

Faculty

Rena V. Cochlin
International folk dance, Mexican dance, modern dance, ballet, yoga, pilates

Physical Education Instructor

Julie Kimball
Yoga, swimming

Russell Kingon
Sailing, rowing

Joan R. McCallum
Swimming, lifeguard training, water safety

Cynthia Mori
Strength training, physical conditioning, wellness, yoga

Kim Musch
Swimming, lifeguard training, water safety

Lisa K. Norris
Jazz dance, ballet

Michael Runeare
Soccer

Hilary Scheer
Sailing, Rowing

Yoshihito Shibata
Aikido

Cecilia Shin
Scuba

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Physics

2014-15 General Catalog

211 Interdisciplinary Sciences Building
(831) 459-3744
http://physics.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Anthony N. Aguirre
Cosmology of the early and late universe: inflation and the global structure of cosmological models; the intergalactic medium and its enrichment with heavy elements; galaxy formation, evolution, and feedback processes; dark matter; theories of modified gravity

Thomas Banks
String and particle theory, quantum gravity, and cosmology

David P. Belanger
Experimental condensed matter physics, phase transitions

Frank G. Bridges, Emeritus

George Brown, Emeritus

Sue A. Carter
Experimental condensed matter physics, polymer physics, molecular electronics, phase transitions, electronic and optical properties of materials

Joshua M. Deutsch
Condensed matter theory

Michael Dine
Theory of elementary particles

David E. Dorfan, Emeritus

George D. Gaspari, Emeritus

Howard E. Haber
Theory and phenomenology of fundamental particles and their interactions

Clemens A. Heusch, Emeritus

Robert P. Johnson
Experimental high-energy physics, astrophysics

Onuttom Narayan
Theoretical condensed matter physics

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Michael Nauenberg, Emeritus

Joel R. Primack
Cosmology, galaxy, formation and evolution, particle astrophysics, nature of dark matter, gamma ray astronomy

Steven Ritz
Particle physics and astrophysics

Bruce Rosenblum, Emeritus

Matthew Sands, Emeritus

Zack Schlesinger
Experimental condensed matter physics, infrared and optical spectroscopy, strongly correlated electron systems, novel materials, negative thermal expansion, underconstraint and geometrical frustration

Bruce Schumm
Experimental particle physics

Peter L. Scott , Emeritus

Abraham Seiden
Experimental high-energy physics

Sriram Shastry
Condensed matter physics, strongly correlated matter, Mott-Hubbard physics, high Tc superconductivity, quantum magnetism, exactly integrable systems, exactly solvable models of many-body systems and in statistical mechanics, quantum chaos, geometric frustration

David M. Smith
High-energy astrophysics; X-ray and gamma-ray detectors and instrumentation; solar, terrestrial, and planetary sources of gamma radiation

A. Peter Young
Condensed matter theory, statistical mechanics

Associate Professor

Jason Nielsen
Experimental high-energy physics

Stefano Profumo
Theory of particle physics and particle astrophysics

Alexander Sher
Development of experimental techniques for recording and stimulation of activity at hundreds of neurons and use of these techniques to study neural function, structure, and development

Assistant Professor

Gey-Hong Gweon
Experimental condensed matter physics

Tesla Jeltema
High-energy astrophysics and cosmology

Lecturer

Rachel Dewey
Astrophysics, radio astronomy, neutron stars, science education

Fred Kuttner
Foundations of quantum mechanics; physics education

Adriane Steinacker
Planet formation, MHD simulations

Nondiscrimination Statement

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Professor

George R. Blumenthal (Astronomy and Astrophysics)
Cosmology, galaxy formation, high-energy astrophysics

Pascale Garaud (Applied Mathematics and Statistics)
Astrophysics, geophysics, fluid dynamics, numerical resolutions of differential equations, and mathematical modeling of natural flows

Joel A. Kubby (Electrical Engineering)
Micro-Electro-Mechanical-Systems (MEMS), adaptive optics (AO), optical-MEMS, bio-MEMS, bioimaging, AO microscopy, AO astronomy

Wentai Liu (Electrical Engineering)
Retinal prosthesis, biomimetic systems, integrated neuro-electronics, molecular electronics, CMOS and SOI transceiver design, current mode band limited signaling, microelectronic sensor, timing/clock recovery and optimization, noise characterization and modeling, and computer vision/image processing

William G. Mathews, Emeritus

Richard Montgomery (Mathematics)
Celestial mechanics, differential geometry, gauge theory, mechanics (quantum and classical), and control theory

Arthur Ramirez (Dean, Baskin Engineering; Electrical Engineering)
Experimental materials physics encompassing a broad range of systems including semiconductors, superconductors, magnets, thermoelectrics, and dielectrics. Research that connects materials and devices, with a focus on oxides and organics. Many-body physics that arises from geometrical frustration of low energy degrees of freedom. Techniques include ultra-low temperatures and high magnetic fields, thermodynamic and transport measurements, defect spectroscopy, and device characterization.

Ali Shakouri (Electrical Engineering)
Quantum electronics, nano- and microscale heat and current transport in semiconductor devices; thermoelectric/thermionic energy conversion; renewable energy sources; thermal imaging; micro-refrigerators on a chip; and optoelectronic integrated circuits

Assistant Professor

Holger Schmidt (Electrical Engineering)
Integrated optics for biomedicine and quantum optics, nano-magento-optics, semiconductor physics, optoelectonic and photonic devices, ultrafast optics, quantum interference

Johannes Walcher (Mathematics)
String theory, mirror symmetry, mathematical and particle physics

Adjunct Professor

William Atwood

Donald Coyne, Emeritus

Alan Litke

Michael Riordan

Hartmut F.-W. Sadrozinski

Terry L. Schalk

David A. Williams

Research Physicist

Al Eisner, Emeritus

Vitaliy Fadeyev

Alexander Grillo

William Lockman

Troy Porter

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Politics

2014-15 General Catalog

25 Merrill College
(831) 459-2855
politics@ucsc.edu
http://politics.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Michael K. Brown, Emeritus

J. Peter Euben, Emeritus

Kent Eaton
Comparative politics, Latin America, international relations, political economy, public policy, political institutions

Isebill V. Gruhn, Emerita

Bruce D. Larkin, Emeritus

Ronnie D. Lipschutz
International relations; global political economy; globalization; foreign policy; resource/environmental politics; global political networks; global civil society and social movements; popular culture and politics; technology and society; risk society, state transformation and global governmentality

Michael E. Urban, Emeritus

Daniel J. Wirls
American politics, including national political institutions (Congress) and the President; public policy (military and foreign policy) and political history

Associate Professor

Eva C. Bertram
American politics, public policy, political economy, and political history, including social policy and the welfare state , and the changing character of work and labor markets in the United States.

Dean Mathiowetz
Political theory; philosophies of language, agency, affect, and subjectivity; classical political economy

Eleonora Pasotti
Comparative urban politics, social movements, democratization, public policy, sub-national political economy and party politics

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Benjamin Read
Comparative politics with special interest in the politics of China; theories of associations and social networks; communist and post-communist states; political participation and collective action

Roger Schoenman
Post-socialism, political economy, comparative capitalism, politics of pipelines, politics of memory, political networks, politics and money, Balkan and East European politics, Central Asian transition

Vanita Seth
Early modern and modern political theory, feminist theory, cultural history, race politics, postcolonial theory

David J. Thomas, Emeritus

Megan Thomas
Political theory, especially of the 19th century; nationalist thought; Orientalism; comparative colonialism; Southeast Asia

George E. Von der Muhll, Emeritus

Assistant Professor

Lamis Abdelaaty
International relations, human rights and humanitarianism, asylum and migration, international organizations, research design

Mark Fathi Massoud
Law and society; human rights; international law and development, with a special interest in Sudan; field research, with an emphasis on qualitative and ethnographic methods

Melanie Springer
American politics, including voting and elections; electoral reform; federalism; state politics and policymaking; political institutions; partisanship and political history

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Professor

Edmund Burke III, Emeritus (History)
Barbara Epstein, Emerita (History of Consciousness)
Jonathan A. Fox (Latin American and Latino Studies)
Walter L. Goldfrank, Emeritus (Sociology)
David E. Goodman, Emeritus (Environmental Studies)
Paul M. Lubeck, Emeritus (Sociology)
Robert L. Meister (Professor, Professor of Political and Social Thought and History of Consciousness)
Hector Perla (Latin American and Latino Studies)
Daniel M. Press (Environmental Studies)
Craig Reinarman (Sociology)
Alan Richards, Emeritus (Environmental Studies)
Andrew Szasz (Environmental Studies)
David Wellman, Emeritus (Community Studies)
Donald A. Wittman (Economics)

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Portuguese

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Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Lecturer

Ana Maria C. Seara
Portuguese language; literature, film, and music of Brazil and the Portuguese-speaking world; acquisition and teaching of foreign, second, and heritage languages

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Psychology

2014-15 General Catalog

273 Social Sciences 2 Building
(831) 459-2002
http://psychology.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Nameera Akhtar
Cognitive and social cognitive processes in early language development, social-cognitive development in young children, bilingual development

Margarita Azmitia
How culture, peers, family, and schools provide a context for children's and adolescents' development. Special emphasis on how close relationships influence the educational pathways and identity development of ethnically and socioeconomically diverse populations and the role of friends and peers in adolescents and young adults' development

Douglas Bonett
Psychometrics and statistics

Heather E. Bullock
Social class, poverty and economic inequality, welfare policy, feminist psychology, intersections of classism, racism, and sexism

Maureen A. Callanan
Cognitive and language development in the social context of family activities, development of word meanings and concepts, the construction of causal explanations in parent-child conversations

Faye J. Crosby
Gender, social identity, and social justice, especially affirmative action

Jean E. Fox Tree
Psycholinguistics: production and comprehension of spontaneous speech and writing, including discourse markers, prosody, gestures, the effects of communicative technologies on how people communicate, and other topics

Raymond W. Gibbs Jr.
Language, thought, and embodiment; special emphasis on metaphor, pragmatics, and cognitive science

Craig W. Haney
Applications of social psychological principles to legal settings, assessment of the psychological effects of living and working in institutional environments, social contextual origins of violence, development of alternative legal and institutional forms

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Campbell Leaper
The developmental and social psychology of gender in childhood, adolescence, and adulthood; self-concept and social identity; language and social interaction; social relationships, academic achievement; the media; perceptions and consequences of sexism

Anthony R. Pratkanis
Social influence; attitude structure, function, and change

Barbara Rogoff
Human development in sociocultural activity; informal and formal arrangements for learning; adult/child and peer communication in families and schools in diverse cultural communities (especially in Guatemala Mexico and the U.S.); learning through observation and collaboration

Avril Thorne
Identity and personality development in adolescence and young adulthood, especially in the context of conversations with family and friends; autobiographical memories; intergenerational storytelling and the development of a sense of self

Steve Whittaker
Human Computer Interaction: Psychological models of computer use. The design, development and evaluation of computational tools to support memory and conversation

Eileen L. Zurbriggen
Connections between power and sex; sexual aggression and abuse; trauma; sexual decision-making; sexuality and media, the sexualization of girls and women; power in romantic relationships; adolescent sexual development; authoritarianism; feminist political psychology; quantitative methods in social psychology

Associate Professor

Shelly A. Grabe
Structural and individual components of women's rights violations and social justice in the context of globalization; partnership with grassroots women's organizations; embodied oppression

Phillip L. Hammack
Social and political context of sexual identity development; political conflict and identity; narrative, discourse and interpretive theory and methods; issues of history, theory, and paradigm in psychology

Alan H. Kawamoto
Empirical and computer simulation approaches to the study of perceptual and cognitive processes, reading, speech production

Regina D. Langhout
School-community-university collaboration; how schooling and neighborhood experiences are informed by social class, race, and gender; young people and empowerment; participatory action research

Travis L. Seymour
Role of immediate memory, consciousness, and executive control on the human performance of laboratory and applied tasks; cognitive processes amenable to strategic control and how they influence the way in which we maintain situational awareness; high levels of performance in complex and cognitive tasks

Su-hua Wang
Cognitive development, infant cognition, theory of mind, how experience shapes early learning, parental child-rearing beliefs, cross-cultural perspectives on children's learning, young children's use of new technology

Margaret L. Wilson
Visual, spatial, and embodied cognition, with a particular emphasis on how we analogize between domains of thought, using sensory or motor brain resources in the service of other tasks. Specific interests include synaethesia, working memory, sign language, perception of body movement, dance cognition and the evolution of cognition.

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Assistant Professor

Christy Byrd
Adolescents' understanding of race and ethnicity in their school contexts, particularly perceptions of school racial climate, racial identity beliefs, and implications for development, motivation, and achievement

Audun Dahl
Moral development; the early acquisition of moral norms through social interactions; helping behavior in young children; children's and adults' concerns with morality; emotional development

Nicolas Davidenko
Cognitive psychology, cognitive neuroscience, high-level perception, face recognition, mathematical modeling

Benjamin Storm
Remembering and forgetting in human memory; creative cognition; autobiographical memory; memory and metamemory considerations in learning and education

Lecturer

David A. “Tony” Hoffman, Ph.D.
Child and adolescent development, developmental psychopathology, school psychology, pediatric psychology, chidren and war, children in high risk contexts

Ralph H. Quinn
Clinical psychology, moral development, psychology and religion, existential-humanistic psychology

Donald T. Saposnek
Childhood psychopathology, parenting and family interactions, children and divorce, family mediation, conflict resolution

Veronica K. Tonay
Clinical psychology, community mental health, dream research, psychobiography, creativity

Emeriti

Elliot Aronson, Emeritus
Bruce Bridgeman, Emeritus
Martin M. Chemers, Emeritus
Catherine R. Cooper, Emerita
G. William Domhoff , Emeritus
Per F. Gjerde, Emeritus
David M. Harrington, Emeritus
Michael Kahn, Emeritus
Pavel Machotka, Emeritus
Dominic W. Massaro, Emeritus
Melanie J. Mayer, Emerita
Barry McLaughlin, Emeritus
Thomas F. Pettigrew, Emeritus

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Dane Archer, Professor Emeritus, Sociology

Sri Kurniawan, Associate Professor, School of Engineering
Human-computer interaction; human factors and ergonomics; accessibility; assistive technology; usability; empirical studies; user-centered design

Jerome Neu, Professor, Humanities
Philosophy of mind, emotions and culture, philosophy of law, psychoanalytic theory

Roland G. Tharp, Professor Emeritus, Education and Psychology

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Science Communication

2014-15 General Catalog

Kresge Annex A
(831) 459-4475
http://scicom.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Peter Aldhous, Lecturer in Science Writing
Science journalism, feature writing, magazine editing, investigative and policy reporting

Marc A. DesJardins, Lecturer in Science Writing
Newspaper reporting and editing

Erika Check Hayden, Lecturer in Science Writing
Reporting science news, biomedical reporting, social media

Janet Hopson, Lecturer in Science Writing
Science and nature journalism, essay and profile writing

Robert W. Irion, Senior Lecturer in Science Writing, Program Director
Science journalism, newswriting, feature writing, and editing

Martha Mendoza, Lecturer in Science Writing
Newswriting, investigative and policy reporting

Kenneth McLaughlin, Lecturer in Science Writing
Science journalism, newspaper reporting and writing

Mary K. Miller, Lecturer in Science Writing
Science journalism, web media, videography, educational and museum outreach

Evelyn J. Strauss, Lecturer in Science Writing
Science and health journalism, science advocacy, essay and profile writing

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Social Documentation

2014-15 General Catalog

101 Communications Building
(831) 459-3445
socdoc@ucsc.edu
http://film.ucsc.edu/socdoc

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

B. Ruby Rich
Documentary film and video, new queer cinema, feminist film history, Latin American and Latina/o cinema, U.S. independent film and video, the essay film, film festival studies, and the making/marketing of foreign films in the U.S.

Gustavo Vazquez (Film and Digital Media)
Film and video production, documentary and experimental cross-cultural experiences in film

Associate Professor

John Jota Leaños
Documentary animation, social documentation, social art practice, community arts, Chicana/o art and culture, new media, critical media studies, cultural studies, documentary photography, installation art, public art and interventionist art practice

Marcia Ochoa (Feminist Studies)
Gender and sexuality, race and ethnicity, Latina/o studies, media and cultural studies, ethnography of media, feminism, queer theory, geography, multimedia production, graphic design, colonialism and modernity, Latin American studies—Colombia and Venezuela, social documentation

Assistant Professor

Jennifer Maytorena Taylor
Social documentation, Latino and Latin American communities, public education, popular culture, religion, incarceration and justice, urban and community development, collaborative practices in journalism and production, transmedia

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Professor

David Brundage (History)
American immigration history, with particular focus on the Irish in America and on transnational immigrant politics; U.S. labor and social history; modern Irish history

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Sharon Daniel (Film and Digital Media)
Community-based public art in information and communications environments, social and political aspects of information technology, community networks, participatory culture, digital inclusion, Net art, human-computer interface design

Rosa-Linda Fregoso (Latin American and Latino Studies)
Human rights, feminicide, and violence studies; critical and cultural theories; decolonial and intercultural feminist studies; media and visual studies

Jennifer González (History of Art and Visual Culture)
Contemporary theories of visual culture, semiotics, critical museum studies, photography, public and activist art in the U.S.

Herman S. Gray (Sociology)
Cultural studies, media and television studies, black cultural politics, social theory

Lisbeth Haas (History and Feminist Studies)
U.S.-Mexico borderlands and border studies, Chicano and Native American history, visual culture in the colonial Americas; California; historical memory, theory, and historical methodology

Craig W. Haney (Psychology)
Applications of social psychological principles to legal settings, assessment of the psychological effects of living and working in institutional environments, social contextual origins of violence, development of alternative legal and institutional forms

Gail B. Hershatter (History)
Modern Chinese social and cultural history; labor history; gender history, history of sexuality; feminist theory, history, memory, and nostalgia

Eli E. Hollander, Professor Emeritus

Charles L. Lord, Professor Emeritus

Lourdes Martinez-Echazabal (Latin American and Latino Studies)
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found(n)ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Olga Nájera-Ramírez (Anthropology)
Folklore theory, ritual, festival, dance, greater Mexican culture, history and folklore, transnationalism, identity; expressive culture, ethnomusicology, bilingual communication, gender, history, and culture of Latin America, the U.S., and Mexico

Margaret Morse, Professor Emerita

Eric C. Porter (History and History of Consciousness)
Black cultural and intellectual history; U.S. cultural history and cultural studies; critical race and ethnic studies; popular music and jazz studies

Jennifer Reardon (Sociology)
Science studies; sociology of science, technology, and medicine; feminist theory; race/ethnicity/gender/sexuality/class; biology and society

Lisa Rofel (Anthropology)
Critical theory, anthropology of modernity, popular/public culture, gender and sexuality, queer theory, transnational capitalism, postcolonial and transnational feminism, China

Warren Sack (Film and Digital Media)
Software design and media theory

Shelley Stamp (Film and Digital Media)
Film history, theory, and criticism; silent cinema; early Hollywood; women's filmmaking; film censorship; histories of moviegoing; feminist approaches to cinema

Nancy Stoller, Professor Emerita

Dana Y. Takagi (Sociology)
Social inequality, affect, religion, race, quantitative analysis

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Karen Tei Yamashita (Literature)
History and anthropology of Japanese immigration to Brazil; Asian American literature; modern fiction; playwriting

Lewis Watts, Professor Emeritus (Art)

David T. Wellman, Professor Emeritus

Associate Professor

Lawrence Andrews (Film and Digital Media)
Film and video production, documentary, installation and media art, sound, animation

David Henry Anthony III (History)
African and African American history, art, music, literature, and cinema; Eastern and Southern Africa; African languages; Indian Ocean world; African and African American linkages; Islamic civilization; African diaspora studies; world history

Miriam Greenberg (Sociology)
Urban sociology, media studies, cultural studies, political economy, globalization, and urban political ecology

Irene Gustafson (Film and Digital Media)
Producing across the boundaries between "theory" and "practice," non-fiction media, experimental film/video, production design, gender and queer studies

Jonathan Kahana (Film and Digital Media)
Documentary film and media; film and politics; American film history; essay film; cultural and social theory; media publics; arts of historical re-enactment; war and cultural memory; audio culture; disciplines of listening

L.S. Kim (Film and Digital Media)
Television history and theory, racial discourse, feminist criticism, Asian-American cultural theory and production, industrial practices and social change in both mainstream Hollywood and alternative media

Peter Limbrick (Film and Digital Media)
International cinemas, especially Arab and Middle Eastern cinemas and Australasian cinemas; postcolonial theories and settler colonialism; theories of globalization and transnationalism; intersections of race, gender, and sexuality; queer theory; film and video history and historiography

Irene Lusztig (Film and Digital Media)
Film and video production, experimental ethnography and essayistic nonfiction; representations of historical memory; archives, propaganda and training films; feminist film practices; medical film; autobiographical filmmaking; interactive documentary; editing

Rick Prelinger (Film and Digital Media)
Critical archival studies; personal and institutional recordkeeping; access to the cultural record; media and social change; ephemeral cinema; amateur and home movies; participatory documentary; digital scholarship; cinema and public history

Felicity Amaya Schaeffer (Feminist Studies)
Transnational feminisms; sexuality and migration; technology and race; intimacy and globalization; Latin American/Latino studies; border studies; Chicana/o studies; biometrics and security studies

Yiman Wang (Film and Digital Media)
Theory of difference; film history and theory; colonial/semi-colonial/postcolonial/postsocialist modes of media production and exchange; border-crossing film remakes; silent cinema; translation theory and cinema; acting theory/practice and ethnic star studies with focus on Anna May Wong; transnational connections and ramifications of Chinese cinema and documentary; fan culture; East Asian cinemas

Matthew Wolf-Meyer (Anthropology)
Anthropology and history of medicine and public health, science studies, American studies,

popular culture, the United States and the United Kingdom

Assistant Professor

Jennifer Horne (Film and Digital Media)
Media citizenship; non-theatrical film and film exhibition; archives and technologies of information; film preservation; mass media and humanitarianism; cinema and media history and historiography; institutions, disciplinarity, and the politics of knowledge

Soraya Murray (Film and Digital Media)
Contemporary visual culture and representation including: new media art; projected arts; photography; electronic games; theories of art and globalization; representations of migration and otherness

Susana Ruiz (Film and Digital Media)
Game design; games as forms of activism and art; animation; participatory culture; social art practice; non-fiction storytelling; theory/practice hybridity; Theatre of the Oppressed; expanded documentary; interaction design; worldbuilding; transmedia production, scholarship, and activism

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Social Sciences Division

2014-15 General Catalog

460 Humanities and Social Sciences Building
(831) 459-3212
http://socialsciences.ucsc.edu/

Program Description

Faculty and Professional Interests

Julie Guthman, Professor of Social Sciences
Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, epigenetics and environmental health, critical nutrition, critical human geography

Robert L. Meister, Professor of Political and Social Thought and History of Consciousness
Critical human rights theory, moral philosophy, political jurisprudence, political theology, political economy, psychoanalysis, Marxian theory, financialization, 21st century capitalism, institutional analysis, historical justice, and antidiscrimination law

Mary Beth Pudup, Associate Professor of Social Sciences
Regional studies, economic justice, urban and regional political economy, historical geography of the U.S., public policy, community gardening and urban agriculture, non-profit sector

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Spanish and Spanish for Heritage Speakers

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Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Faculty and Professional Interests

Professor

Jorge Aladro Font (Literature)
Spanish mysticism, theory and historical developments of imagery in the Middle Ages to the baroque period, Renaissance and baroque Hispanic literature, Italian ideas in the Spanish Renaissance, Cervantes

Julianne Burton-Carvajal, Emerita (Literature)

Norma Klahn (Literature)
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Lourdes Martínez-Echazábal (Latin American and Latino Studies)
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found[n]ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Juan Poblete (Literature)
Latin(o) American literatures; transnational/global cultures (literature, radio, film); Latin(o) American cultural studies; 19th-century studies; the history of reading practices

Associate Professor

Eve Zyzik
Spanish linguistics, second language acquisition, cognitive linguistics, language pedagogy and curriculum design

Assistant Professor

Mark Amengual
Bilingualism and language contact; acoustic phonetics; sociophonetics; L2 acquisition; language variation and change; Spanish and Romance linguistics

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Senior Lecturer

Maria Victoria González-Pagani
Language teaching methodology; Spanish syntax; computer-assisted foreign language learning; Latin American cultural studies, especially women's contributions

Lecturer

Ignacio Aznar, Emeritus

Byron Barahona
Language acquisition and teaching methodology, Latin American literature and culture

Carlos Calierno
Intercultural communication and languages; Latin American culture; history of the conquest, music, art, and cinematography

Marta Navarro
Spanish language pedagogy for heritage speakers and non-native speakers; theater; Mexican popular culture

Ariel Pérez
Language acquisition and teaching methodology, computer-assisted language learning, teaching language for proficiency, oral proficiency assessment; Latin American current affairs

Alvaro Romero-Marco
Spanish literature of the 19th- and 20th-centuries; film, cultural studies

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Sociology

2014-15 General Catalog

226 College Eight
(831) 459-4306
http://sociology.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Dane Archer, Emeritus

John Brown Childs, Emeritus

Ben Crow
International development, sociology of water and markets, global inequality, South Asia and East Africa, political economy, sustainable development

E. Melanie DuPuis, Emerita

William H. Friedland, Emeritus

Hiroshi Fukurai
Citizen participation in law, race and the law, indigenous approach to international law, decolonialism, Japan and East Asia, advanced quantitative methods, survey research

Walter L. Goldfrank, Emeritus

Herman S. Gray
Cultural studies, media and television studies, black cultural politics, social theory

Paul M. Lubeck, Emeritus

Dennis C. McElrath , Emeritus

Marcia Millman, Emerita

James R. O'Connor , Emeritus

Jennifer E. Reardon
Science studies; sociology of science, technology, and medicine; feminist theory; race/ethnicity/gender/sexuality/class; biology and society

Craig Reinarman
Political sociology; law, crime, and social justice; drugs and society

Pamela Ann Roby, Emerita

Dana Y. Takagi
Social inequality, affect, religion, race, quantitative analysis

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Candace West
Language and social interaction, sex and gender, conversation analysis

Associate Professor

Julie Bettie
Cultural theory and popular culture; race, gender, class, and cultural politics; sexuality and sex work; critical qualitative methodologies

Deborah Gould
Political emotion; social movements and contentious politics; classic and contemporary social theory; sexualities; lesbian/gay/queer studies; feminist and queer theory

Miriam Greenberg
Urban sociology, media studies, cultural studies, political economy, globalization, and urban political ecology

Steven McKay
Work and labor markets; globalization and social change; political sociology; race; masculinity; migration; ethnography/qualitative methods

Helen Shapiro
Political economy, Latin American economic history and development (with an emphasis on Brazil), industrial policy, the auto industry, the state and transnational corporations

Lecturer

Francesca Guerra
Social justice, race and ethnicity, poverty, deviance, history of eugenics, disability rights, media, statistics and research methods

Wendy Martyna
Social psychology, death and dying, gender, social change, family and youth, language and society

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Professor

Barbara L. Epstein, Emerita (History of Consciousness)

Julie Guthman (Social Sciences)
Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, epigenetics and environmental health, critical nutrition, critical human geography

Nancy Stoller, Emerita (Community Studies)

Andrew Szasz (Environmental Studies)
Environmental sociology (environmental movements, policy, environmental justice); theory

Mark Traugott, Emeritus (History)

David Wellman, Emeritus (Community Studies)

Assistant Professor

Sylvanna Falcón (Latin American and Latino Studies)
Human rights, racism/antiracism, globalization, gender, transnational feminism, Latin America (Mexico, Peru), United States

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Spanish Studies

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Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Program Description

Faculty and Professional Interests

Professor

Jorge Aladro Font (Literature)
Spanish mysticism, theory and historical developments of imagery in the Middle Ages to the baroque period, Renaissance and baroque Hispanic literature, Italian ideas in the Spanish Renaissance, Cervantes

Norma Klahn (Literature)
Latin American literary and cultural studies (specialization: Mexico); Chicano/Latino literature and culture from a cross-border perspective; modernity/postmodernity; poetics and politics; genre theory (novel, poetry, autobiography); critical theory (i.e., border, ethnic, feminist, transnational/global)

Lourdes Martínez-Echazábal (Literature)
Latin American and Caribbean literatures; Afro-Latin American literatures, cultures, and societies; found[n]ational narratives; Brazilian literature; literatures of Cuba and the Cuban diaspora; critical race theory

Juan Poblete (Literature)
Latin(o) American literatures; transnational/global cultures (literature, radio, film); Latin(o) American cultural studies; 19th-century studies; the history of reading practices

Associate Professor

Eve Zyzik
Spanish linguistics, second language acquisition, cognitive linguistics, language pedagogy and curriculum design

Senior Lecturer

Maria Victoria González-Pagani
Language teaching methodology; Spanish syntax; computer-assisted foreign language learning; Latin American cultural studies, especially women's contributions

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Sustainability Studies

2014-15 General Catalog

College Office
(831) 459-2361
http://eight.ucsc.edu/

Program Statement | Course Descriptions

Affiliated Faculty and Professional Interests

Kevin Bell, Lecturer, College Eight
energy policy, electrical utilities and power systems, public policy, regulation

Sue A. Carter, Professor of Physics
Experimental condensed matter physics, polymer physics, molecular electronics, phase transitions, electronic and optical properties of materials

Patrick Y. Chuang, Associate Professor of Earth & Planetary Science
Clouds, aerosols and climate

Ben Crow, Professor of Sociology
International development, sociology of water and markets, global inequality, South Asia and East Africa, political economy, and green enterprise

E. Melanie DuPuis, Professor of Sociology
Economic sociology, sociology of consumption, sociology of development, political sociology, sociology of the environment, technological change, historical sociology, social theory, food and social change, agriculture sustainability

Andrew Fisher, Professor of Earth & Planetary Science
Hydrogeology, crustal studies, coupled flows, modeling

Laurel Fox, Professor of Ecology and Evolutionary Biology
Terrestrial population and community ecology, plant-animal interactions

Julie Guthman, Professor of Social Sciences
Sustainable agriculture and alternative food movements, international political economy of food and agriculture, politics of obesity, political ecology, race and food, epigenetics and environmental health, critical human geography

Michael Isaacson, Professor of Electrical Engineering
Nano- and microfabrication technology and applications to biomedical and diagnostic devices, nanocharac-terization of materials with emphasis on the development of microscopy tools, novel modes of imaging, electron and light optics, renewable energy systems, STEM education

Ronnie D. Lipschutz, Professor of Politics and Provost of College Eight
International relations; global political economy; globalization; foreign policy;

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resource/environmental politics; global political networks; global civil society and social movements; popular culture and politics; technology and society; risk society, state transformation and global governmentality

Flora Lu, Associate Professor of Environmental Studies
Ecological anthropology, indigenous resource management and household economics, conservation, market integration, environmental justice, Amazon rainforest, Ecuador

Katie Monsen, Lecturer in Environmental Studies & Electrical Engineering
sustainable agroecosystems, nutrient dynamics, and freshwater ecology, sustainability engineering

Ingrid Parker, Professor of Ecology and Evolutionary Biology
Plant ecology, plant-pathogen interactions, biological invasions

Daniel Press, Professor of Environmental Studies
U.S. environmental politics and policy, water quality, industrial ecology, resources management, policy analysis

Elizabeth Stephens, Professor of Art
Intermedia, electronic art, sculpture, and performance art

Andrew Szasz, Professor of Environmental Studies
environmental sociology, environmental movements, policy, environmental justice, sociological theory

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Technology and Information Management

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

Ramakrishna Akella
Data analytics: machine learning; informational retrieval (search); data; text; image and video mining; social networks and recommender systems; business analytics: business and management of technology; intelligent services and knowledge management, IT; product design; delivery and portfolios; financial engineering and management; process learning; supply chain management; automation

Brent Haddad
Fresh-water economics, policy, and communications; economic institutions and the environment; climate-change mitigation and adaptation; institutional and ecological economics

Associate Professor

John Musacchio
Control, analysis, and pricing of communications networks; applications of game theory in networking; wireless ad-hoc networks; and management of technology

Yi Zhang
Large-scale information retrieval, recommendation systems, internet advertising, data mining, natural language processing, applied machine learning

Lecturer

Subhas Desa
Product development, supply chain management, management of technology, system dynamics and control

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Yin-Wong Cheung (Economics)
Applied econometrics and international finance

Luca De Alfaro (Computer Science)
Reputation systems, crowdsourcing, game theory; formal methods

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William B. Dunbar (Computer Engineering)
Theory and application of feedback control, single-molecule biophysics, nanopore sensors, dynamics and control of biomolecules

Daniel Friedman (Economics)
Microeconomic theory, experimental economics, evolution and learning, financial markets

J.J. Garcia-Luna Aceves (Computer Engineering)
Computer communication, wireless networks, Internet, network science

Michael Isaacson (Electrical Engineering)
Nano- and microfabrication technology and applications to biomedical and diagnostic devices, nanocharacterization of materials with emphasis on the development of microscopy tools, novel modes of imaging, electron and light optics, renewable energy systems, STEM education

Robert A. Levinson, Emeritus

Darrell Long (Computer Science)
Data storage systems, distributed computing, operating systems, performance evaluation, reliability, cyber security, data science, multimedia

Patrick Mantey
Associate Dean, Jack Baskin Endowed Professor, CITRIS and ITI Director
Multimedia systems, digital signal processing, sensor systems and networks, real-time monitoring and control, image systems, image processing, visualization, geographic information systems, decision support systems

Charles E. McDowell (Computer Science)
Programming languages, parallel computing, and computer science education

Alex Pang (Computer Science)
Uncertainty visualization, tensor visualization, scientific visualization, comparative visualization, collaboration software, virtual reality interfaces

Ira Pohl, Emeritus

Nirvikar Singh (Economics)
Industrial organization, political economy, economic development, technology and innovation, South Asian immigrants in the U.S.

Linda Werner
Software engineering, computer-science education, testing, increasing diversity in computer science

James Whitehead, Jr. (Computer Science)
Software engineering, software evolution, software bug prediction, level design in computer games, procedural content generation

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Theater Arts

2014-15 General Catalog

J106 Theater Arts Center
(831) 459-2974
theater@ucsc.edu
http://theater.ucsc.edu/

Program Description | Course Descriptions

Faculty and Professional Interests

Professor

James H. Bierman
Playwriting, theater history and literature, classical and Renaissance drama, Chicano theater, digital media

David Cuthbert
Lighting design, CADD, projection design, scenic design

Kate Edmunds
Set design for theater and film

M. Kathleen Foley
Asian theater, Southeast Asian studies, performance studies, maskwork, puppetry, multicultural theater

Patty Gallagher
Movement training for actors, circus and clown traditions, and Indonesian dance/performance

Kimberly Jannarone
Directing, dramaturgy, dramatic theory and criticism, theater history, acting

Danny Scheie
Acting, directing, dramatic literature, theater history, Shakespeare, Wagner, gay studies

Edward C. Warburton
Development of dance thought in action, creative processes, and technology in theater arts; dance technique, movement research and composition, and applied dance practices

Associate Professor

Brandin Baron
Costume design, history of design

Michael Chemers
Theater history and theory, playwriting, dramaturgy, acting

Assistant Professor

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Gerald Casel
Choreography and improvisation; somatics and techniques

Lecturer

Tandy Beal
Choreography, improvisation, technique, performance skills, collaborations with classical and jazz composers, circus, theater and video, children's productions

Gregory Fritsch
Acting, directing

Emeriti

Andrew E. Doe, Emeritus

Mark Franko, Emeritus

Norvid J. Roos, Emeritus

Ruth L. Solomon, Emerita

Audrey E. Stanley, Emerita

Alma R. Martinez, Emerita

Paul Whitworth, Emeritus

Elaine Yokoyama Roos, Emerita

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Mary-Kay Gamel, Professor, Classics and Comparative Literature
Performance studies, ancient Mediterranean performance, Greek and Latin literatures, myth, reception of Greek and Roman texts and artifacts, film, feminist approaches to literature and performance

Sean Keilen, Associate Professor, Literature
Shakespeare; Ovid; the classical tradition; early British literature; Renaissance humanism; poetry and poetics; imitation; theory of literature; interpretation and its history; the division of the arts and sciences; creative criticism; literature and the fine arts; literature and ethics; psychoanalysis; the passions; the senses; beauty

Revised: 09/01/14

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Writing Program

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209 Humanities 1
(831) 459-2431
http://writing.ucsc.edu/

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Faculty and Professional Interests

Lecturer with Security of Employment

Heather Shearer, Chair
Composition and rhetoric of utopian communities; technical communication; usability of complex information products

James Wilson
Modern European literary, artistic, intellectual, and political movements (especially of France, Italy, and Spain); poetry of Ezra Pound; Provencal poetry; classical Chinese poetry and philosophy; poetry translation; argument in popular culture; the rhetoric of sports; public speaking; medical science; graduate student teaching mentorship; composition pedagogy for first-year and multilingual students

Kimberly Helmer
Spanish heritage language learning, English for academic purposes, assessing multimodality

Tonya Ritola
Transforming basic writing program and instruction; institutional logics of writing center assessment; student reading practices in an electronic age

Roswell Spafford, Emerita

Senior Lecturer with Security of Employment

Elizabeth Abrams
Composition and rhetoric; writing pedagogy, writing across the curriculum; 19th-century and 20th-century American history and literature, especially concerning the Civil War

Carol M. Freeman, Emerita

Lecturer

Margaret Amis
Writing; pre- and early modern English literature; prose style

Sondra Archimedes, College Nine Writing Coordinator
Victorian literature and culture; gender studies; cultural studies

Derede Arthur
Cultural studies, 18th-20th-century British literature, theory of the novel, theories of education, cognitive ethology

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Mark Baker, Oakes College Writing Coordinator
Media and democracy, postmodernism, 20th-century literature and culture of the Americas, community participation, writing and social responsibility

Chuck Carlise
Creative writing, poetry and poetics, creative non-fiction, American literature, American counterculture, the Beats Movement, American politics, cultural studies, rhetoric of identity, generational culture, political rhetoric, social justice

Catherine Carlstroem
American literature and culture, science/speculative fiction; American drama; human biological sciences (e.g. evolutionary history, physiology, neurology).

Dina El Dessouky
Indigenous studies; native and women of color feminisms; environmental policy and justice; ecocriticism; Egyptian, Arab, and North African cinema; Arab/North African diasporic literature; Pacific/Oceania literature; Asia Pacific Americas literature and theory; (post)colonial theory; visual and performance cultures; poetry; surf culture(s)

Farnaz Fatemi
Writing, poetry, writing pedagogy, comics and graphic novels, Middle East issues and cross-cultural perspectives, contemporary American literature.

BK Faunce
Late 18th-century and early 19th-century British literary culture, film, literary theory

Jimmy Fazzino
Writing pedagogy, food writing, critical geographies, transnationalism, 20th-century American literature, Beat Generation writing

Veronica Flanagan, Kresge College Writing Coordinator
Writing, writing pedagogy, translation and translation theory, 19th- and 20th-century American literature; translation; French literature

Joy Hagen, College Eight Writing Coordinator
Science writing; writing for physical and biological sciences; ecological risks of genetically engineered organisms; population dynamics; agroecology and food systems; entomology; science and uncertainty (Science and Technology Studies); California Common Core standards

Erica Halk, College Ten Writing Coordinator
Post-secondary reading and writing pedagogy; American literature; cultural criticism; gender studies

Roxanne Power Hamilton
Writing, poetry, magazine editing, inter-arts performance, gender and queer studies

Noria Jablonski
Creative writing; contemporary American literature; disability studies

Robin King, Oakes College Writing Coordinator
Visual arts, media criticism, sociology of learning and emotions, multi-cultural studies, politics of food

Lindsay Knisely
Digital identity production in youth; establishing ethos in writing; writing of witness; African-American literature and literary theory; writing as social activism; writing as identity development; poetry analysis and interpretation; development of critical consciousness

Toby Loeffler
Writing pedagogy; early 20th-century British and Spanish literature; history and theory of the British and European novel; British and European modernism; literature and nationalism; ideology; cultural studies

Philip Longo
Composition; 20th-century American literature; African American literature; sexuality and

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gender; critical theory; the 1960s; Environmental Humanities

Brij Lunine, Cowell College Writing Coordinator
Writing pedagogy; writing across the curriculum, teaching research; reception studies, cultural studies, popular culture and youth subcultures

Patrick McKercher
Virtual reality educational environments, outreach projects, collaborative research with James Burke, environmental education

Ingrid Moody Lariviere, Porter College Writing Coordinator

Emily Murai
First-year composition and writing; International and global affairs; Science and technology studies; Human geography

Ellen Newberry, Merrill College Writing Coordinator
Educational partnerships with K-12 schools, transfer/re-entry student writing, women's studies, and queer studies

Sarah-Hope Parmeter, Coordinator, Entry Level Writing Requirement (ELWR)
Writing and democracy; multilingual, multicultural rhetorics; cross-age writing partnerships and public school collaboratives; lesbian/gay/bisexual/transgender young adult literature; rhetoric of the sciences

Annalisa Rava, Crown College Writing Coordinator
Animals and human society, science fiction studies, literature and postmodernism

Denise Silva
Cultural studies, urban studies, gender studies, 19th and 20th century British literature, composition and rhetoric

Kiva Silver
Modern and early modern European history; nation-state development and nationalism; immigration and integration in Europe; rhetoric and composition

Robin Somers
Sustainable agriculture and cooking organically; online journalism (blogging), Native American literature, culture and politics

Terry Terhaar
Writing in the sciences; inquiry-based (research) writing; western environmental; biodiversity conservation; environmental ethics; religion, spirituality, and nature; nature literature

David Thorn
Climate change, technology, and ethics; sustainable agriculture and food production; Africa and African life beyond the four "Ds"; sci fi and weird fiction; surfing and poetry

Yolanda Venegas
English composition, integrated reading and writing, ethnic/Chicana studies, undocumented student access to higher education, diversity in higher education

Amy Weaver, Stevenson College Writing Coordinator
Creative nonfiction, writing pedagogy

Lothlorien Watkins
Genres: expository writing, inquiry-based research, science writing, drama. Topics: language, identity, and education; myths and fairy tales. Research interests: Adulty literacy, Gen. 1.5 studies, reading and writing pedagogy, grammar

Lene Whitley-Putz
Social justice, identity, gender, writing the body, race in the United States, sports and identity, online teaching and learning, writing across the curriculum

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Anthropology

2014-15 General Catalog

361 Social Sciences 1 Building
(831) 459- 3320
http://anthro.ucsc.edu/

Faculty | Program Statements

Lower-Division Courses

1. Introduction to Biological Anthropology. F
Study of evolution illustrated by Pleistocene hominid fossils and variation in living human groups. Behavior and evolution of primates examined as they contribute to the understanding of human evolution. Required for all anthropology majors. (Formerly Introduction to Human Evolution.) (General Education Code(s): SI, IN.) The Staff

2. Introduction to Cultural Anthropology. S
A number of different peoples are studied and a variety of approaches to the nature of the culture and to the study of specific cultures presented. Required for all anthropology majors. (General Education Code(s): CC, IS.) M. Wolf-Meyer

3. Introduction to Archaeology. W
Overview of ways of learning about the human past beyond the scope of written history. Reviews development of archaeology, fundamental methods and theories, and archaeology's contribution to understanding human origins, the emergence of farming, and the origins of complex societies. (General Education Code(s): SI, IS.) J. Monroe

42. Student-Directed Seminar.
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

81A. Mexican Folklorico Dance (2 credits). F
Provides instruction in the aesthetic, cultural, and historical dimensions of Mexican folklorico dance. Students taught choreographed dances from various regions of Mexico and also learn dance techniques (tecnica) and stage make-up application. Additional workshops and lectures offered to supplement class. Open to all students; no previous experience required. (Also offered as Latin American&Latino Studies 81A. Students cannot receive credit for both courses.) May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

81B. Mexican Folklorico Dance (2 credits). W
Second course in series. Provides instruction in the aesthetic, cultural, and historical dimensions of Mexican folklorico dance. (Also offered as Latin American&Latino Studies 81B. Students cannot receive credit for both courses.) May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

81C. Mexican Folklorico Dance (2 credits). S
Third course in series. Provides instruction in the aesthetic, cultural, and historical

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- German
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- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
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- Legal Studies
- Linguistics
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- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
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dimensions of Mexican folklorico dance. (Also offered as Latin American&Latino Studies 81C. Students cannot receive credit for both courses.) Prerequisite(s): course 81A or 81B. May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

81J. Introduction to Visual Culture Lab (2 credits). *
Optional digital photography lab. Students learn to compose shots, download photos, resize them, and put them into a meaningful sequence. Concurrent enrollment in Anthropology 80J required. Enrollment limited to 36. S. Errington

93. Field Study. F,W,S
Supervised research or organized projects on anthropological topics for lower-division students. Conducted either on or off campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100. History and Theory of Physical Anthropology. F
Provides an historical overview from the 18th century to the present of race, ape-human relationships, and human nature. Emergence of an evolutionary framework and of fossil, genetic, and primate information becomes the basis for reformulating ideas about human biology within anthropology. Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. The Staff

101. Human Evolution. F
Study of human evolution covering the last five million years. Examines the fossil evidence and emphasizes the reconstruction of behavior from the paleontological and anatomical evidence. Prerequisite(s): course 1. Offered in alternate academic years. The Staff

102A. Human Skeletal Biology. F,S
Presents basic human osteology allowing students to identify skeletal material by element. Emphasizes the dynamic nature of bone by integrating anatomy with a discussion of bone physiology within the context of the human life cycle. Prerequisite(s): course 1. Enrollment limited to 16. The Staff

103. Forensic Anthropology. *
Covers the basic analysis of human skeletal remains for the medicolegal profession. Assessment of age, sex, ancestry, and general physical characteristics, trauma, and disease are discussed. Addresses the legal responsibilities of the anthropologist. Online lectures with in-class discussion sections, quizzes, and exams. Prerequisite(s): course 102A. Enrollment restricted to juniors and seniors. A. Galloway

103B. Forensic Anthropology and Bioarchaeology. S
Introduces the analysis of human remains from forensic or archaeological contexts. Covers the whole range of morphological, morphometric, histological, genetic, and biochemical methods applied in bone-based anthropological analyses. Prerequisite(s): course 102A. Enrollment by permission of instructor. Enrollment limited to 25. The Staff

104. Human Variation and Adaptation. S
Explores the major environmental factors (temperature, altitude, diet, and disease); how they are perceived by the human body; the physiological, micro- and macroanatomical responses; and how behavior and culture can modify the impact of these stresses. Course 1 is highly recommended as preparation. (Formerly Human Adaptability.) L. Fehren-Schmitz

105. Human Paleopathology. *
Examines paleopathology beginning with ancient hominid populations and proceeding to modern populations. Uses both the skeletal evidence and historical documentation when available. Considers evolutionary, cultural, and biological factors. Topics include: osteological diagnosis of infectious disease; trauma; nutritional deficiencies; dental disease; and developmental defects. Prerequisite(s): course 1; course 102A recommended. The Staff

106. Primate Behavior and Ecology. *
The nature of primate social systems and social bonds is examined in the light of

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evolutionary and ecological concepts. Students cannot receive credit for this course and course 206. Prerequisite(s): course 1. The Staff

107. Methods and Research in Molecular Anthropology. W
Introduces the molecular analyses of anthropological questions and explores the intersection of genetics and anthropology. Covers the basic principles of molecular and population genetics as they relate to the study of humans. Prerequistie(s): courses 1 and 104. Course 102A is recommended. Enrollment by permission of instructor. Enrollment limited to 15. L. Fehren-Schmitz

109. Evolution of Sex. *
Provides a physical anthropology understanding of the evolution of sex. Focuses on genetics and the altercations in allele associations that take place as a result of sexual processes. Prerequisite(s): course 1. The Staff

110A. Public Life and Contemporary Issues. *
How can cultural anthropology help us to understand current events unfolding locally, nationally, and globally? Students learn how to "read" newspapers differently--that is, through the lens of cultural analysis. The world of everyday politics and society, as it unfolds in debates happening right now, forms the topical substance of the course. (Formerly course 4.) (General Education Code(s): IM.) A. Mathews

110B. From Indiana Jones to Stonehenge: Archaeology as Popular Culture. *
Addresses the "meaning" of archaeology as generated in television, movies, literature, newspapers, and even National Geographic. Students engage with several case-studies illustrating how archaeology is portrayed in popular culture. (General Education Code(s): IM.) C. Blackmore

110G. Barrio Popular Culture. S
Introduces students to a broad sampling of verbal and nonverbal forms of Mexican folklore. Concentrates on experiencing these forms through texts, film, and if possible, performances. Attention to how these forms have been used by scholars to comment on Mexican culture is an underlying theme. Knowledge of Spanish is useful but not required. (Formerly course 80G.) (General Education Code(s): CC, E.) O. Najera Ramirez

110H. Acoustic Culture. *
Explores relationships between culture and the acoustic worlds, including environmental, verbal, and musical, which humans inhabit. How can paying attention to cultures of listening and sound-making help us think about cultural life and experience in new ways? (Formerly course 80H.) (General Education Code(s): CC.) D. Brenneis

110K. Culture through Food. W
Examines anthropology of food and politics of eating. Cultural and social uses of food in rituals of solidarity or fasting, identities and meanings of food for individuals, and consumption in the global context are key components of study. (Formerly course 80K.) (General Education Code(s): CC.) N. Chen

110L. Anthropology of Love and Intimacy. F
Seeks to understand the various political and personal meanings of intimacy, in particular the intimacy of what is commonly thought of as "love." (General Education Code(s): PE-H.) The Staff

110O. Postcolonial Britain and France. W
Examines politics and culture of postcolonial Britain and France. Topics include: immigration from South Asia and North Africa; racism and anti-racism; minority difference and citizenship practices, with special attention to Muslim minorities. Readings include social theory, ethnographies, novels, and films. (Formerly course 130O.) (General Education Code(s): CC, E.) M. Fernando

110P. India and Indian Diaspora through Film. F
Explores several themes of relevance in contemporary India and Indian diaspora, concentrating on anthropological research and various documentary and popular Bollywood films. Through films and ethnographies, students analyze the nature of anthropological contributions to the study of Indian societies. (Formerly course 80P.) (General Education Code(s): CC, E.) A. Pandey

110R. Discourses in American Religions and Their Role in Public Life. *
Introduces dominant discourses about major American religions and their role in public life, with particular attention to intersecting differences, such as race, sex/gender, and disability, and to shifting religious/political boundaries. Visual and textual media, political commentary, and popular ethnographies are analyzed. (General Education Code(s): IM.) D. Rutherford, S. Harding

110T. Motherhood in American Culture. F
Examines the "culture wars" around motherhood in the United States with a focus on the political mobilization of normative ideas about the correct way to mother, from the moment of conception on. Special attention is given to the historical construction of deviant motherhood among marginalized groups. (Formerly course 80T.) (General Education Code(s): ER.) M. Moodie

110V. Anthropology of Violence and Conflict. F
Examines human patterns of violence in times of explicit warfare as well as during alleged peace, ultimately questioning the historical distinction between one and the other. (General Education Code(s): PE-H.) C. Schuetze

111. Human Ecology. S
Reviews the environmental, physiological, behavioral, and cultural ways that humans interact with their physical surroundings. The effects of human culture on the environment and of the environment on the shape of human culture is emphasized. L. Fehren-Schmitz

112. Life Cycles. *
Examines the human life cycle using an evolutionary framework. Examines key aspects of the human life stages using findings and concepts from developmental biology, physiology, nutrition, evolutionary ecology, and life-history theory. Prerequisite(s): course 1. The Staff

113. Tutoring Writing in Anthropology (2 credits). F
Trains students to tutor writing in undergraduate anthropology courses; supports and guides them during the quarter they are tutoring. Enrollment by interview only. Prerequisite(s): satisfaction of the Composition requirement. J. Todd

119. Indigenous Visual Culture. *
Examines the relationship between visual cultures and indigenous peoples. First, class discusses what is visual anthropology. Second, class examines the relationship between museums and indigenous peoples. Third, class examines ethnographic photography and indigenous uses of photography. Fourth, class examines the uses of ethnographic film, and then its relationship to indigenous peoples. Finally, class examines indigenous uses of film. R. Ramirez

120. Culture in Film. W
Introduces current and historical issues in visual anthropology, using film as a medium with which to represent culture. Raises questions about visual representation and advocacy in the context of global inequalities. Prerequisite(s): course 2 or 80J or Film 20A or 20B, or History of Art and Visual Culture 10D, 10E, 10F or 10G. (General Education Code(s): IM.) S. Errington

120L. Culture in Film Laboratory (2 credits). *
This lab in video production is to train students in Culture in Film. The video lab, through lectures, demonstrations, hands-on instruction, and review of students' work will enable students enrolled in Culture in Film to learn the fundamentals of film/video pre-production, production, and post-production skills. Portfolio review prior to enrollment and concurrent enrollment in course 120 required. Enrollment limited to 15. The Staff

121. Socialism. *
Ethnography-based course that examines the social worlds of socialism, with particular focus on state socialism. Topics include: social problems that inspired socialist movements; implementation and experience of socialism in daily life; and significance of class, race, nation, science, technology, rationality. M. Caldwell

122. Postsocialism. *
Examines the demise of socialist systems. Addresses the political, social, cultural, and economic experiences of everyday life that led to that demise, what new social inequalities have arisen since, and how citizens use the socialist past to critique the present. L. Rofel

123. Psychological Anthropology. *
An introduction to some of the central theoretical issues in psychological anthropology. Psychoanalytic, cognitive, and relativist perspectives on the link between person and society are discussed and compared. Prerequisite(s): course 2. D. Linger

124. Anthropology of Religion. *
Study of the phenomenon of religion as manifested in ethnographic literature, with special attention to traditional and recent modes of analysis of religious behavior. Special topics include myth, religious healing, witchcraft and sorcery, ritual, and millenarian movements. The Staff

126. Sexuality and Society in Cross-Cultural Perspective. *
The meaning and social processes associated with sexuality in selected societies. Examination of variations in sexual expressions and control of sexuality, and in economic and political organizations, highlights the interrelationship of sex and society. Prerequisite(s): course 2. The Staff

127. Ethnographies of Capitalism. S
Challenges approaches to capitalism that treat it as socioeconomic relations separable from "culture." Readings include ethnographies demonstrating the inextricability of cultural meanings from capitalist practices. Topics include capitalism's relationship to colonialism, nationalism, socialism, gender, and the commodification of aesthetics. L. Rofel

128. Contemporary American Evangelical Cultures. S
Study of contemporary, American, born-again Protestant discourse using ethnographic materials and interpretive theories. Topics include biblical literalism, Christian conversion and self-fabulation, charismatic gifts, preaching, sacrificial giving, prosperity theology, apocalypticism, creationism, pro-family and pro-life rhetoric, and televangelism. (Formerly Born-Again Religion and Culture.) S. Harding

129. Other Globalizations: Cultures and Histories of Interconnection. *
The history of social and cultural interconnections at a global scale. Anthropological approaches to the study of cultural encounter are used to investigate topics such as trade, religion, and citizenship and to evaluate shifting concepts of civilization and barbarism. Prerequisite(s): course 2. A. Tsing

130. Enthographic Area Studies.

130A. Peoples and Cultures of Africa. *
Survey of sub-Saharan societies. Analysis of principles of social organization and factors of cultural unity of selected western, eastern, central, and southern African peoples. (General Education Code(s): CC, E.) The Staff

130B. Brazil. *
Examines Brazilian culture and its link to interpersonal relationships, religion, politics, and psychological experience. Prerequisite(s): course 2. (General Education Code(s): CC, E.) The Staff

130C. Politics and Culture in China. *
Joins substantive information "about" Chinese society and culture with debates in social theory and rethinks conventional wisdom about colonialism and modernity. Topics include representations of "Chineseness," class revolution, Chinese diaspora, popular culture, family and kinship, nationalism, history/memory, race and gender. (General Education Code(s): CC, E.) L. Rofel

130E. Culture and Politics of Island Southeast Asia. F
Southeast Asia includes a variety of societies exhibiting many ecological adaptations, religions, marriage systems, and experiences with colonial powers. Case studies of particular societies, chosen to reveal variety, are examined comparatively. Emphasis on religion and social organization. Prerequisite(s): course 2. (General Education Code(s): CC, E.) S. Errington

130F. African Diasporas in the Americas. *
Focuses on African diasporas of the Caribbean, United States, and Latin America. Themes include: theorizing diaspora, historical formations, slavery, analytical approaches to cultures of the African diaspora, religion, music, comparative identity formation and

racism, gender dynamics, social movements, and transnationalism. (General Education Code(s): CC, E.) M. Anderson

130G. Asian Americans in Ethnography and Film. *
Critically examines category of Asian Americans. Addresses historic representations of Asians and Asian Americans in ethnographic research and film. Explores contemporary issues of race, culture, and politics through ethnographic practice and cultural production. (General Education Code(s): E.) N. Chen

130H. Ethnography of Russia and Eastern Europe. *
Introduces students to the ethnography of Eurasia, with special attention to the lived experience and legacy of state socialism in this region. Topics include new ideas of personhood, changing economic practices, public health, and international development. (General Education Code(s): CC, E.) M. Caldwell

130I. Cultures of India. W
An examination of anthropological studies of tribal, rural, and urban cultures of India and a look at changes taking place in India. Prerequisite(s): course 2. Offered in alternate academic years. (General Education Code(s): CC, E.) The Staff

130J. Politics and Statemaking in Latin America. *
Introduction to ethnohistory and political anthropology of one or more Latin American countries: Typically Mexico and one other country. Students explore how contested concepts such as indigeneity, nation or state come to gain credibility and are deployed in contemporary politics. (General Education Code(s): CC.) A. Mathews

130L. Ethnographies of Latin America. S
A broad introduction to issues and areas of cultural production and transformation in the Caribbean, Mexico, and Central and South America. Colonial, neocolonial, class, ethnic, gender, religious, ecological, and political relations intersect as represented in ethnographies and film. Prerequisite(s): course 2. (General Education Code(s): CC, E.) G. Delgado-P

130M. Inside Mexico. *
Examines various communities within the Republic of Mexico as represented in ethnographic texts and other forms of cultural production, particularly music and dance. Emphasis on the interplay between the concept of regionalism and national identity. Previous course work in Mexican culture and/or history strongly recommended. Some reading in Spanish is required. (General Education Code(s): CC, E.) O. Najera Ramirez

130N. Native Peoples of North America. W
A survey of Native American cultures and experience during the past century, with emphasis on Pueblo cultures of the American Southwest. (General Education Code(s): ER, E.) T. Pandey

130T. Religion and Politics in the Muslim World. *
Analyzes post-colonial forms of Islam, with particular attention to Muslim societies and cultures in the Middle East, North Africa, and Europe. Emphasizes the relationship between power, knowledge, and representation in anthropological approaches to Islam and Muslims. (Formerly Anthropological Approaches to Islam.) (General Education Code(s): CC, E.) M. Fernando

130U. Central America. F
Draws on political, economic, and anthropological perspectives to analyze the key role of transnationalism and neoliberalism in contemporary Central America. Key topics include: the aftermath of revolutions; labor and gender; indigenous movements and multiculturalism; and transnational migration and governance. M. Anderson

130V. Ethnography of Russia. *
Examines daily life in Russia and affiliated formerly Soviet Republics through historical and cultural comparison. Topics include: socialist and postsocialist daily life; 20th- and 21st-century Russian empire building; cultural politics; economic systems; state-citizen relations; citizenship regimes; labor and leisure; and religion. M. Caldwell

130W. Ethnography of Eastern Europe. *
Examines daily life in Eastern Europe, especially how residents in this region have

navigated the transition from state socialism to accession to the European Union. Topics include: the legacies of state socialism; cultural politics; new economies; consumption; the European Union; new forms of governance; and political activism. M. Caldwell

130X. Special Topics in Ethnography. F,W,S
This course on special topics in ethnography will be taught on a rotating basis by various faculty members. Precise focus of each year's courses will vary according to the instructor and will be announced by the department. May be repeated for credit. The Staff

131. Women in Cross-Cultural Perspective. W
Examines the diversity of women's as well as men's roles, experiences, and self-conceptions in a number of societies to explore how women and men shape, and are shaped by, particular forms of social life. Prerequisite(s): course 2. R. Ramirez

131H. Russian-Language Readings Course: Readings in Anthropology of Russia (2 credits). *

Contemporary topics and readings in anthropology of Russia and the former Soviet Union. All readings, films, and other materials are in Russian. Discussions are in English. Accompanies course 130H, Ethnography of Russia and Eastern Europe. Prerequisite(s): course 130H and proof of Russian proficiency in reading and writing. Enrollment by permission of instructor. Enrollment limited to 10. M. Caldwell

132. Photography and Anthropology. *
Moving historically from woodcuts and paintings to the World Wide Web, but emphasizing the invention and development of documentary photography, this course explores the world of images depicting society and culture. Major theoretical approaches to "reading" pictures will be emphasized, and students must produce a final project incorporating visual images. Prerequisite(s): course 2 or History of Art and Visual Culture 10D or 10E or 10F or 10G or Art 30. (General Education Code(s): IM.) S. Errington

132L. Photography and Anthropology Laboratory (2 credits). *
This still photography lab trains students in the basic operations and techniques of the camera and the creation of a set of still photographs to use for social documentation. It includes lectures, demonstrations, hands-on instruction, and a continuous review of the students' work in progress. It does not include darkroom work. Concurrent enrollment in course 132 required. Enrollment restricted to anthropology majors. Enrollment limited to 30. S. Errington

133. Narratives of the Popular. *
Addresses the increasing importance of popular culture as the terrain upon which to address issues of culture and power. Emphasizes an ethnographic approach to popular culture as sociocultural phenomena. Students learn about a variety of activities including television and film viewing, music, fashion, photography, postcards, comic books, and urban spatial relations and architecture. S. Harding

134. Medical Anthropology: An Introduction. F
Cross-cultural study of health, disease, and illness behavior from ecological and ethnomedical perspectives. Implications for biomedical health care policy. Students cannot receive credit for this course and course 254. Prerequisite(s): course 2. N. Chen

135A. Cities. *
Examines cities from an anthropological perspective. Reviews pertinent social scientific literature of the 19th and early 20th centuries. Surveys the concepts and methods used by contemporary anthropologists to investigate urban phenomena. N. Chen

136. The Biology of Everyday Life. *
Addresses cross-cultural attitudes to the human body and its everyday biological concerns: sleeping, eating, breathing, sex, and defecation. Prerequisite(s): course 2. M. Wolf-Meyer

137. Consuming Culture. *
Explores consumption as a cultural form. Beginning with theories of capitalism and exchange, it then focuses on sites and modes of consumption and display such as department stores, museums and zoos, advertisements and photography, cultural tourism. M. Caldwell

138. Political Anthropology. *
The ideas, in selected non-Western societies, about the nature of power, order, social cohesion, and the political organization of these societies. (Also offered as Legal Studies 138. Students cannot receive credit for both courses.) Offered in alternate academic years. T. Pandey

139. Language and Culture. W
Examination of language system and language use in relationship to cultural contexts of communication in Western and non-Western societies. Topics include the Sapir-Whorf linguistic relativity hypothesis; linguistic constructions of gender; speech variation in relation to class, ethnicity, and national identity; and the emergence of self in communicative acts. Prerequisite(s): course 2. The Staff

140. Art, Artists, Artifacts. *
Studies the ways of interpreting non-Western art, both in the context of the Western art world and in the context of the societies that produced the art forms. The Staff

141. Anthropology of Developing Countries: Environment, Water, Entropy. *
Focuses on developing countries, those countries experiencing fast deruralization and ecological crises. Students learn the reach of entropic interconnectiveness given the fact that forms of inequality organize the system. Readings illustrate the theories and methods anthropologists use to approximate cultural realities to readers, scholars, and activists. Prerequisite(s): course 2. G. Delgado-P

142. Anthropology of Law. *
An ethnographically informed consideration of law, dispute management, and social control in a range of societies including the contemporary U.S. Topics include conflict management processes, theories of justice, legal discourse, and relations among local, national, and transnational legal systems. (Also offered as Legal Studies 142. Students cannot receive credit for both courses.) Enrollment restricted to anthropology and legal studies majors. D. Brenneis

143. Performance and Power. F
Explores relationships between power and performance forms and media, both "traditional" and emergent. Links aesthetics with politics, and recent transcultural exchanges with local circumstances and consequences. Prerequisite(s): course 2 or any other Anthropology course. D. Brenneis

144. Anthropology of Poverty and Welfare. *
Examines phenomena of poverty and welfare in cross-cultural perspective with an emphasis on critical ethnographies and social analyses of social pathologies, economic systems, and community. Topics include informal economies, labor, household systems, social-support networks, and public policies. M. Caldwell

145X. Special Topics in Socio-Cultural Anthropology. F,W,S
Taught annually on a rotating basis by faculty members. Each year's topic varies by instructor and is announced by the department. May be repeated for credit. The Staff

146. Anthropology and the Environment. W
Examines recent approaches to study of nature and the environment. Considers historical relationship between nature, science, and colonial expansion as well as key issues of contemporary environmental concern: conservation, environmental justice, and social movements. Prerequisite(s): course 2. (General Education Code(s): PE-E.) A. Mathews

148. Gender and Global Development. *
Uses the critical tools of feminist theory and cultural anthropology to look at how global development discourses and institutions mobilize, reinforce, and challenge systems of gender-based inequality. Topics include non-governmental organizations (NGOs), development practice, microcredit, and technocrat cultures. (Formerly Gender and Development.) (Also offered as Feminist Studies 148. Students cannot receive credit for both courses.) M. Moodie

150. Communicating Anthropology. F
Encourages anthropology majors to explore different means of communicating anthropology with much attention to individual writing and presentation skills. Intensive work on library research; recognizing, comparing, and making arguments; and analyzing

ethnographies, articles, reviews, and films. Prerequisite(s): two of the following courses: 1, 2, or 3; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to sophomore and junior anthropology majors. (General Education Code(s): W.) T. Pandey

151. Workshop in Ethnography. *
Through demonstration, practice, and participation, acquire skills in collecting and analyzing cultural data. Work with members of other cultures and with each other to learn to identify significant cultural patterns. Lectures and readings provide added perspective and a theoretical base. Prerequisite(s): course 2. Enrollment limited to 20. M. Wolf-Meyer

152. Survey of Cultural Anthropological Theory. W
Major figures, ideas, and writings in 19th- and 20th-century cultural anthropology surveyed. Students cannot receive credit for this course and course 252. Prerequisite(s): course 2 and satisfaction of the Entry Level Writing and Composition requirements; enrollment restricted to anthropology majors. (General Education Code(s): W.) M. Wolf-Meyer

153. Medicine and Colonialism. *
Addresses the overlapping relationship between medicine and colonialism in the 19th century, with attention to post-colonial theory and contemporary studies of post-colonial medical pluralism in the 20th century. Prerequisite(s): courses 2 and 134. M. Wolf-Meyer

154. Multimedia Ethnography. *
Students learn the fundamentals of photography or video production and audio recording in order to create mini-ethnographies. Prerequisite(s): courses 1, 2, and 3. Concurrent enrollment in course 154L is required. Enrollment restricted to anthropology majors. (General Education Code(s): PR-C.) S. Errington

154L. Multimedia Laboratory (2 credits). *
Designed to instruct in aesthetics and technical production of a short digital slideshow. Using iMovie3 editing program, produce a digital slideshow incorporating sound (narration, music, and sound effects) and still images. Concurrent enrollment in course 154 required. S. Errington

156. The Politics of Memory. F
Examines the intersection of traumatic memories and politics. Memories have historical, social, cultural, psychological, and political dimensions. Focuses most closely on the political consequences of and responses to divisive, troubling histories. (Also offered as Politics 156. Students cannot receive credit for both courses.) Enrollment restricted to anthropology and politics majors. V. Stanzel, D. Linger

157. Modernity and Its Others. *
Beginning with the conquest of the Americas, considers how Western thinkers have explained seemingly "irrational" ways of being and thinking (like witchcraft, human sacrifice, and bodily mutilation), and asks how we interpret beliefs and practices radically different from our own. M. Fernando

158. Feminist Ethnographies. *
Considers the relationship between anthropology and feminism. Provides historical perspective on gender inequalities in the discipline as well as the emergence of feminist anthropology. Students read and engage with examples of feminist ethnography form a variety of regions and subfields. M. Moodie

159. Race and Anthropology. F
Examines concept of race in anthropology. Begins with histories of race in anthropology; turns to contemporary analysis of racism, identity formation, and diaspora; and concludes with current debates on the validity of "race" as an object of analysis. (General Education Code(s): ER.) M. Anderson

160. Reproductive and Population Politics. *
Examines reproductive and population politics across the globe, with a focus on feminist and ethnographic analyses of the stakes of various actors, from states to religious bodies to non-governmental organizations, in questions of who reproduces and in what circumstances. M. Moodie

161. The Anthropology of Food. *
Critically examines food as a fundamental aspect of social and cultural life and key concept in the development of anthropological theory and methods. Topics include: power relationships; community building; exchange and reciprocity; symbolism; cultural rules and rituals; globalization; and memory. M. Caldwell

162. Anthropology of Displaced Persons. *
Examines the causes, consequences, forms, and experiences of human movement, displacement, and abandonment. Topics include: migration, refugees, forced displacement, environmental displacement, tourism, transnational communities, and other displaced populations. M. Caldwell

163. Kinship. S
Provides a critical survey of debates, old and new, in the study of kinship. Readings range from classical treatments to recent reformulations that use kinship as a lens for exploring intimacy, memory, futurity, embodiment, commodification, and power. Students cannot receive credit for this course and course 263. D. Rutherford

164. The Anthropology of Dance. *
An intense reading seminar which critically reviews anthropological works in dance ethnography and dance theory. Recommended for anthropology majors. Prerequisite(s): course 2. Enrollment limited to 25. O. Najera Ramirez

166. States, Bureaucracies , and Other Cosmological Propositions. *
Investigates the cosmologies of states and bureaucracies and the practices through which officials or rulers seek to produce order, knowledge, or stability. Looks at paperwork, nationalist and court rituals, practices of mapping and classification, forms of citizenship. A. Mathews

170. History of Archaeological Theory. F
Historical review of prehistoric archaeology from antiquarianism to the present. Emphasis on development of archaeological theory and its relation to evolutionary and anthropological theory. Students cannot receive credit for this course and course 270. Prerequisite(s): course 3; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to anthropology and Earth sciences/anthropology combined majors. Recommended for juniors. (General Education Code(s): W.) J. Habicht Mauche

171. Materials and Methods in Historical Archaeology. *
In this intensive, hands-on course, students learn the step-by-step processes involved in conducting laboratory research on historic artifacts. Students study the ins and outs of analyzing, cataloging, and dating historic artifacts. Enrollment limited to 20. C. Blackmore

172. Archaeological Research Design. *
Introduces theories and methods for recovering and analyzing archaeological data. Critically explores the nature of archaeological evidence and how archaeologists know what they know. Strongly recommended for those contemplating further studies in archaeology. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 3, and one upper-division archaeology course. Strongly recommended for those contemplating further studies in archaeology. Enrollment limited to 25. Offered in alternate academic years. (General Education Code(s): W.) C. Blackmore

173. Origins of Farming. F
Survey of the ecological and archaeological evidence for the origins of plant and animal domestication in Africa, Eurasia, and the Americas. Discussion will center on the preconditions of this drastic alteration in human ecology and its consequences in transforming human societies. Open to nonmajors. Students cannot receive credit for this course and course 273. Enrollment restricted to juniors and seniors. Offered in alternate academic years. D. Gifford-Gonzalez

174. Origins of Complex Societies. *
Deals with evidence and theories concerning the origins of complex society; the transition from egalitarian, foraging societies to the hierarchical, economically specialized societies often referred to as "civilizations." Focuses on both Old World and New World cultures. Students cannot receive credit for this course and course 174. Prerequisite(s): course 3. C.

Blackmore

175A. Early African Archaeology. *
Archaeological history of Africa from the first 2.5 million-year-old artifacts to the emergence of African pastorialism and farming. Disciplinary models and assumptions critically examined in their historic and political contexts. Students cannot receive credit for this course and course 275A. (Formerly African Archaeology: 2.5 Million BP to Farming.) Prerequisite(s): course 3 or by permission of instructor. Enrollment restricted to junior and senior anthropology and Earth sciences/anthropology combined majors. Enrollment limited to 45. D. Gifford-Gonzalez

175B. African Complex Societies. *
Introduces the evolution of African kingdoms and states from the emergence of farming communities to initial contact with Europe. Particular attention paid to the origins of social inequality and the evolution of centralized polities. Students cannot receive credit for this course and Anthropology 275B. Prerequisite(s): course 3; course 175A strong recommended. J. Monroe

176A. North American Archaeology. F
Development of Native cultures in North America. Topics include peopling of the New World, early foragers, spread of agriculture and complex societies in the Southwest and Eastern Woodlands, and review of cultural developments in the West and Far North. Prerequisite(s): course 3 or consent of instructor. The Staff

176B. Meso-American Archaeology. W
Review of the archaeological and ethnohistorical evidence for the origins and development of pre-Columbian civilizations in Meso-America including the Olmec, Maya, Zapotec, Mixtec Teotihuacan, Toltec, Tarascan, and Aztec. Prerequisite(s): course 3. C. Blackmore

176C. Archaeology of the American Southwest. *
Outlines the development of native cultures in the American Southwest from Paleo-Indian times (Ca. 11,5000 B.C.) through early European contact (ca. A.D. 1600). Topics include the greater environment; early foraging culture; the development of agriculture and village life; the emergence and decline of regional alliances; abandonment and reorganization; and changes in social organization, external relations, and trade. Prerequisite(s): courses 3 and 176A. J. Habicht Mauche

176D. Colonial Encounters in the Americas. S
Uses archaeological case studies to explore processes of cultural confrontation, resistance, and transformation among Native American groups in the wake of European colonial expansion in the Western Hemisphere during the late 15th through mid-19th centuries. Prerequisite(s): courses 2 and 3. (General Education Code(s): ER.) J. Habicht Mauche

176E. Archaeology of the Pacific Northwest. F
Explores some of the important issues surrounding the anthropological and archaeological study of the Pacific Northwest Coast--a roughly 1,800-kilometer-long shoreline that stretches from Yakutat Bay in Alaska to Cape Mendocino in California. Prerequisite(s): course 3. J. Daehnke

177. European Conquest of the Americas. *
Uses ethnographic, archaeological, and historical sources to examine the clash of cultures between Native Americans and Europeans during the 15th through 19th centuries. Focuses on the social, political, and demographic impacts of contact on Native American societies. Prerequisite(s): courses 2 and 3. Enrollment limited to 34. J. Habicht Mauche

178. Historical Archaeology: A Global Perspective. W
Introduces archaeology of European colonialism and the early-modern world. Topics include historical archaeological methods; the nature of European colonial expansion in New and Old Worlds; culture contact and change; and power and resistance in colonial societies. Students cannot receive credit for this course and Anthropology 278. Prerequisite(s): course 3 or consent of instructor. J. Monroe

180. Ceramic Analysis in Archaeology. *
Focuses on theories and techniques used by archaeologists to bridge the gap between the recovery of ceramic materials and their interpretation within cultural contexts. Topics include the origins of pottery, production methods, classification and typology, seriation,

functional analysis, materials analysis and description, organization of production, trade, and the analysis of style. Students are billed a course materials fee. Students cannot receive credit for this course and course 280. Prerequisite(s): course 3. Concurrent enrollment in course 180L required. Enrollment restricted to anthropology majors. J. Habicht Mauche

180L. Ceramic Analysis Laboratory (2 credits). *
Practicum in ceramic materials analysis and description. Students perform material experiments in materials selection and processing, hand-building techniques, and open-pit firing. Demonstrations of standard techniques of attribute analysis and the mineralogical and chemical characterization of ceramic materials are presented. Students cannot receive credit for this course and course 280L. Prerequisite(s): course 3. Concurrent enrollment in course 180 required. Enrollment restricted to anthropology majors. Enrollment limited to 16. J. Habicht Mauche

182A. Lithic Technology. *
Introduction to lithic and ceramic analysis in archaeology. Includes lab analysis, discussions of classification and typology, and exploration of the concept of style as it relates to ceramics and lithics in archaeology. Prerequisite(s): course 3. Enrollment limited to 20. The Staff

184. Zooarchaeology. W
Lectures and seminar on archaeological faunal analysis. Topics include mammalian evolution and osteology, vertebrate taphonomy, reconstruction of human diet from faunal remains, foraging strategy theory, data collection and management, and methods of quantitative analysis. Students cannot receive credit for this course and course 284. Prerequisite(s): course 3; concurrent enrollment in course 184L is required. D. Gifford-Gonzalez

184L. Zooarchaeology Laboratory (2 credits). W
Practical laboratory in archaeological analysis, with demonstrations and exercises on human-caused modifications to animal bones and non-human modifications to animal bones. Prerequisite(s): course 3 and concurrent enrollment in course 184. Enrollment restricted to anthropology majors and combined Earth and planetary sciences/anthropology majors. Enrollment limited to 45. D. Gifford-Gonzalez

185. Osteology of Mammals, Birds, and Fish. S
Practicum in archaeological faunal analysis. Students learn to identify bones of all larger mammal species of central California plus selected bird and fish species. Students cannot receive credit for this course and course 285. Prerequisite(s): courses 184 or 102 or Biology 138/L or Earth Sciences 100 or Environmental Studies 105/L, and permission of instructor. Enrollment limited to 16. Offered in alternate academic years. The Staff

187. Cultural Heritage in Colonial Contexts. S
Critical examination of the definitions of "cultural heritage," its development as a concept, and the various laws, charters, and conventions that shape our management of the past in the present. The focus is on heritage in comparative colonial contexts. J. Daehnke

188. Practicum in Archaeology (2 credits). *
Introduces practical skills in archaeological materials identification of stone, shell, bone, and other materials; curation; and database management. Students receive entry-level training with once-weekly class meetings and 5 hours per week of hands-on instruction. Prerequisite(s): courses 1, 2, and 3. Enrollment limited to 10. May be repeated for credit. D. Gifford-Gonzalez

190X. Special topics in Archaeology-Physical Anthropology. *
Special topics in archaeology-physical anthropology are taught annually on a rotation basis by various faculty members. The precise focus of each year's course varies according to the instructor and is announced by the department. Prerequisite(s): courses 1 and 3. May be repeated for credit. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. The Staff

193. Field Study. F,W,S
Students submit petition to sponsoring agency. The Staff

194. Senior Seminar.

194A. Anthropology of Dead Persons. *
Explores the cultural meanings of dead bodies and dead persons, including memorialization; the body in the United States legal system; cadavers in education and research; dead persons in mass disasters and human-rights cases; and repatriation of the dead. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements, and courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment by permission of instructor. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements, and courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 16. (General Education Code(s): W.) A. Galloway

194B. Chimpanzees: Biology, Behavior, and Evolution. *
Explores studies on wild and captive chimpanzees with reference to other apes and humans. Topics include sociality, tool using, locomotion, traditions, and life history; social and physical dimensions of growth and development; language studies, genetics, and applications to human evolution. Prerequisite(s): courses 1, 2, and 3; satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

194C. Feminist Anthropology. *
Considers feminist perspectives on the human past, archaeologists' perspectives on feminist theory, and the impact of gender, feminist, and critical social theory on archaeology as a profession. Students cannot receive credit for this course and course 279. (Formerly Feminism and Gender in Archaeology.) Prerequisite(s): courses 1, 2, and 3, and satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to seniors. Enrollment limited to 20. (General Education Code(s): W.) C. Blackmore

194D. Tribes/Castes/Women. *
Examines historical constructions and contemporary deployments of the categories that have structured popular and anthropological understandings of social life in South Asia, particularly those of "tribe," caste," and "women." Students gain familiarity with the mobilization of these categories in contemporary political movements across India. Prerequisite(s): courses 1, 2, and 3. Satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Moodie

194E. Belief. *
Focuses on problems and opportunities raised by the concept of belief. Students work to develop an anthropological understanding of belief as practiced, then put it to use in analyzing episodes from the NPR series "This I Believe." Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) D. Rutherford

194F. Memory. *
Intensive and fast-paced seminar focusing on theoretical and ethnographic studies of memory as a means for dealing with the past. Examines how ordinary people and societies have coped with the past through acts of selective remembering and forgetting. Prerequisite(s): courses 1, 2, and 3; satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Caldwell

194G. Politics and Secularism. *
Examines secularism as political doctrine and practice of government. Topics include: transformation of religion by secularization; forms of inclusion/exclusion enacted by secularism; relationship between secularism and colonial rule. Case studies drawn from Europe, South Asia, United States, and the Middle East. Prerequisite(s): courses 1, 2, and 3, and satisfaction of the Entry Level Writing and Composition requirements; enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Fernando

194H. Paleoanthropology. *
Detailed overview of the evidence for the origin and evolution of humans with emphasis on reconstructing the paleobiology of extinct hominids. Discussion of individual groups of ancient hominids from the Miocene apes to anatomically modern humans. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

194I. Consumption and Consumerism. S
Investigates cultural analysis of consumer society, commodities, and consumer practices. Students develop their own research projects. Themes include: critiques of consumer society; symbolic analysis of goods, consumption as resistance, anthropologies of marketing, culture jamming; consumption and (post) colonialism. Prerequisite(s): courses 1, 2, and 3; satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Anderson

194K. Reading Ethnographies. *
Explores issues in the representation of culture through reading and discussing ethnographies. Recent experimental ethnographies open topics including the relation between fieldwork and writing, textual strategies, and the politics of ethnographic writing and research. Prerequisite(s): courses 1, 2, and 3; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) A. Tsing

194L. Archaeology of the African Diaspora. *
Senior seminar on African diaspora archaeology. Draws on archaeological, historical, and anthropological perspectives to examine the cultural, social, economic, and political lives of Africans and their descendants in the New World and West Africa from the 15th through 19th centuries. Prerequisite(s): courses 1, 2, 3 and an upper division course in archaeology; satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) J. Monroe

194M. Medical Anthropology. *
Focuses on critical issues in the social sciences of health and healing. Designed for students pursuing graduate work in medical anthropology and/or public health. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, 3, and 134. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) N. Chen

194N. Comparison of Cultures. W
Seminar for upper-division students interested in theories and methodology of social and cultural anthropology. Devoted to critical discussion of different methods of comparison practiced in anthropology. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) T. Pandey

194O. Masculinities. F
Considers the social construction of men and masculinities in a variety of ethnohistorical contexts as well as the unique contribution enabled by anthropological methods, particularly ethnographic fieldwork, to the study of gender and power. Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Moodie

194P. Space, Place, and Culture. *
Examines ways anthropologists have studied relationship between space, place, and culture. Covers early formulations acknowledging people in different cultural contexts ascribe particular meanings to places and to the concept of space and then traces the ways these questions have come to the fore in more recent scholarship. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements.

Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Wolf-Meyer

194Q. Race, Ethnicity, Nation. *
Provides students with theoretical and methodological approaches to studying the relationships between race, ethnicity, and nation, with a comparative focus on the United States, Latin America, and Europe. Students use ethnographic methods and/or discourse analysis to develop individual research projects. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and courses 1 and 2 and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Anderson

194R. Religion, Gender, Sexuality. *
Examines religion in relation to gender and sexuality. Examines how gender, sexuality, and religion intersect in notions of civilization, progress, and modernity in the contemporary and colonial periods. Particular attention paid to Islam, Christianity, and Hinduism. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and courses 1 and 2 and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Fernando

194S. Hearing Culture: The Anthropology of Sound. *
Explores relationships between culture and acoustic worlds--environmental, verbal, and musical--within which we live. How sound is shaped by human belief and practice and the role sound plays in cultural and social life, both past and present. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) D. Brenneis

194T. Poverty and Inequality. *
Through ethnographies about homelessness, food deprivation, and unemployment, examines the institutions through which poverty is recognized, the systems of morality shaping debates about need and appropriate behavior, and the effects of community responses to poverty. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Caldwell

194U. Environmental Anthropology: Nature, Culture, Politics. *
Presents key readings in environmental anthropology focusing on environmental conflicts. Students guided in developing research paper on a society environment topic of their choice. Class is writing intensive with in-class discussion and final presentations. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) A. Mathews

194V. Picturing Cultures. S
A historical, analytical, and practical exploration of the uses of still and moving pictures in ethnographic representations, research, and production. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3; and course 80J, 120, 132, or 154. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) S. Errington

194W. The Anthropology of Social Movements. *
Focuses on the anthropology of social movements, especially the impact that global capital provokes on peripheral Latin American societies and the ways these respond through the organizing of social movements validating alternative worldviews that coalesce around issues pertaining to indigeneity, the environment, gender, and concepts of human dignity. Prerequisite(s): courses 1, 2, and 3, and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) G. Delgado-P

194X. Women in Politics: A Third World Perspective. W
Focuses cross-culturally on the status of women in the Third World and their formal

and informal participation in politics. Also discussed are organized efforts, through participation in both national and autonomous movements, for women's rights. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) A. Pandey

194Y. Archaeologies of Space and Landscape. *
Examines contemporary archaeological perspectives on space and landscape. Focuses on how archaeology can contribute to an appreciation of the economic, cultural, and political factors that shape human perception, use, and construction of the physical world. Prerequisite(s): courses 1, 2, 3, and an upper-division archaeology course; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) J. Monroe

194Z. Emerging Worlds. S
Addresses encounters and contact zones between cultures that give rise to "emerging worlds." "Emerging worlds" refers to the cultural heterogeneity and diversity created within world-making networks, geographies, innovations, and meanings, moving us beyond ideas about vanishing, autonomous cultures. Prerequisite(s): courses 1, 2, and 3, and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) S. Harding

195A. Senior Thesis Seminar. F
Covers the basics like the planning and organization of research; writing research proposals; the publication and presentation of scientific research results; the recapitulation of laboratory methods; and intensification of specific recent research discussions in anthropology. Prerequisite(s): courses 1 and 107, and either course 101, or course 104, or course 105. Enrollment is restricted to senior anthropology majors and by permission of the instructor. Enrollment limited to 10. L. Fehren-Schmitz

195B. Senior Thesis Research (3 credits). W
Students conduct the research projects they proposed in course 195A. Students have weekly group meetings with the research supervisor. Prerequisite(s): course 195A. Enrollment restricted to senior anthropology majors. Enrollment limited to 10. L. Fehren-Schmitz

195C. Senior Thesis Capstone (3 credits). S
Students finalize their research projects and write their thesis in the form of a research paper that is in publishable form so it can be submitted to a relevant journal or conference. Prerequisite(s): course 195B. Enrollment restricted to senior anthropology majors. Enrollment limited to 10. L. Fehren-Schmitz

196C. Traveling Cultures. *
Considers why traveling cultures have posed a threat, often met with violence, to regimes of rule, particularly modern nation-states. Also explores the unique problems that conducting research with mobile communities poses for the ethnographer. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Moodie

196D. Food and Medicine. F
Examines the intersections of food, medicine, and culture with special focus on nutrition, cultural knowledge, industrial foodways, genetically modified organisms (GMOs), ethnopharmacology, food safety, and biosecurity. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and courses 1, 2, and 3. Enrollment limited to 20. (General Education Code(s): W.) N. Chen

196E. Pastoralists Past and Present. *
Senior seminar treating the history and modern situation of the world's herding peoples. Readings draw on ethnographic, historical, archaeological, and ecological literatures. Students are coached in writing a 25-page research paper on a topic related to this theme. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment

limited to 20. (General Education Code(s): W.) D. Gifford-Gonzalez

196F. The Anthropology of Things: Gift, Sign, Commodity, Tool. *
Examines some approaches used by anthropologists and other thinkers to bring things into focus: as gifts, signs, commodities, and tools. Explores whether, by taking things seriously, anthropologists might learn to be empirical in new ways. Students cannot receive credit for this course and course 225. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) D. Rutherford

196G. Advanced Topics in Folkloristics. *
Examines selected topics and issues in the field of folklore: specific topics vary each quarter. For students with a demonstrated interest in folklore and/or popular culture. Prerequisite(s): courses 1, 2, and 3; and satisfaction of the Entry Level Writing and Composition requirements; and a course in folklore and/or popular culture is strongly recommended. Enrollment limited to 20. (General Education Code(s): W.) O. Najera Ramirez

196H. Global History and the Longue Duree. *
Emerging anthropological approaches to global history, with an eye to historical frameworks of 500 years or more. Course requires engagement with advanced theoretical concepts and challenging historical texts. Intensive seminar format. Students cannot receive credit for this course and course 269. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and courses 1, 2, and 3. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. (General Education Code(s): W.) M. Moodie

196I. Hard Problems. S
Explores interrelated, long-standing, difficult problems in human theory. Considers why these problems are so forbidding; what makes them significant; why they are "hard"; and whether hard problems come in different varieties or strengths. Prerequisite(s): courses 1, 2, and 3; and satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. (General Education Code(s): W.) D. Linger

196J. Imagining America. S
Explores sites of heritage and the politics of cultural memory in the American context. Focuses on public representation and interpretation at places where multiple views of history come into conflict. Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. J. Daehnke

196K. Settler Colonialism. W
Provides seniors in anthropology a capstone experience. Settler colonialism is an all-encompassing, land-centered project that revolves around the elimination of the Native. This course revolves around a series of ethnographies and histories about settler colonialism. Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior anthropology majors. Enrollment limited to 16. R. Ramirez

196L. Archaeology of the American Southwest. *
Outlines the development of native cultures in the American Southwest from Paleo-Indian times (ca. 11,500 B.C.) through early European Contact (ca. A.D. 1600). Prerequisite(s): courses 1, 2, and 3 and satisfaction of the Entry Level Writing and Composition requirements. Course 178 strongly recommended. Enrollment restricted to senior anthropology majors. Enrollment limited to 20. J. Habicht Mauche

196M. Modernity and its Others. F
Examines how Western modernity has interpreted various forms of radical difference, beginning with the 15th-century conquest of the New World. Considers historical and contemporary examples of how Western thinkers have explained "irrational" beliefs and practices (e.g., witchcraft, human sacrifice, devil-worship). Prerequisite(s): courses 1, 2, and 3; and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to seniors. Enrollment limited to 20. M. Fernando

197. Laboratory Tutorial. F,W,S

Independent laboratory research on selected topics in archeology and physical anthropology. Interview with appropriate instructor required. May be repeated for credit. The Staff

197F. Laboratory Tutorial (2 credits). F,W,S
Independent laboratory research on selected topics in archaeology and physical anthropology. Interview with appropriate instructor required. Enrollment restricted to anthropology majors. May be repeated for credit. D. Gifford-Gonzalez, J. Habicht Mauche, C. Blackmore, J. Monroe, A. Galloway

198. Independent Field Study. F,W,S
Off-campus field study. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198G. Independent Field Study (3 credits). F,W,S
Off-campus field study. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Theoretical Foundations of Physical Anthropological Research. *
Provides historical and theoretical foundation of physical anthropology. Grounds students in the changing frameworks and perspectives during the last 150 years regarding questions in human biology, evolution, nature, and culture, by examining texts and scientific journals. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

200A. Core Graduate Course (10 credits). F
Introduces history, ethnography, and theory of cultural anthropology with emphasis on awareness of construction of anthropological canon and areas of conflict within it, leading up to contemporary debates on a variety of issues. Two-term course: students must enroll in both quarters. Enrollment restricted to anthropology graduate students. Enrollment limited to 12. A. Mathews

200B. Core Graduate Course. W
Introduces history, ethnography, and theory of cultural anthropology with emphasis on awareness of construction of anthropological canon and areas of conflict within it, leading up to contemporary debates on a variety of issues. Multiple-term course; students must enroll in both quarters to receive academic credit. Enrollment restricted to anthropology graduate students. Enrollment limited to 12. M. Fernando

201. Human Evolution. *
Provides an overview of the first five million years of human evolution and a framework for studying evolution and reconstructing the human past. Emphasizes that all lines of evidence must be included: hominid fossils, archaeology, paleoecology, and molecular data. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

202A. Skeletal Biology. *
Focuses on human skeletal biology, the identification of elements, physiology of hard tissue formation, growth, and maintenance. Students are required to show competence in skeletal identification to pass this class. Prerequisite(s): course 102A or permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 5. The Staff

206. Primate Behavior. *
An overview of primate evolution and review of the major groups of primates in terms of their ecological, locomotor, dietary, and social adaptations. Theoretical frameworks, such as behavioral ecology, sexual selection, and life history, are evaluated from long-term studies of primate behavior. Students cannot receive credit for this course and course 106. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

208A. Ethnographic Practice. S
Introduces graduate students to the practice of fieldwork. Students design and carry out a quarter-long research project exploring a range of methods and producing an analytical case study. Readings and discussion emphasize both methodological critique and

successful implementation. Concurrent enrollment in course 208L is required; enrollment restricted to anthropology graduate students. Enrollment limited to 15. M. Moodie

208L. Video Laboratory (2 credits). *
Provides students with hands-on training with a variety of audiovisual equipment. Through lectures, demonstrations, hands-on field exercises, and review of students' media exercises, students learn the fundamentals of photography, video production, and audio recording in the field. Concurrent enrollment in course 208A required; enrollment restricted to anthropology graduate students. Enrollment limited to 15. N. Chen

210R. Religion in American Politics and Culture. *
Introduces dominant discourses about major American religions and their role in public life with particular attention to intersecting differences, such as race, sex/gender, and disability and to shifting religious/political boundaries. Visual and textual media, political commentary, and popular ethnographies are analyzed. Enrollment restricted to graduate students. Enrollment limited to 15. D. Rutherford, S. Harding

211. Human Ecology. *
Reviews environmental, physiological, behavioral, and cultural ways that humans interact with their physical surroundings. Effects of human culture on the environment, and of the environment on the shape of human culture will be emphasized. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

212. The Human Life Cycle. *
Examines the human life cycle using an evolutionary framework. Examines key aspects of the human life stages using findings and concepts from developmental biology, physiology, nutrition, evolutionary ecology, and life history theory. These stages include: gestation, infancy, childhood, juvenile and adolescent periods, and senescence. Each stage of the life cycle is compared and contrasted with the developmental life of nonhuman primates and mammals. Other related topics include developmental plasticity and epigenetics. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

219. Religions, States, Secularities. *
Examines theories and case studies at the intersection of religion, states, and secularity. Topics include: secularism as a political doctrine; state and social regulation of religion and religious normativity; secular cultural practices; and lines of secular/religious entanglement and conflict. Enrollment restricted to graduate students. Enrollment limited to 15. S. Harding

220. Cartographies of Culture. *
Examines, theoretically and ethnographically, how societies and their cultures are created and reified through spatializing practices, including border-making, mapping, landscape aesthetics, globalization, time/history/memory, movement, and other locating activities. Enrollment restricted to graduate students. Enrollment limited to 15. M. Caldwell

225. The Anthropology of Things: Sign, Gift, Commodity, Tool. *
Examines some approaches used by anthropologists and other thinkers to bring things into focus: as gifts, signs, commodities, and tools. Explores whether, by taking things seriously, anthropologists might learn to be empirical in new ways. Students cannot receive credit for this course and course 196F. Enrollment restricted to graduate students. Enrollment limited to 15. J. Habicht Mauche

228. Grant Writing. F
Devoted entirely to writing grant proposals. Students either work on their graduate education fellowships or their doctoral dissertation grants or both. Reading materials consist of granting agency documents plus examples of successful applications. Enrollment restricted to anthropology graduate students. Enrollment limited to 15. May be repeated for credit. C. Shaw

229. Constructing Regions. W
Discusses centrality of the idea of "regions" in studies of culture, the history of "locating" social theory, and debates about area studies. Students develop area of transregional bibliographies. Primarily for second- or third-year anthropology graduate students reading "area" literatures. Enrollment restricted to graduate students. Enrollment limited to 15. M. Anderson

230. Photography and Image Culture. S
Visuality as epistemology, image-consumption, and the political and representational possibilities stemming from digitization and the World Wide Web are increasingly important issues in the humane sciences. Offers historical and critical background and the possibility of hands-on practice using visual material in current research. (Formerly Image Culture.) Enrollment restricted to graduate students. Enrollment limited to 15. S. Errington

231. Intimacy and Affective Labor. *
Examines recent work on the role of intimacy and affective labor in value production, political mobilization, and transnational capital linkages. Special attention given to how these terms are invoked to answer methodological and narrative concerns in ethnographic writing. Enrollment restricted to graduate students. Enrollment limited to 15. M. Moodie

232. Bodies, Knowledge, Practice. *
Contemporary social theory and science both focus on bodies as critical sites of inquiry and the production of knowledge. Explores these theoretical intersections and constructions of the body with new ethnographic works. Questions how race, gender, and culture are inscribed through bodily practice, imagery, and phenomenology. Enrollment restricted to graduate students. Enrollment limited to 15. N. Chen

234. Feminist Anthropology. *
Examines how feminist anthropology creates its objects of knowledge by focusing on questions of method and representation. The class reads across these traditional objects--women and gender, for example--to highlight the epistemological and political stakes of feminist work in anthropology. Enrollment restricted to graduate students. Enrollment limited to 15. M. Moodie

235. Language and Culture. W
An examination of language system and language use in relationship to cultural contexts of communication in Western and non-Western societies. Also examines the complex role which linguistic inquiry and models have played in broader theories of culture. Enrollment restricted to graduate students. Enrollment limited to 15. D. Brenneis

236. On Insults. *
What is the role of insult in social and legal life (from play to jokes to ritual to war and from blasphemy to defamation to hate speech)? Emphasizes philosophical, anthropological, psychoanalytic, and legal approaches to the issues. Enrollment restricted to graduate students and by permission of instructor. (Formerly Philosophy 290Y.) (Also offered as History of Consciousness 236. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. J. Neu

238. Advanced Topics in Cultural Anthropology. F
Advanced topics in cultural anthropology. Current topics in anthropological theory and ethnography taught on a rotating basis by various faculty members. Precise focus of each seminar varies and will be announced by the department. Enrollment restricted to graduate students. Enrollment limited to 15. V. Stanzel

241. Social Justice. *
Explores theoretical and methodological issues in the field of social justice with an emphasis on ethnographic analysis. Topics include: rights, obligations, justice, equality, compensation, and ethics. Enrollment restricted to graduate students. Enrollment limited to 15. M. Caldwell

243. Cultures of Capitalism. W
Introduction to selected themes in political economy, stressing the work of Marx. Topics include the development of capitalism, colonialism, dependency, world systems, state formation, class consciousness, commodity fetishism, the nature of late capitalism, post-modernism, and the aesthetics of mass culture. Through political economy's interlocutors, raises questions about gender, race and ethnicity, and post-structuralist critiques. Enrollment restricted to graduate students. Enrollment limited to 15. L. Rofel

246. Race in Theory and Ethnography. *
Explores theoretical and methodological approaches to the cross-cultural study of "race," with an emphasis on historical and ethnographic analysis. Main approaches considered include Foucauldian, Gramscian, diaspora theory and the everyday poetics and politics of

race. Enrollment restricted to graduate students. Enrollment limited to 15. M. Anderson

247. Critical Perspectives on Nutrition. *
Examines emerging critiques on the science, communication, and practice of nutrition using multidisciplinary approaches. Special attention is given to the effects of modern nutrition. Enrollment restricted to graduate students. Enrollment limited to 15. J. Guthman

248. Shadowy Dealings: Anthropology of Finance, Money, and Law. *
Moves from a brief introduction to classic economic anthropology to recent work on histories of money and capitalism and cultures of financial markets, of accounting, and of legal and illegal trading practices. Enrollment restricted to graduate students. Enrollment limited to 15. A. Mathews

249. Ecological Discourses. *
Explores narratives of nature and their practical consequences in contests over "wild places" and their resources. Readings focus on the histories of forests and on analytic frameworks—ecology, social history, interpretation, cultural studies—with which to investigate competing constructions of the environment. Enrollment restricted to graduate students. Enrollment limited to 15. A. Tsing

252. Survey of Cultural Anthropological Theory. W
Major figures, ideas, and writing in 19th- and 20th-century cultural anthropology surveyed. Students cannot receive credit for this course and course 152. Enrollment restricted to graduate students. Enrollment limited to 15. M. Wolf-Meyer

253. Advanced Cultural Theory. F
Examines cultural anthropology's interdisciplinary practices of knowledge formation at an advanced level. Drawing on various types of theoretical texts, the course elaborates on the relationship between culture and power, taking up different themes each time it is taught. Enrollment restricted to graduate students. Enrollment limited to 15. L. Rofel

254. Medicine and Culture. *
Surveys medicine cross-culturally, with particular focus on power, tradition, and theories of embodiment. Students cannot receive credit for this course and course 134. Enrollment restricted to graduate students. Enrollment limited to 15. M. Wolf-Meyer

258. Experimental Cultures. *
Addresses the use of experiments in anthropological research, theory, and writing. Enrollment restricted to graduate students. Enrollment limited to 15. M. Wolf-Meyer

259. Regulating Religion/Sex. *
First examines the regulation of religion and the normalization of sex/sexuality as parallel modalities of secular rule in the production of modern citizens and subjects. Ultimately inquires into the relationship between "proper" religion and "proper" sexuality in secular state formations. Enrollment restricted to graduate students. Enrollment limited to 15. M. Fernando

260. Anthropology of Freedom. *
Examines conceptualizations and practices of freedom across geographical space and historical time. Readings drawn from Greek philosophy, Islamic, Christian, and Buddhist religious traditions. Enlightenment philosophy, liberal and neo-thought, and contemporary ethnographies. Enrollment restricted to graduate students. M. Fernando

261. Replication, Mimesis, and Fakery. *
Replicas, copies, and fakes anchored conceptually by the authentic/original enable the marketing of cultural commodities like arts and crafts, especially since the advent of photography. Course explores these commercial and signifying processes in the global art and culture market. Enrollment restricted to graduate students. Enrollment limited to 15. S. Errington

262. Documenting Cultures. *
Follows the history of film and ethnography, media and methodology into the birth of cinema and anthropology in the early 20th century. Students learn theories of representation and media, conduct ethnographic research, and prepare a short film. Enrollment restricted to graduate students. Enrollment limited to 15. M. Wolf-Meyer

263. Kinship. S

Provides a critical survey of debates, old and new, in the study of kinship. Readings range from classical treatments to recent reformulations that use kinship as a lens for exploring intimacy, memory, futurity, embodiment, commodification, and power. Students cannot receive credit for this course and course 163. Enrollment restricted to graduate students. Enrollment limited to 15. D. Rutherford

267A. Science and Justice: Experiments in Collaboration. *
Considers the practical and epistemological necessity of collaborative research in the development of new sciences and technologies that are attentive to questions of ethics and justice. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as, Biomolecular Engineering 268A, Feminist Studies 268A, and Sociology 268A. Students cannot receive credit for more than one course.) Enrollment limited to 15. J. Reardon

267B. Science and Justice Research Seminar.
Provides in-depth instruction in conducting collaborative interdisciplinary research. Students produce a final research project that explores how this training might generate research that is more responsive to the links between questions of knowledge and questions of justice. Prerequisite(s): Sociology 268A, Biomolecular Engineering 268A, Feminist Studies 268A, or Anthropology 267A. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Biomolecular Engineering 268B, Feminist Studies 268B, and Sociology 268B. Students cannot receive credit for more than one course.) Enrollment limited to 15. The Staff

268A. Rethinking Capitalism. W
Readings include works by speakers at UCSC's "Rethinking Capitalism Initiative." Topics are: (1) financialization versus commodification (how options-theory has changed capitalism); (2) material markets (how this theory performs); and (3) valuation and contingency (how economies make worlds). (Also offered as History of Consciousness 268A. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. R. Meister

268B. Rethinking Capitalism. S
Course 268A addressed changes in the theory and practice of capitalism as derivatives markets have become increasingly central to it. This course, which can be regarded as either background or sequel, concerns questions that surround recent debates about derivatives from the standpoint of broader developments in law, culture, politics, ethics, ontology, and theology. What would it mean to see questions of contingency and value as a challenge to late-modern understandings of these modes of thought? (Also offered as History of Consciousness 268B. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. R. Meister

269. Global History and the Longue Duree. *
Emerging anthropological approaches to global history. Considers both 500-year and much longer historical frameworks. For the former, the evidence of documents, both European and non-European, is particularly important. For the latter, archaeological and evolutionary approaches are essential. Students cannot receive credit for this course and course 196H. Enrollment restricted to graduate students. Enrollment limited to 15. A. Tsing

270. History of Archaeology. F
Historical review of prehistoric archaeology from antiquarianism to the present. Emphasis on the development of archaeological theory, its relation to evolutionary and anthropological theory, and themes ongoing over time. Students cannot receive credit for this course and course 170. Enrollment restricted to graduate students. Enrollment limited to 15. J. Habicht Mauche

272. Advanced Archaeological Research. S
Introduces graduate students to archaeological research design. Topics include: middle range theory; multistage research strategies; sampling strategies and appropriate field methodology; and issues specific to particular scales of archaeological analysis (artifact, household, site, region). Enrollment restricted to graduate students. Enrollment limited to 15. C. Blackmore

273. Origins of Farming. F
Survey of the ecological and archaeological evidence for the origins of plant and animal

domestication in Africa, Eurasia, and the Americas. Discussion will center on the preconditions of this drastic alteration in human ecology and its consequences in transforming human societies. Students cannot receive credit for this course and course 173. Enrollment restricted to graduate students. Enrollment limited to 15. D. Gifford-Gonzalez

274. Origins of Complex Societies. *
The origins of complex society: the transition from egalitarian foraging societies to the hierarchical, economically specialized societies often referred to as "states" or "civilizations." Focuses on both Old World and New World cultures. Students may not receive credit for this course and course 174. Enrollment restricted to graduate students. Enrollment limited to 15. C. Blackmore

275A. Seminar on Early African Archaeology. *
Tutorial on archaeology of Africa, from 2.5 million years ago to emergence of African pastoralism and farming. Weekly examination of disciplinary models and assumptions in historic context, emphasizing overarching themes in prehistoric archaeology. Students cannot receive credit for this course and course 175A. (Formerly Tutorial on African Archaeology.) Enrollment restricted to graduate students or by consent of instructor. Enrollment limited to 15. D. Gifford-Gonzalez

275B. Tutorial in Archaeology of African Complex Societies. *
Graduate tutorial on the archaeology of precolonial African kingdoms and states. Particular attention paid toward the origins of social inequality and the evolution of centralized politics. Students cannot receive credit for this course and course 175B. Prerequisite(s): Enrollment restricted to graduate students. Enrollment limited to 15. J. Monroe

276A. Advanced Topics in North American Archaeology. *
In-depth examination of development of Native cultures in North America from end of last ice age to time of European contact. Focuses on specific regional trajectories and problems of social change. Enrollment restricted to graduate students. Enrollment limited to 15. J. Habicht Mauche

276B. Mesoamerican Archaeology. W
Examines the pre-Columbian cultures of Mesoamerica and reviews the archaeological and ethnohistorical evidence related to the origins and development of cultures including the Olmec, Maya, Zapotec, Mixtec, and Aztec. Students cannot receive credit for this course and course 176B. Enrollment restricted to graduate students. Enrollment limited to 15. C. Blackmore

278. Tutorial on Historical Archaeology. W
Tutorial on archaeology of European colonialism and the early-modern world. Focuses on the nature of European colonial expanison in New and Old Worlds; culture contact and change; and power and resistance in colonial societies. Students cannot receive credit for this course and course 178. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

279. Feminism and Gender in Archaeology. *
Considers feminist perspectives on the human past; archaeologists' perspectives on feminist theory; and the impact of gender, feminist, and critical social theory on the archaeological profession. Students cannot receive credit for this course and course 194C. Enrollment restricted to graduate students. Enrollment limited to 15. C. Blackmore

280. Advanced Ceramic Analysis. *
Advanced graduate seminar that focuses on techniques and theories used to bridge the gap between the recovery of ceramic remains from archaeological contexts and their interpretation with respect to various anthropological issues and problems. Students cannot receive credit for this course and course 180. Enrollment restricted to graduate students. Concurrent enrollment in Anthropology 280L required. Enrollment limited to 5. J. Habicht Mauche

280L. Advanced Ceramic Analysis Laboratory (2 credits). *
Emphasizes advanced techniques of ceramic analysis, including materials selection and processing, hand-building, and open-pit firings. Standard techniques for describing and measuring formal and technological attributes of pottery also presented. Students cannot

receive credit for this course and course 180L. Enrollment restricted to graduate students. Concurrent enrollment in Anthropology 280 required. Enrollment limited to 5. J. Habicht Mauche

282. Household Archaeology. *
Explores the theoretical and methodological challenges faced by archaeologists excavating ancient households. Students examine the social, economic, and political characteristics of households and investigate how they intersect and support the social and physical aspects of communities. Enrollment restricted to graduate students. Enrollment limited to 15. C. Blackmore

284. Tutorial in Zooarchaeology. W
Lectures and seminar on archaeological faunal analysis. Topics include: mammalian evolution and osteology; vertebrate taphonomy; reconstruction of human diet from faunal remains; foraging strategy theory; data collection and management; and methods of quantitative analysis. Students cannot receive credit for this course and course 184. (Formerly Zooarchaeological Research Design.) Enrollment restricted to graduate students. D. Gifford-Gonzalez

285. Osteology of Mammals, Birds, and Fish. *
Practicum in vertebrate osteology, covering all larger mammal species of central California, plus selected bird and fish species, and topics in evolution and ecology of selected taxa. Students cannot receive credit for this course and course 185. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

287. Advanced Topics in Archaeology. *
A graduate seminar on advanced theoretical or methodological topics pertinent to advanced graduate student and faculty interests. Enrollment restricted to graduate students or by consent of instructor. Enrollment limited to 12. J. Monroe

292. Graduate Colloquium (2 credits). F,W,S
Designed to offer an institutionalized mechanism for the presentation of research papers and teaching efforts by faculty and advanced graduate students. Enrollment restricted to graduate students. May be repeated for credit. The Staff

294N. Comparison of Cultures. W
Seminar for students interested in theories and methodology of social and cultural anthropology devoted to critical discussion of different methods of comparison practiced in anthropology. Enrollment restricted to graduate students. Enrollment limited to 15. T. Pandey

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. The Staff

298. Advanced Laboratory Apprenticeship. F,W,S
Supervised tutorial in specialized analytic methods in archaeology or physical anthropology. Students collaborate on laboratory research with a departmental mentor or, with advisor's consent, with researchers on or off campus, preparing a manuscript for publication or an extensive literature review. Permission of instructor required. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Prerequisite(s): petition on file with sponsoring agency. The Staff

* Not offered in 2014-15

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2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

3. Precalculus for Science and Engineering.
Includes inequalities, linear and quadratic equations, functions (linear, quadratic, rational, power, exponential, logarithms, trigonometric), and analytic geometry, with application to science and engineering. Students cannot receive credit for both this course and Mathematics 3. Mathematics 3 can substitute for course 3. Prerequisite(s): score of 200 or higher on the mathematics placement examination (MPE), or Mathematics 2. (General Education Code(s): MF, Q.) The Staff, P. Garaud, B. Mendes

5. Statistics. F,W,S
Introduction to statistical methods/reasoning, including descriptive methods, data-gathering (experimental design and sample surveys), probability, interval estimation, significance tests, one- and two-sample problems, categorical data analysis, correlation and regression. Emphasis on applications to the natural and social sciences. Students cannot receive credit for this course if they have already received credit for course 7. (General Education Code(s): SR, IN, Q.) The Staff, H. Lee, A. Kottas, R. Morris, B. Mendes, J. Katznelson, A. Rodriguez, B. Sansó

6. Precalculus for Statistics. W
Reviews and introduces mathematical methods useful in the elementary study of statistics, including logic, real numbers, inequalities, linear and quadratic equations, functions, graphs, exponential and logarithmic functions, and summation notation. (Formerly course 2, Pre-Statistics.) Prerequisite(s): Mathematics 2 or mathematics placement examination (MPE) score of 200 or higher or higher. (General Education Code(s): MF, Q.) B. Mendes, The Staff

7. Statistical Methods for the Biological, Environmental, and Health Sciences. F,W,S
Case-study-based introduction to statistical methods as practiced in the biological, environmental, and health sciences. Descriptive methods, experimental design, probability, interval estimation, hypothesis testing, one- and two-sample problems, power and sample size calculations, simple correlation and simple linear regression, one-way analysis of variance, categorical data analysis. (Formerly Statistical Methods for the Biological and Environmental Sciences.) Prerequisite(s): score of 300 or higher on the mathematics placement examination (MPE), or course 2 or 3 or 6 or 11A or 15A or Mathematics 3 or 11A or 19A. Concurrent enrollment in course 7L is required. (General Education Code(s): SR, IN, Q.) The Staff, H. Lee, A. Rodriguez, J. Lee, D. Draper, R. Prado

7L. Statistical Methods for the Biological, Environmental, and Health Sciences Laboratory (2

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
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- Physical Education
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- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

credits). F,W,S
Computer-based laboratory course in which students gain hands-on experience in analysis of data sets arising from statistical problem-solving in the biological, environmental, and health sciences. Descriptive methods, interval estimation, hypothesis testing, one-and two-sample problems, correlation and regression, one-way analysis of variance, categorical data analysis. (Formerly Statistical Methods for the Biological and Environmental Sciences Laboratory.) Prerequisite(s): score of 300 or higher on the mathematics placement examination (MPE), course 2 or 3 or 6 or 11A or 15A or Mathematics 3 or 11A or 19A. Concurrent enrollment in course 7 is required. H. Lee, R. Prado, J. Lee, A. Rodriguez, D. Draper

10. Mathematical Methods for Engineers I. F,S
Applications-oriented course on complex numbers and linear algebra integrating Matlab as a computational support tool. Introduction to complex algebra. Vectors, bases and transformations, matrix algebra, solutions of linear systems, inverses and determinants, eigenvalues and eigenvectors, and geometric transformations. Students cannot receive credit for this course and for courses 10A or Mathematics 21. Prerequisite(s): score of 400 or higher on the mathematics placement examination (MPE), or course 3, or Mathematics 3. (General Education Code(s): MF, Q.) The Staff, H. Wang, Q. Gong, J. Katznelson, N. Brummell, B. Mendes

10A. Basic Mathematical Methods for Engineers I (3 credits). F,S
Applications-oriented course on complex numbers and linear algebra integrating Matlab as a computational support tool. Introduction to complex algebra. Vectors, bases and transformations, matrix algebra, solutions of linear systems, inverses and determinants. Students cannot receive credit for this course and courses 10 or Mathematics 21. Prerequisite(s): score of 400 or higher on the mathematics placement examination (MPE), or course 3, or Mathematics 3. The Staff, H. Wang, Q. Gong, J. Katznelson, N. Brummell, B. Mendes

10B. Mathematical Methods for Engineers IB (2 credits).
Can only be taken by students who need a transition from course 10A to course 10. Students cannot receive credit for this course and for course 10 or Mathematics 21. Prerequisite(s): course 10A. Enrollment by permission of instructor only. The Staff

11A. Mathematical Methods for Economists I. F,W,S
Introduction to mathematical tools and reasoning, with applications to economics. Topics are drawn from differential calculus in one variable and include limits, continuity, differentiation, elasticity, Taylor polynomials, and optimization. Students cannot receive credit for both this course and Mathematics 11A or 19A or Applied Mathematics and Statistics 15A. (Also offered as Applied Mathematics and Statistics 11A. Students cannot receive credit for both courses.) (Also offered as Economics 11A. Students cannot receive credit for both courses.) Students who have already taken Mathematics 11A or 19A should not take this course. Prerequisite(s): score of 300 or higher on the mathematics placement examination (MPE), Applied Math and Statistics 2, 3, or 6, or Mathematics 3. (General Education Code(s): MF, IN, Q.) J. Katznelson, B. Mendes

11B. Mathematical Methods for Economists II. F,W,S
Mathematical tools and reasoning, with applications to economics. Topics are drawn from multivariable differential calculus and single variable integral calculus, and include partial derivatives, linear and quadratic approximation, optimization with and without constraints, Lagrange multipliers, definite and indefinite integrals, and elementary differential equations. Students cannot receive credit for both this course and Mathematics 11B or 19B or Applied Math and Statistics 15B. (Also offered as Economics 11B. Students cannot receive credit for both courses.) Prerequisite(s): course 11A , Economics 11A, Mathematics 11A, or Mathematics 19A. (General Education Code(s): MF, IN, Q.) J. Katznelson

15A. Case-Study Calculus I.
Case-study-based, first-quarter introduction to single-variable calculus, with computing labs/discussion sections featuring contemporary symbolic, numerical, and graphical computing tools. Case studies drawn from biology, environmental sciences, health sciences, and psychology. Includes functions, mathematical modeling, limits, continuity, tangents, velocity, derivatives, the chain rule, implicit differentiation, higher derivatives, exponential and logarithmic functions and their derivatives, differentiating inverse

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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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functions, the mean value theorem, concavity, inflection points, function optimization, and curve-sketching. Students cannot receive credit for this course and course 11A or Economics 11A or Mathematics 11A or 19A. Prerequisite(s): course 3 or Mathematics 3 or score of 300 or higher on the mathematics placement examination (MPE) or by permission of instructor. (General Education Code(s): MF, IN, Q.) P. Garaud, B. Mendes

15B. Case-Study Calculus II.
Case-study based, second-quarter introduction to single-variable calculus, with computing labs/discussion sections featuring symbolic numerical, and graphical computing tools. Case studies are drawn from biology, environmental science, health science, and psychology. Includes indefinite and definite integrals of functions of a single variable; the fundamental theorem of calculus; integration by parts and other techniques for evaluating integrals; infinite series; Taylor series, polynomial approximations. Students cannot receive credit for this course and course 11B or Economics 11B or Mathematics 11B of 19B. Prerequisite(s): course 15A or 11A or Economics 11A or Mathematics 11A or 19A. (General Education Code(s): MF, IN, Q.) The Staff, P. Garaud, B. Mendes

20. Mathematical Methods for Engineers II. W,S
Applications-oriented class on ordinary differential equations (ODEs) and systems of ODEs using Matlab as a computational support tool. Covers linear ODEs and systems of linear ODEs; nonlinear ODEs using substitution and Laplace transforms; phase-plane analysis; introduction to numerical methods. Students cannot receive credit for this course and for courses 20A or Mathematics 24. Prerequisite(s): Mathematics 19B, and course 10 or 10A or Mathematics 21. (General Education Code(s): MF.) Q. Gong, J. Katznelson

20A. Basic Mathematical Methods for Engineers II (3 credits). W,S
Applications-oriented class on ordinary differential equations (ODEs) and systems of ODEs integrating Matlab as a computational support tool. Covers linear ODEs and systems of linear ODEs; nonlinear ODEs using substitution and Laplace transforms. Students cannot receive credit for this course and for courses 20 or Mathematics 24. Prerequisite(s): Mathematics 19B, and course 10 or 10A or Mathematics 21. Q. Gong, J. Katznelson

20B. Mathematical Methods for Engineers IIB (2 credits).
Can only be taken by students who need a transition from course 20A to course 20. Students cannot receive credit for this course and for course 20 or Mathematics 24. Prerequisite(s): course 20A. Enrollment by permission of instructor only. The Staff

80A. Gambling and Gaming. F,S
Games of chance and strategy motivated early developments in probability, statistics, and decision theory. Course uses popular games to introduce students to these concepts, which underpin recent scientific developments in economics, genetics, ecology, and physics. (General Education Code(s): SR, T7-Natural Sciences or Social Sciences, Q.) H. Lee, A. Rodriguez, B. Mendes, A. Kottas

80B. Data Visualization. W
Introduces the use of complex-data graphical representations to extract information from data. Topics include: summary statistics, boxplots, histograms, dotplots, scatterplots, bubble plots, and map-creation, as well as visualization of trees and hierarchies, networks and graphs, and text. (General Education Code(s): SR.) A. Rodriguez

Upper-Division Courses

100. Mathematical Methods for Engineers III.
Applications-oriented course on complex analysis and partial differential equations using Maple as symbolic math software support. In addition, introduces Fourier analysis, special functions, and asymptotic methods. Students cannot receive credit for this course and Physics 116B or Physics 116C. Prerequisite(s): course 20, or by permission of instructor. Enrollment limited to 25. The Staff

107. Introduction to Fluid Dynamics. F
Covers fundamental topics in fluid dynamics: Euler and Lagrange descriptions of continuum dynamics; conservation laws for inviscid and viscous flows; potential flows; exact solutions of the Navier-Stokes equation; boundary layer theory; gravity waves. Students cannot receive credit for this course and Applied Mathematics and Statistics 217. (Also offered as Physics 107. Students cannot receive credit for both courses.) Prerequisite(s): Mathematics

107 or Physics 116C or Earth and Planetary Sciences 111. N. Brummell, The Staff

114. Introduction to Dynamical Systems. W
Introduces continuous and discrete dynamical systems. Topics include: fixed points; stability; limit cycles; bifurcations; transition to and characterization of chaos; fractals. Examples are drawn from sciences and engineering. Students cannot receive credit for this course and course 214. (Formerly course 146.) Prerequisite(s): course 20 or 20A, or Mathematics 21 and Mathematics 24, or Physics 116B. Enrollment restricted to sophomores, juniors and seniors. (General Education Code(s): MF.) P. Garaud, D. Milutinovic, Q. Gong

115. Stochastic Modeling in Biology.
Application of differential equations, probability, and stochastic processes to problems in cell, organismal, and population biology. Topics include life-history theory, behavioral ecology, and population biology. Students may not receive credit for this course and course 215. Prerequisite(s): course 131, a university-level course in biology, and operational knowledge of a programming language; or consent of instructor. The Staff

118. Estimation and Introduction to Control of Stochastic Processes. S
Provides practical knowledge of Kalman filtering and introduces control theory for stochastic processes. Selected topics include: state-space modeling; discrete- and continuous-time Kalman filter; smoothing; and applications in feedback control. Students learn through hands-on experience. Students cannot receive credit for this course and course 218. Enrollment by permission of instructor. (General Education Code(s): SR.) D. Milutinovic

131. Introduction to Probability Theory. F
Introduction to probability theory and its applications. Combinatorial analysis, axioms of probability and independence, random variables (discrete and continuous), joint probability distributions, properties of expectation, Central Limit Theorem, Law of Large Numbers, Markov chains. Students cannot receive credit for this course and course 203 and Computer Engineering 107. Prerequisite(s): course 11B or Economics 11B or Mathematics 11B or 19B. (General Education Code(s): SR, Q.) R. Prado, D. Draper, B. Sansó, A. Kottas

132. Classical and Bayesian Inference. W
Introduction to statistical inference at a calculus-based level: maximum likelihood estimation, sufficient statistics, distributions of estimators, confidence intervals, hypothesis testing, and Bayesian inference. Students cannot receive credit for this course and course 206. (Formerly Statistical Inference.) Prerequisite(s): course 131 or Computer Engineering 107. (General Education Code(s): SR.) A. Kottas, A. Rodriguez, D. Draper, J. Lee

147. Computational Methods and Applications. W
Applications of computational methods to solving mathematical problems using Matlab. Topics include solution of nonlinear equations, linear systems, differential equations, sparse matrix solver, and eigenvalue problems. Prerequisite(s): course 10 or 10A, or Mathematics 21. Knowledge of differential equations is recommended (course 20 or 20A, or Mathematics 24). (General Education Code(s): MF.) H. Wang

156. Linear Regression.
Covers simple linear regression, multiple regression, and analysis of variance models. Students learn to use the software package R to perform the analysis, and to construct a clear technical report on their analysis, readable by either scientists or nontechnical audiences. (Formerly Linear Statistical Models .) Prerequisite(s): course 132 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 30. (General Education Code(s): W.) H. Lee

198. Independent Study or Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Study or Research (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Research and Teaching in AMS (3 credits). F
Basic teaching techniques for teaching assistants, including responsibilities and rights;

resource materials; computer skills; leading discussions or lab sessions; presentation techniques; maintaining class records; and grading. Examines research and professional training, including use of library; technical writing; giving talks in seminars and conferences; and ethical issues in science and engineering. Enrollment restricted to graduate students. A. Kottas, The Staff

202. Linear Models in SAS.
Case study-based course teaches statistical linear modeling using the SAS software package. Teaches generalized linear models; linear regression; analysis of variance/covariance; analysis of data with random effects and repeated measures. Prerequisite(s): course 156 or 256, or permission of instructor. Enrollment restricted to graduate students. B. Mendes

203. Introduction to Probability Theory. F
Introduces probability theory and its applications. Requires a multivariate calculus background, but has no measure theoretic content. Topics include: combinatorial analysis; axioms of probability; random variables (discrete and continuous); joint probability distributions; expectation and higher moments; central limit theorem; law of large numbers; and Markov chains. Students cannot receive credit for this course and course 131 or Computer Engineering 107. Enrollment restricted to graduate students, or by permission of the instructor. R. Prado, B. Sanso, A. Kottas

205B. Intermediate Classical Inference. W
Statistical inference from a frequentist point of view. Properties of random samples; convergence concepts applied to point estimators; principles of statistical inference; obtaining and evaluating point estimators with particular attention to maximum likelihood estimates and their properties; obtaining and evaluating interval estimators; and hypothesis testing methods and their properties. (Formerly Statistical Inference.) Prerequisite(s): course 203 or equivalent. Enrollment restricted to graduate students. D. Draper, B. Sansó

206. Classical and Bayesian Inference. W
Introduction to statistical inference at a calculus-based level: maximum likelihood estimation, sufficient statistics, distribution of estimators, confidence intervals, hypothesis testing, and Bayesian inference. Students cannot receive credit for this course and course 132. (Formerly Bayesian Statistics.) Prerequisite(s): course 203. Enrollment restricted to graduate students; undergraduates may enroll by permission of instructor. H. Lee, D. Draper, A. Kottas

206B. Intermediate Bayesian Inference. W
Bayesian statistical methods for inference and prediction including: estimatation; model selection and prediction; exchangability; prior, likelihood, posterior, and predictive distributions; coherence and calibration; conjugate analysis; Markov Chain Monte Carlo methods for simulation-based computation; hierarchical modeling; Bayesian model diagnostics, model selection, and sensitivity analysis. Prerequisite(s): course 203. Enrollment restricted to graduate students; undergraduates may enroll by permission of instructor. R. Prado, A. Rodriguez, J. Lee

207. Intermediate Bayesian Statistical Modeling. S
Hierarchical modeling, linear models (regression and analysis of variance) from the Bayesian point of view, intermediate Markov chain Monte Carlo methods, generalized linear models, multivariate models, mixture models, hidden Markov models. Prerequisite(s): courses 206 and 206B, and graduate standing or permission of instructor. R. Prado, D. Draper, B. Sanso

211. Foundations of Applied Mathematics. F
Accelerated class reviewing fundamental applied mathematical methods for all sciences. Topics include: multivariate calculus, linear algebra, Fourier series and integral transform methods, complex analysis, and ordinary differential equations. Enrollment restricted to graduate students. N. Brummell, J. Katznelson

212A. Applied Mathematical Methods I. W
Focuses on analytical methods for partial differential equations (PDEs), including: the method of characteristics for first-order PDEs; canonical forms of linear second-order PDEs; separation of variables; Sturm-Liouville theory; Green's functions. Illustrates each method using applications taken from examples in physics. Course 211 or equivalent is

strongly recommended as preparation. Enrollment restricted to graduate students. Undergraduates are encouraged to take this class with permission of instructor. H. Wang, N. Brummell, P. Garaud

212B. Applied Mathematical Methods II. S
Covers perturbation methods: asymptotic series, stationary phase and expansion of integrals, matched asymptotic expansions, multiple scales and the WKB method, Padé approximants and improvements of series. (Formerly course 212.) Prerequisite(s): course 212A. H. Wang, N. Brummell, P. Garaud

213. Numerical Solutions of Differential Equations. S
Teaches basic numerical methods for numerical linear algebra and, thus, the solution of ordinary differential equations (ODEs) and partial differential equations (PDEs). Covers LU, Cholesky, and QR decompositions; eigenvalue search methods (QR algorithm); singular value decomposition; conjugate gradient method; Runge-Kutta methods; error estimation and error control; finite differences for PDEs; stability, consistency, and convergence. Basic knowledge of computer programming is needed. Enrollment restricted to graduate students or permission of instructor. H. Wang, Q. Gong, N. Brummell, P. Garaud

214. Applied Dynamical Systems. W
Introduces continuous and discrete dynamical systems. Topics include: fixed points; stability; limit cycles; bifurcations; transition to and characterization of chaos; and fractals. Examples drawn from sciences and engineering; founding papers of the subject are studied. Students cannot receive credit for this course and course 114. Enrollment restricted to graduate students. Enrollment of undergraduates by permission of instructor. Enrollment limited to 15. P. Garaud, D. Milutinovic, Q. Gong

215. Stochastic Modeling in Biology.
Application of differential equations and probability and stochastic processes to problems in cell, organismal, and population biology. Topics include: life-history theory, behavioral ecology, and population biology. Students may not receive credit for this course and course 115. Enrollment restricted to graduate students or permission of instructor. The Staff

216. Stochastic Differential Equations. W
Introduction to stochastic differential equations and diffusion processes with applications to biology, biomolecular engineering, and chemical kinetics. Topics include Brownian motion and white noise, gambler's ruin, backward and forward equations, and the theory of boundary conditions. Enrollment restricted to graduate students or consent of instructor. H. Wang

217. Introduction to Fluid Dynamics. F
Covers fundamental topics in fluid dynamics at the graduate level: Euler and Lagrange descriptions of continuum dynamics; conservation laws for inviscid and viscous flows; potential flows; exact solutions of the Navier-Stokes equation; boundary layer theory; gravity waves. Students cannot receive credit for this course and course 107. Enrollment restricted to graduate students. N. Brummell, The Staff

218. Estimation and Introduction to Control of Stochastic Processes. S
Provides practical knowledge of Kalman filtering and introduces control theory for stochastic processes. Selected topics include: state-space modeling; discrete- and continuous-time Kalman filter; smoothing; and applications in feedback control. Students learn through hands-on experience. Students cannot receive credit for this course and course 118. Enrollment restricted to graduate students. D. Milutinovic

221. Bayesian Decision Theory.
Explores conceptual and theoretical bases of statistical decision making under uncertainty. Focuses on axiomatic foundations of expected utility, elicitation of subjective probabilities and utilities, and the value of information and modern computational methods for decision problems. Prerequisite(s): course 206. Enrollment restricted to graduate students. D. Draper, B. Sansó

223. Time Series Analysis. F
Graduate level introductory course on time series data and models in the time and frequency domains: descriptive time series methods; the periodogram; basic theory of stationary processes; linear filters; spectral analysis; time series analysis for repeated

measurements; ARIMA models; introduction to Bayesian spectral analysis; Bayesian learning, forecasting, and smoothing; introduction to Bayesian Dynamic Linear Models (DLMs); DLM mathematical structure; DLMs for trends and seasonal patterns; and autoregression and time series regression models. Prerequisite(s): course 206B, or by permission of instructor. Enrollment restricted to graduate students. R. Prado

225. Multivariate Statistical Methods.
Introduction to statistical methods for analyzing data sets in which two or more variables play the role of outcome or response. Descriptive methods for multivariate data. Matrix algebra and random vectors. The multivariate normal distribution. Likelihood and Bayesian inferences about multivariate mean vectors. Analysis of covariance structure: principle components, factor analysis. Discriminant, classification and cluster analysis. Prerequisite(s): course 206 or 206B, or by permission of instructor. Enrollment restricted to graduate students. D. Draper, J. Lee

227. Waves and Instabilities in Fluids.
Advanced fluid dynamics course introducing various types of small-amplitude waves and instabilities that commonly arise in geophysical and astrophysical systems. Topics covered include, but are not limited to: pressure waves, gravity waves, Rossby waves, interfacial instabilities, double-diffuse instabilities, and centrifugal instabilities. Advanced mathematical methods are used to study each topic. Undergraduates are encouraged to take this course with permission of the instructor. Prerequisite(s): courses 212A and 217. P. Garaud

231. Nonlinear Control Theory.
Covers analysis and design of nonlinear control systems using Lyapunov theory and geometric methods. Includes properties of solutions of nonlinear systems, Lyapunov stability analysis, effects of perturbations, controllability, observability, feedback linearization, and nonlinear control design tools for stabilization. Prerequisite(s): basic knowledge of mathematical analysis and ordinary differential equations is assumed. Enrollment restricted to graduate students or permission of instructor. Q. Gong

232. Applied Optimal Control. S
Introduces optimal control theory and computational optimal control algorithms. Topics include: calculus of variations, minimum principle, dynamic programming, HJB equation, linear-quadratic regulator, direct and indirect computational methods, and engineering application of optimal control. Prerequisite(s): course 114 or 214, or Computer Engineering 240 or 241, or Mathematics 145. Enrollment restricted to graduate students. Q. Gong

236. Motion Coordination of Robotic Networks.
Comprehensive introduction to motion coordination algorithms for robotic networks. Emphasis on mathematical tools to model, analyze, and design cooperative strategies for control, robotics, and sensing tasks. Topics include: continuous and discrete-time evolution models, proximity graphs, performance measures, invariance principles, and coordination algorithms for rendezvous, deployment, flocking, and consensus. Techniques and methodologies are introduced through application setups from multi-agent robotic systems, cooperative control, and mobile sensor networks. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

241. Bayesian Nonparametric Methods. W
Theory, methods, and applications of Bayesian nonparametric modeling. Prior probability models for spaces of functions. Dirichlet processes. Polya trees. Nonparametric mixtures. Models for regression, survival analysis, categorical data analysis, and spatial statistics. Examples drawn from social, engineering, and life sciences. Prerequisite(s): course 207. Enrollment restricted to graduate students. A. Rodriguez, A. Kottas

245. Spatial Statistics. S
Introduction to the analysis of spatial data: theory of correlation structures and variograms; kriging and Gaussian processes; Markov random fields; fitting models to data; computational techniques; frequentist and Bayesian approaches. Prerequisite(s): course 207. Enrollment restricted to graduate students. B. Sanso, H. Lee

256. Linear Statistical Models. S
Theory, methods, and applications of linear statistical models. Review of simple correlation and simple linear regression. Multiple and partial correlation and multiple linear regression.

Analysis of variance and covariance. Linear model diagnostics and model selection. Case studies drawn from natural, social, and medical sciences. Course 205 strongly recommended as a prerequisite. Undergraduates are encouraged to take this class with permission of instructor. Prerequisite(s): course 205A or 205B or permission of instructor. Enrollment restricted to graduate students. The Staff, R. Prado, A. Rodriguez, B. Sanso, J. Lee

261. Probability Theory with Markov Chains.
Introduction to probability theory: probability spaces, expectation as Lebesgue integral, characteristic functions, modes of convergence, conditional probability and expectation, discrete-state Markov chains, stationary distributions, limit theorems, ergodic theorem, continuous-state Markov chains, applications to Markov chain Monte Carlo methods. Prerequisite(s): course 205B or by permission of instructor. Enrollment restricted to graduate students. A. Kottas

263. Stochastic Processes. F
Includes probabilistic and statistical analysis of random processes, continuous-time Markov chains, hidden Markov models, point processes, Markov random fields, spatial and spatio-temporal processes, and statistical modeling and inference in stochastic processes. Applications to a variety of fields. Prerequisite(s): course 205A, 205B, or 261, or by permission of instructor. A. Rodriguez, A. Kottas

274. Generalized Linear Models.
Theory, methods, and applications of generalized linear statistical models; review of linear models; binomial models for binary responses (including logistical regression and probit models); log-linear models for categorical data analysis; and Poisson models for count data. Case studies drawn from social, engineering, and life sciences. Prerequisite(s): course 205A, 205B, or 256. Enrollment restricted to graduate students. A. Kottas, The Staff

280A. Seminar in Mathematical and Computational Biology (2 credits). F
Weekly seminar on mathematical and computational biology. Participants present research findings in organized and critical fashion, framed in context of current literature. Students present own research on a regular basis. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. The Staff

280B. Seminars in Statistical and Applied Mathematical Modeling (2 credits). F,W,S
Weekly seminar series covering topics of current research in applied mathematics and statistics. Permission of instructor required. Enrollment restricted to graduate students. (Formerly Seminar in Applied Mathematics and Statistics .) May be repeated for credit. The Staff

280C. Seminar in Geophysical and Astrophysical Fluid Dynamics (2 credits). F,W,S
Weekly seminar/discussion group on geophysical and astrophysical fluid dynamics covering both analytical and computational approaches. Participants present research progress and findings in semiformal discussions. Students must present their own research on a regular basis. Enrollment restricted to graduate students. May be repeated for credit. N. Brummell, P. Garaud

280D. Seminar in Bayesian Statistical Methodology (2 credits).
Weekly seminar/discussion group on Bayesian statistical methods, covering both analytical and computational approaches. Participants present research progress and finding in semiformal discussions. Students must present their own research on a regular basis. Enrollment restricted to graduate students. May be repeated for credit. The Staff

285. Seminar in Career Skills (2 credits).
Seminar in career skills for applied mathematicians and statisticians. Learn about professional activities such as the publication process, grant proposals, and the job market. Enrollment restricted to graduate students, typically within two years of their expected Ph.D. completion date. The Staff

290A. Topics in Mathematical and Computational Biology (2 credits).
Focuses on applications of mathematical and computational methods with particular emphasis on advanced methods applying to organismal biology or resource management. Students read current literature, prepare critiques, and conduct projects. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. The

Staff

290B. Advanced Topics in the Numerical Solution of PDEs. S
Modern practical methods for the numerical solution of partial differential equations. Methods considered depend on the expertise of the instructor, but are covered in-depth and up to the cutting-edge of practical contemporary implementation. Content could be method-based (e.g., spectral methods, finite-element methods) or topic-based (e.g., simulations of turbulence). Some programming and numerical analysis (e.g., course 213) highly recommended. Enrollment restricted to graduate students and undergraduates with permission of the instructor. H. Wang, N. Brummell, P. Garaud

291. Advanced Topics in Bayesian Statistics (3 credits).
Advanced study of research topics in the theory, methods, or applications of Bayesian statistics. The specific subject depends on the instructor. Enrollment restricted to graduate students and by permission of instructor. May be repeated for credit. The Staff

296. Masters Project (2 credits). F,W,S
Independent completion of a masters project under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study or Research. F,W,S
Independent study or research under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. The Staff

297F. Independent Study (2 credits). F,W,S
Independent study or research under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Thesis research under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. The Staff

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2014-15 General Catalog

Elena Baskin Visual Arts Studios
Room E-104
(831) 459-2272
visart@ucsc.edu
http://art.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

10. Foundation Series in Art.
Introduces general education students and prospective majors to theory and practice of art and contemporary discourse surrounding it. Courses expose students to both art discourse and art making through large lecture sections that meet twice a week and smaller studio sections that meet twice a week. Students must register for both lecture and studio sections. The Staff

10D. 2D Foundation. W
Introduces students to the fundamental principles of two-dimensional art and design and focuses on analyzing the concepts of line, color shape, value, space, form, unity, balance, scale, proportion, texture, and emphasis to be used to express complex ideas. This course is a hybrid studio/lecture. Students are billed for a materials fee. (General Education Code(s): IM.) E. Leal

10E. 3D Foundation. F
Introduces students to the fundamental principles of three-dimensional art and design through basic concepts, techniques, and technical practice. Focuses on three-dimensional art and the design fundamentals of sculpture, public art, architecture, and the industrial-design process and production. This course is a hybrid studio/lecture. Students are billed for a materials fee. (General Education Code(s): IM.) J. Kerns

10F. 4D Foundation. S
Introduces students to the fundamental principles of four-dimensional/time-based art and design through basic concepts, techniques, and technical practices. Computers and video, photo, sound, and lighting equipment are used to create short-form, time-based work. This course is a hybrid studio/lecture. (General Education Code(s): IM.) S. Ruiz

20. Introduction to Contemporary Art.
Introduces basic conceptual and practical tools for specific art practices. Instruction consists of studio sections that meet twice a week incorporating theory, practice, technique, and critiques. (Formerly Introduction to Contemporary Art: Concepts and Practices.) The Staff

20G. Introduction to Print Media and Drawing. F,S
Introduces the methods, materials, and history of printmaking and drawing as a tool for creative exploration. Understanding and development of concepts and skills are

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
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- Mathematics
- Merrill College
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- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
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- Spanish for Heritage Speakers
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achieved through a series of lectures, studio demonstrationsand practice, assignments, and critiques. Students are billed for a materials fee. Prerequisite(s): Pre-Art major or completion of two courses from 10A, 10B, 10D, 10E, or 10F. (General Education Code(s): PR-C.) E. Leal, J. Lee

20H. Introduction to Sculpture and Public Art. W,S
Introduces sculpture and art in public space. The course is composed of lectures, readings, discussions, studio assignments, and demonstrations. Students are billed for a materials fee. Prerequisite(s): Pre-Art major or completion of two courses from 10A, 10B, 10D, 10E, or 10F. (General Education Code(s): PR-C.) W. Hibbert-Jones, The Staff

20I. Introduction to Photography and Digital Media. F,W
Introduces basic skills and conceptual development in photography and digital media through image-making in the field, on the web, and in laboratories, through readings, discussions, and critiques. Students are billed for a materials fee. Prerequisite(s): Pre-Art major or completion of two courses from 10A, 10B, 10D, 10E, or 10F. (General Education Code(s): PR-C.) N. Locks, E. Anderson

20J. Introduction to Drawing and Painting. F,W
Introduces the material practices of painting in combination with the formal vocabulary of the visual arts. A discussion of values, form, color, and figure/ground relationships enters into each class. Students are billed for a materials fee. Prerequisite(s): Pre-Art major or completion of two courses from 10A, 10B, 10D, 10E, or 10F. (General Education Code(s): PR-C.) M. Gwyn

42. Student-Directed Seminar. *
Seminars taught by upper-division students under faculty supervision. Does not fulfill major requirement. (See course 192.) The Staff

80. Artists and Ideas.
Introduces general education students, prospective majors, and art majors to art forms and critical ideas that have shaped artistic practice focusing on the work of contemporary artists, including current faculty in the Art Department. The Staff

80B. Environmental Art. W
Examines ways artists engage, interact, and comment upon ecology and nature in their artworks by examining environmental art from the 1960s through the present. (General Education Code(s): PE-E.) E. Stephens

80D. Introduction to Photography. W,S
Introductory course for beginners. Various techniques examined and assigned in specific exercises. Work on projects using color film; this is a non-darkroom course. Examples given of photography from 1826 to the present. Balances historical study and practice through assigned homework exercises. Students are billed a materials fee. (General Education Code(s): IM, T4-Humanities and Arts, A.) K. Perry

80F. Introduction to Issues in Digital Media. F,W
Digital media was positioned as a radical new social and creative medium in the 1980s and 1990s. The ensuing decades have seen this area become ubiquitous mass media with structural inequalities, centralized ownership, environmental damage, and precarious labor conditions. At the same time, it has become the language of our time and remains a site of creativity and intervention and offers opportunities for social changes. This course provides an introduction to key issues in this area through the lens of race and ethnicity. (General Education Code(s): ER, T6-Natural Sciences or Humanities and Arts, A.) K. O'Riordan, K. McKinley

80H. History of Digital Games. W
Surveys the history of digital games from open "university games" through the home console, PC, and contemporary platforms, and on to "indie" and art games. Throughout, the course locates connections between technology, marketing, and play culture. Enrollment limited to 100. (General Education Code(s): PE-T.) The Staff

80I. Foundations of Play. S
Understanding the foundations of play through reading influential texts; in-class lectures and activities; designing and "playtesting" games; and the ethnographies of players in the

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

Search the Catalog

physical world. (Formerly Digital Arts and New Media 80I.) (General Education Code(s): PE-H.) R. Hunicke

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

102. Introduction to Physical Computing and Interactivity. *
Physical computing examines bodily sound, movement, and other physical phenomena as an interface to a computer or microcomputer. Students investigate electronics and devices for use in interactive art-making to create sculptural or installation-based projects. Students receive hands-on experience working with sensors, motors, switches, gears, lights, circuits, and hardware store devices to create kinetic and interactive works of art, programming and interface design. Students are billed a materials fee. (Formerly course 22, Introduction to Electronics for Intermedia.) Prerequisite(s): Art 20B, 20I, 21, 80F, 103, 104, 107, or 108 or CMPS 25; and two courses from any non-computer/digital media lower-division art studios (Art 15-40, 80A, or 80D) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. E. Anderson

103. Physical Computing: Installation and Sculpture. W
Examines computer interactivity and interface in art making through theory and practice. Students develop interactive installation and sculptural works of art. Assignments may include the acquisition and creation of digital images, two-dimensional animation, programming with MAX/MSP/Jitter, basic electronics and sensors, and digital video and audio. Discussions, readings, and critiques address content, aesthetics, concepts, and expression as well as a practical grasp of relevant software. Students are encouraged to develop research projects and explore experimental practices. Students are billed a materials fee. (Formerly course 118, Computer Art: Theories, Methods, and Practices.) Prerequisite(s): Art 20B, 20I, 21, 22, 80F, 102, 104, 107, or 108 or CMPS 25; and two courses from any non-computer/digital media lower-division art studios (Art 15-40, 80A, or 80D) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. E. Anderson

104. Digital Video. W
An exploration of the video medium including production using the digital video format. Digital video cameras will be used to produce digital source material to be manipulated in a non-linear digital editing system. Image manipulation, effects, and editing will be explored. A variety of video structures, theories, concepts, and forms will be examined through production, discussions, and viewing students' and artists' work. (Formerly course 119.) Prerequisite(s): Art 20B, 20I, 21, 22, 80F, 102, 103, 107, or 108 or CMPS 25; and two courses from any non-computer/digital media lower-division art studios (Art 15-40, 80A, or 80D) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. E. Anderson

106. Introduction to Animation. W
Introduces animation techniques, practices, history, and theories. Students learn techniques and process in 2D, stop-motion, and digital animation. Projects teach students the workflow of animating including script development, storyboarding, frame-by-frame animation, animatic, digital, and post-production. Students are required to research artists, both historical and contemporary, working in the field of animation and to be able to discuss the work. The course teaches theoretical and historical perspectives on animation and requires students to develop a critical analysis and vocabulary. Prerequisite(s): Three courses from the following: Art 15-40, 80A, 80D, 80F, or Computer Science 25. Enrollment restricted to art majors. May be repeated for credit. G. Thomas

107. Introduction to 3D Graphics and Modeling. F
Independent and collaborative creative projects using advanced computer methods. May include networking projects, virtual representations, interactive multimedia, installation, performance, 3D modeling and animation, or robotics. Emphasis on advanced critical and experimental approaches to computers as a unique art medium, and contemporary research issues. Students are required to enroll in scheduled lab section. Students are billed for a materials fee. (Formerly course 121, Advanced Projects in Computer Art II.) Prerequisite(s):Art 20B, 20I, 21, 22, 80F, 102, 103, 104, or 108 or CMPS 25; and any two of

any non-computer/digital media lower-division art studios (Art 15-40, 80A, and 80D) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. E. Anderson

108. New Media and Social Practice Artmaking. S
Provides students with firsthand experience developing new media artworks in relationship to the needs of specific communities and social struggles. Students develop content using new media practices, tools, systems, and strategies. The final artwork can utilize video, film, digital media, social networks, and app development, among other new media art forms. Students are billed for a materials fee. Prerequisite(s): Art 20B, 20I, 21, 22, 80F, 102, 103, 104, or 107 or Computer Science 25; and two courses from lower-division art studios courses (Art 15-40, 80A, or 80D) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. E. Anderson

110. Intermediate/Advanced Drawing. W
Work moves toward individual directions in drawing. A variety of media are explored. Each student is expected to do 150 hours of drawing over the quarter. Students are billed a materials fee. (Formerly course 101.) Prerequisite(s): Art 15, 20, 20A, 20G, 20J, 80A, 111, 112, 119; and two non-drawing lower-division art studios (Art 20H, 20I, 21-40, 80D, or 80F, or CMPS 25) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. F. Galuszka

111. Figure Drawing. *
Focuses on drawing from the human figure and exploring the figure for the purpose of personal expression and social communication. Intended for the intermediate/advanced drawing student. Students are billed a materials fee. (Formerly course 102.) Prerequisite(s): Art 15, 20, 20A, 20G, 20J, 80A, 110, 112, 119; and two non-drawing lower-division art studios (Art 20H, 20I, 21-40, 80D, or 80F, or CMPS 25) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. The Staff

112. Mixed Media Works on Paper. F
This course stresses alternative drawing processes, techniques, and materials. Intended for the intermediate or advanced student. Students are billed a materials fee. (Formerly course 107.) Prerequisite(s): Art 15, 20, 20A, 20G, 20J, 80A, 110, 111, or 119; and two of any non-drawing lower-division art studios (Art 20H, 20I, 21-40, 80D, or 80F, or CMPS 25) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. M. Gwyn

118. Digital Drawing/Painting for Game Design. W,S
Supports students working as artists in an interdisciplinary collaboration with project teams led by senior students in computer game design (the yearlong Computer Science 170 series). Instruction includes techniques, tools, and concepts of drawing and painting in a digital environment oriented toward the context of computer games. Coursework is composed of projects to develop individual ideas and skills, as well as offering productively engaged participation in a collaborative game-design team. Students are billed a materials fee. Enrollment restricted to art majors; admission by permission of the instructor. May be repeated for credit. The Staff

119. Special Topics in Drawing. F
Special topics in drawing as announced. Students are billed a materials fee. (Formerly course 105.) Prerequisite(s): Art 15, 20, 20A, 20G, 20J, 80A, 110, 111, or 112; and two non-drawing lower-division art studios (Art 20H, 20I, 21-40, 80D, or 80F, and CMPS 25) or by permission of instructor. Enrollment restricted to art majors. May be repeated for credit. N. Buchanan, M. Gwyn, G. Thomas

120. Introduction to Intermedia. F
Explorations of the role of an artist as someone who integrates a variety of media to explore conscious subject matter. Emphasis on contemporary art forms that incorporate scores, mapping, found objects, time-based elements, and interactivity. Students are billed a materials fee. Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 121, 122, 124, 125, 129, 172, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. E. Crichton

121. Intermedia II. *

Investigation in combining media, materials, and forms to explore a variety of contemporary art practices. Students develop their projects thematically throughout the quarter. Assignments encourage experimentation with time and motion, text and images, collaboration, installation, performance, and interactivity. Discussions, reading handouts, and critiques further the development of perceptual and conceptual skills. Skill workshops introduce new techniques. Students are billed a materials fee. (Formerly course 109.) Prerequisite(s): Art 120. Enrollment restricted to art majors. May be repeated for credit. (General Education Code(s): PR-C, A.) E. Crichton

122. Intermedia: Conceptual and Process-Oriented Approaches. *
Special subjects to be offered by regular staff or visiting artists as announced. Students are billed a materials fee. (Formerly course 146, Special Topics in Intermedia: Conceptual and Process-Oriented Approaches .) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 124, 125, 129, 172, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. The Staff

124. Material Metaphor: Creating Meaning in Form. S
Workshops introduce further investigation of materials and techniques. Students explore diverse methods of visual communication through a series of projects that require individual research and collaborative efforts. Students are encouraged to develop projects according to their motivation, expertise, and self assessment. Emphasis placed on contemporary studio practices of installation, students will integrate a variety of materials and metaphor within the architectural and environmental space. Students are billed a materials fee. (Formerly course 145, Material Metaphor II.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 125, 129, 172, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Stephens

125. Environmental Art Studio. W
Introduces students to environmental art and design through basic concepts, techniques, and studio practice. Students enrolled in this course are also required to attend the first weekly lecture of course 80B, Environmental Art, which is a lecture course focusing on the history of environmental art through current practices in the field. Students are billed for a materials fee. Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 129, 172, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Stephens

128. Picturing Identity: Document and Culture. *
Studio addresses issues of race, gender, culture, personal identity, and visual representation. Examines ways ideas of identity are given visual form and communicated in fine arts and mass media. Students research ways traditionally underrepresented groups in society have been and are being represented in mass media; they then visually interpret that information in forms of visual artifacts. This process and interpretation serve as springboard to examination of expanded ideas of identity, including personal and/or family culture and history, gender, and ethnicity. Encourages use of broad range of mediums available to construct visual representations of identity. Students are billed a materials fee. (Formerly course 161.) Prerequisite(s): Three courses from the following: Art 15-40, 80A, 80D, 80F, or Computer Science 25. Enrollment restricted to art majors. The Staff

129. Special Topics in Intermedia. W
Exploring interactive strategies for making art. Projects experiment with combining forms and mediums to engage an audience. Students are billed a materials fee. (Formerly course 110.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 172, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Stephens

130. Intermediate/Advanced Painting. *
Continuation of the development of a basic foundation in painting with emphasis on the development of individual, experimental procedures. A foundation in drawing is recommended. Students are billed a materials fee. (Formerly course 103.) Prerequisite(s): Art 20E, 20J, 24, 24A, 24B, 133, 137, 138, or 139; and two of any non-painting lower-

division studios (Art 15–40, 80A, 80D, 80F, or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. M. Gwyn

133. Abstract Painting. W
Exploration of abstract painting through studio work, lectures, and critiques with emphasis on progressive abstraction, minimalism, op art, and abstract expressionism as well as other 20th-century and 21st-century forms. A foundation in drawing is recommended. Students are billed a materials fee. Prerequisite(s): Art 20E, 20J, 24, 24A, 24B, 130, 137, 138, or 139; and two of any non-painting lower-division studios (Art 15–40, 80A, 80D, 80F, or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. I. Pines

137. Outdoor Painter's Project. S
Explores contemporary landscape through the practice of plein air painting. Observational plein air painting will provides the foundation for the class. Instruction includes technical instruction in materials and technique as well as conceptual material. Student may work with oils, alkyds, or acrylic on panels, paper, or canvas. Prerequisite(s): Art 20E, 20J, 24, 24A, 24B, 130, 133, 138, or 139; and two of any non-painting lower-division studios (Art 15–40, 80A, 80D, 80F, or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. P. Loftus, The Staff

138. Facture and Meaning. F
Explores the materials and history of painting through lectures, demonstrations, and practice in oils, egg tempura, distemper, and flashe paint. Students participate in group practices and also work independently on projects designed by them in consultation with the instructor. A foundation in drawing is recommended. Students are billed for a materials fee. Prerequisite(s): art 20E, 20J, 24, 24A, 24B, 130, 137, or 139; and two of any non-painting lower-division art studios (Art 15–40, 80A, 80D, 80F, or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. M. Gwyn

139. Special Topics in Painting. S
Special studies in painting as announced. A foundation in drawing is recommended. Students are billed a materials fee. (Formerly course 104.) Prerequisite(s): Art 20E, 20J, 24, 24A, 24B, 133, 137, or 138; and two of any non-painting lower-division studios (Art 15–40, 80A, 80D, 80F, or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. M. Gwyn, The Staff

149A. Contemporary Visual Media: Issues of Theory and Practice. *
Examines selected issues in critical theory relevant to contemporary visual practices through writing assignments and class discussions of core readings. Specifically, thematically explores the relationship between visual art and film aesthetics. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors. (General Education Code(s): W.) The Staff

149B. Contemporary Visual Media: Issues of Theory and Practice. *
Examines selected issues in critical theory relevant to contemporary visual practices through writing assignments and class discussions of core readings. Specifically, focuses on the creative process: How do artists work and what informs their production? Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors. (General Education Code(s): W.) The Staff

150. Darkroom Practices. F
Students concentrate on darkroom practices and explore visual ideas, directing their work toward individualized goals. Required work includes making photographic prints, reading historical and theoretical works, and examination of photographs. Students are billed a materials fee. (Formerly Black and White Photography.) Prerequisite(s): Art 20C, 20I, 30, 32, 80D, 151, 156, 157, 158, or 159; and two of any non-photo lower-division studios (Art 15–40, 80A, 80F or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. S. Friedman, N. Locks, The Staff

150C. Critical Issues in Contemporary Art. *
This writing-specific course is concerned with the role of the artist in society and offers a comprehensive overview of contemporary thought within the visual arts from an international perspective. Special emphasis placed on current trends and shifts in artistic production, theory, and criticism, and on art works that are artistically and intellectually

inventive, as well as those that produce controversial and often challenging results. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior art majors. (General Education Code(s): W.) The Staff

151. Digital Photography. F,W,S
Introduction to basic theories behind the digital production, manipulation, and output of photographic images. Through readings and production, students address major issues specific to working with images in an increasingly digital environment. Students are billed a materials fee. Prerequisite(s): Art 20C, 20I, 30, 32, 80D, 150, 156, 157, 158, or 159; and two of any non-photo lower-division studios (Art 15-40, 80A, 80F or Computer Science 25). Enrollment restricted to art majors. May be repeated for credit. The Staff, E. Crichton, K. Perry

156. Project Development in Photography. W
Concentrates on photographic project development, developing analytical skills designed to help direct students' own photographic ideas. Helps students create a conceptual theoretical framework through image-making in the field and studio, through critique and discussion, through readings, and by studying the work of artists. Students are billed a materials fee. Prerequisite(s): Art 150 or 151. Enrollment restricted to art majors. May be repeated for credit. N. Locks

157. Advanced Digital Photography. *
Further study the practice, theories, and criticisms of the digital production, manipulation, and output of photographic images. Major issues specific to the production of digital images will be addressed through readings and discussion, including techniques and theories drawn from a course reader and a textbook on advanced Photoshop skills. A final project is required. Students are billed a materials fee. Prerequisite(s): Art 151. Enrollment restricted to art majors. May be repeated for credit. N. Locks

158. Advanced Photography. F,S
Students produce a portfolio of photographs, read historical and theoretical works, and study photographs and other art works. Students are billed a materials fee. Prerequisite(s): two courses from Art 150, 151, 156, 157, or 159. Enrollment restricted to art majors. May be repeated for credit. N. Locks

159. Special Topics in Photography. *
Special studies in photography, concentrating on specific subject matter or media. Topics may include documentary photography, landscape, alternative processes, or mixed media. Students are billed a materials fee. Prerequisite(s): Art 150 or 151. Enrollment restricted to art majors. May be repeated for credit. N. Locks

160B. Mono/Mixed Media Printmaking. W
Introduces the contemporary monotype, monoprint, and mixed media print processes facilitating a crossover between painting, drawing, and printmaking. Through lectures, demonstrations, and discussions on topics and class assignments, students will expand their creative possibilities in this exciting medium. Students are billed a materials fee. (Formerly course 27, Monoprinting/Mixed Media Printing.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 33, 36, 38, 161B, 162A, 162B, 163A, 163B, 164A, 165, 168, or 169; and two non-print media lower-division studios (Art 15-40, 80A,80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Leal, J. Lee

161B. Relief/Mixed Media Printmaking. *
Explores traditional, contemporary, and experimental processes, issues, and concepts of relief and mono/mixed media printmaking. Students gain in-depth information and working knowledge to specialize individual ideas and build artistic development through varieties of class activities. (Formerly course 36.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 27, 33, 38, 160B, 162A, 162B, 163A, 163B, 164A, 165, 168, or 169; and two non-print media lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. J. Lee, The Staff

162A. Intaglio I. F
Introduces students to various methods used in making intaglio prints. Encourages individual artistic growth of imagery and technique through assignments designed to explore the medium. Includes discussion and critique of work with equal emphasis on

technique and concept. Students are billed a materials fee. (Formerly course 112.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 27, 33, 36, 38, 160B, 161B, 162B, 163A, 163B, 164, 165, 168, or 169; and two non-print media lower-division studios (Art 15-40, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. J. Lee

162B. Intaglio II. *
This presentation of advanced intaglio techniques emphasizes a variety of multi-plate color printing and photo etching processes. The course concentrates on individual development in style and concept through the intaglio process. Students are billed a materials fee. Prerequisite(s): Art 162A. Enrollment restricted to art majors. May be repeated for credit. J. Lee

163A. Lithography I. F
Introduction to drawing, processing, and printing of lithographs from stone. Emphasis on discovery of tonal, textural, and expressive potential from the surface of the stone, while establishing individual directions in imagery. Condensed history of the medium, technical theory, and critique in lecture and demonstrations. Students are billed a materials fee. (Formerly course 114.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 27, 33, 36, 38, 160B, 161B, 162A, 162B, 164A, 165, 168, or 169; and two non-print media lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Leal

163B. Lithography II. *
Continuation of course 163A. Introduction of tusche wash, aluminum plates, transfers, photo-lithography (computer interface), and multiple color techniques. Emphasis on experimentation, refinement of craft and approach, defining individual imagery, and expanding scale. Further investigation of the history of the medium and contemporary practice. Students are billed a materials fee. Prerequisite(s): Art 163A. Enrollment restricted to art majors. May be repeated for credit. The Staff

165. Print Media in Visual Communication. S
Explores a unique approach reviewing the printed images in visual communications. A wide blend of traditional and cutting-edge print media processes with an interdisciplinary focus will be taught for conceptualizing, producing, and presenting the printed image. Students are billed a materials fee. Prerequisite(s): Art 160B, 161B, 162A, 162B, 163A, 163B, 164A, 168, or 169. Enrollment restricted to art majors. May be repeated for credit. J. Lee

166. Art of Bookmaking. *
Introduction to production of small edition books and multiples utilizing sequential visual imaging, narrative content, and mixed media in bookmaking. Provides instruction in conceptualizing, producing, and distributing printed artists' multiples. Ideas encouraged within a broad range of possibilities via the format of artists' books. Students are billed a materials fee. (Formerly course 126.) Prerequisite(s): Three courses from the following: Art 15-40, 80A, 80D, 80F, or Computer Science 25. Enrollment restricted to art majors. May be repeated for credit. The Staff

168. Photo-Based Printmaking. W
Intermediate/advanced studio course exploring the processes, history, and the recent developments in contemporary photomechanical printmaking. Through experimentation and research students learn how to utilize photographic imagery, blending them in multiple layers and colors, thereby facilitating articulation of their conceptual foundations. Students are billed a materials fee. (Formerly course 129.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 27, 33, 36, 38, 160B, 161B, 162A, 162B, 163A, 163B, 164A, 165, or 169; and two non-print media lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. J. Lee

169. Special Topics in Printmaking. S
Special studies in printmaking, as announced. Students are billed for a materials fee. (Formerly course 117.) Prerequisite(s): Art 20C, 20F, 20G, 25, 26, 27, 33, 36, 38,160B, 161B, 162A, 162B, 163A, 163B, 164, 165, or 168; and two non-print lower-division media studios (Art 15-40, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. E. Leal

172. Public Art: Memory, Landscape, and Artist as Activist. W,S
In-depth exploration of art in the public sphere. Students build an understanding of public

art sparked by practical experience designing and developing projects. Theoretical aspects of contemporary public art, and an introduction to the range of current public art practices will be introduced through readings, lectures, and artist's talks. The combination of practical hands-on technique and theoretical ideology will enable students to fully develop their own project within the class. Students are billed a materials fee. (Formerly course 156, Topics in Public Art II: Memory, Landscape, and Artist as Activist.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 129, 180B, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. W. Hibbert-Jones

180B. Sculpture II. S
More advanced fabrication techniques in sculpture using wood, metal, industrial, and other materials. Techniques include carpentry and woodshop skills, and an introduction to sculptural forms, processes, and ideas. Demonstrations, slide lectures, and critical discussion of work help develop technical and conceptual skills. Students are billed a materials fee. (Formerly course 141.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 129, 172, 183, 188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. The Staff, E. Stephens, W. Hibbert-Jones

183. Metal Fabrication. F,W
Focus on teaching intermediate to advanced students the processes and techniques of direct metal fabrication for contemporary sculpture and design. Explores a range of welding, cutting, and forming techniques and processes through demonstrations, slide lectures, field trips, and studio time. Demonstrations, slide lectures, and critical discussion of work help develop technical and conceptual skills. Students are billed a materials fee. (Formerly course 140.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 129, 172, 180B,188, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. The Staff

188. Intermediate to Advanced Sculpture (Foundry). F,S
This intermediate/advanced course provides the information and facilities necessary to express ideas through the indirect process of metal casting. The "lost wax" method is used to manifest ideas in sculpture. Lectures and demonstrations are combined with work time in class. Students generate sculpture forms in wax then gate, invest, weld, chase, patina, and present at least one finished piece. Students are billed a materials fee. May be repeated for credit. (Formerly course 139.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 129, 180B, 172, 183, or 189; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. May be repeated for credit. The Staff

189. Special Topics in Sculpture. W,S
Special topics in sculpture as announced, concentrating on specific aspects of subject matter and media. Students are billed a materials fee. (Formerly course 148.) Prerequisite(s): Art 20D, 20H, 23, 28, 29, 37, 40, 120, 121, 122, 124, 125, 129, 172, 180B, 183, or 188; and two non-sculpture/intermedia public art lower-division studios (Art 15-40, 80A, 80D, 80F, or CMPS 25). Enrollment restricted to art majors. Offered in alternate academic years. May be repeated for credit. W. Hibbert-Jones, The Staff

190A. Writing for Artists. W
Provides practice and discussion for art majors as they face a variety of situations requiring clear and critical writing skills: writing scholarly statements about their creative process; developing a concise artist biographical statement; drafting a short grant proposal for their projects; and preparing works of art for critique and exhibition. (Formerly course 170W.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior art majors. (General Education Code(s): W.) C. Waters, The Staff

190B. Senior Project. S
Advanced senior art majors create and complete a senior project to fulfill their comprehensive graduation requirement. Focuses on a weekly lecture, studio work, peer critique, and professional practices such as the documentation and exhibition of work. Students are billed for a materials fee. Enrollment restricted to senior art majors. E.

Crichton

191. Teaching Apprenticeship. F,W,S
Designed for art majors at the upper-division level. Each student assists in a lower-division art course under the direct supervision of a faculty member. Students assist in technical instruction, critiques, and class discussions. May not be repeated for credit. Does not count toward upper-division major requirements. Enrollment restricted to art majors. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students should have upper-division standing with a proposal supported by a faculty member willing to supervise. Students submit petition to sponsoring agency. Enrollment limited to 5. The Staff

193. Field Study. F,W,S
Supervised off-campus study conducted under the immediate and direct guidance of a faculty supervisor. To be used primarily by upper-division students doing part-time off-campus study. Students submit petition to sponsoring agency. Petitions may be obtained in the Art Department Office. May be repeated for credit. The Staff

194. Forms and Ideas. F
Required for all junior transfer student art majors. Introduction to the art program, emphasizing awareness of contemporary visual practices and theory. Combines studio practice and theory. Students are billed a materials fee. (Formerly course 160.) Enrollment restricted to junior transfer art majors. (General Education Code(s): A.) K. Perry, The Staff

196. Independent Senior Project. F,W,S
Student will concentrate on completing work for comprehensive exhibition under the direction of his or her art adviser, with help from other faculty as needed. Students submit petition to sponsoring agency. (Formerly Senior Project.) May be repeated for credit. The Staff

197. Individual Study. F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for department-sponsored independent study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. Students are billed a materials fee. May be repeated for credit. The Staff

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Astronomy and Astrophysics

2014-15 General Catalog

Astronomy Department Office
211 Interdisciplinary Sciences Building
(831) 459-2844
http://www.astro.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Introduction to the Cosmos. F
Overview of the main ideas in our current view of the universe and how these ideas originated. Galaxies, quasars, stars, black holes, and planets. Students cannot receive credit for this course and course 2. (General Education Code(s): SI, IN.) P. Guha Thakurta

2. Overview of the Universe. F,S
An overview of the main ideas in our current view of the universe, and how they originated. Galaxies, quasars, stars, pulsars, and planets. Intended primarily for nonscience majors interested in a one-quarter survey of classical and modern astronomy. (General Education Code(s): MF, IN, Q.) C. Rockosi, S. Vogt

3. Introductory Astronomy: Planetary Systems. W
Properties of the solar system and other planetary systems. Topics include the Sun, solar system exploration, the physical nature of the Earth and the other planets, comets and asteroids, the origin of the solar system, the possibility of life on other worlds, planet formation, and the discovery and characterization of planets beyond the solar system. Intended for nonscience majors. Courses 3, 4, and 5 are independent and may be taken separately or sequentially. (Formerly Introductory Astronomy: The Solar System.) (General Education Code(s): MF, IN, Q.) D. Lin

4. Introductory Astronomy: The Stars. *
Stellar evolution: observed properties of stars, internal structure of stars, stages of a star's life including stellar births, white dwarfs, supernovae, pulsars, neutron stars, and black holes. Planet and constellation identification. Intended for nonscience majors. Courses 3, 4, and 5 are independent and may be taken separately or sequentially. (General Education Code(s): MF, IN, Q.) A. Steinacker

5. Introductory Astronomy: The Formation and Evolution of the Universe. W,S
The universe explained. Fundamental concepts of modern cosmology (Big Bang, dark matter, curved space, black holes, star and galaxy formation), the basic physics underlying them, and their scientific development. Intended for non-science majors. Courses 3, 4, and 5 are independent and may be taken separately. (General Education Code(s): MF, IN, Q.) J. Brodie, M. Bolte

6. The Space-Age Solar System. W
Scientific study of the Moon, Earth, Mercury, Venus, and Mars by the space program; history of rocket development; the Apollo program and exploration of the Moon;

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- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
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- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
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- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
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- Ocean Sciences
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unmanned spacecraft studies of the terrestrial planets; scientific theories of planetary surfaces and atmospheres. Intended for nonscience majors. (Formerly course 80A.) (General Education Code(s): SI, T-2 Natural Sciences.) G. Smith

12. Stars and Stellar Evolution. F
An introduction to the observational facts and physical theory pertaining to stars. Topics include the observed properties of stars and the physics underlying those properties; stellar atmospheres; stellar structure and evolution. Intended for science majors and qualified non-science majors. Knowledge of high school physics and an understanding of mathematics at the Mathematics 2 level required. (General Education Code(s): MF, IN, Q.) The Staff

13. Galaxies, Cosmology, and High Energy Astrophysics. *
Introduction to modern cosmology and extragalactic astronomy. Topics include the origin of the universe, Big Bang cosmology, expansion of the universe, dark matter and dark energy, properties of galaxies and active galactic nuclei, and very energetic phenomena in our own and other galaxies. Intended for science majors and qualified non-science majors. Knowledge of high school physics and an understanding of mathematics at the Math 2 level required. (General Education Code(s): MF, IN, Q.) The Staff

15. Dead Stars and Black Holes. *
Course is primarily concerned with the structure, formation, and astrophysical manifestations of compact objects, such as white dwarfs, neutron stars, and black holes, and the astronomical evidence for their existence. Intended for science majors and qualified non-science majors. Knowledge of high school physics and an understanding of mathematics at the Math 2 level required. (General Education Code(s): MF, IN, Q.) E. Ramirez-Ruiz

16. Astrobiology: Life in the Universe. S
Topics include the detection of extrasolar planets, planet formation, stellar evolution and properties of Mars, the exploration of our solar system and the search for life within it, and the evolution of life on Earth. Intended for science majors and qualified non-science majors. Knowledge of high school physics and an understanding of mathematics at the Math 2 level required. Enrollment limited to 50. (General Education Code(s): MF, IN, Q.) A. Steinacker

18. Planets and Planetary Systems. W
Our solar system and newly discovered planetary systems. Formation and structure of planets, moons, rings, asteroids, comets. Intended for science majors and qualified non-science majors. Knowledge of high school physics and an understanding of mathematics at the Mathematics 2 level required. Offered in alternate academic years. (General Education Code(s): IN, Q.) D. Lin

Upper-Division Courses

111. Order-of-Magnitude Astrophysics. F
Examines the most basic and direct connection between physics and astrophysics in order to derive a better understanding of astrophysical phenomena from first principles to the extent possible. Prerequisite(s): Mathematics 22 or 23A; Physics 5B or 6B; and Physics 101A or Physics 102. Enrollment limited to 25. G. Laughlin

112. Physics of Stars. W
The leading observational facts about stars as interpreted by current theories of stellar structure and evolution. Spectroscopy, abundances of the elements, nucleosynthesis, stellar atmospheres, stellar populations. Final stages of evolution, including white dwarfs, neutron stars, supernovae. Prerequisite(s): Mathematics 22 or 23A, Physics 5B or 6B, and Physics 101A or Physics 102 J. Fortney

113. Introduction to Cosmology. S
Physical examination of our evolving universe: the Big Bang model; simple aspects of general relativity; particle physics in the early universe; production of various background radiations; production of elements; tests of geometry of the universe; dark energy and dark matter; and formation and evolution of galaxies and large-scale structure. (Formerly "Physical Cosmology.") Prerequisite(s): Mathematics 22 or 23A, Physics 5B or 6B, and Physics 101A or 102. P. Madau

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Teaching and Administrative Staff

Appendixes

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117. High Energy Astrophysics. *
Theory and practice of space and ground-based x-ray and gamma-ray astronomical detectors. High-energy emission processes, neutron stars, black holes. Observations of x-ray binaries, pulsars, magnetars, clusters, gamma-ray bursts, the x-ray background. High-energy cosmic rays. Neutrino and gravitational-wave astronomy. Prerequisite(s): Mathematics 22 or 23A, Physics 5B or 6B, and Physics 101A or Physics 102. E. Ramirez-Ruiz

118. Physics of Planetary Systems. *
Determination of the physical properties of the solar system, its individual planets, and extrasolar planetary systems through ground-based and space-based observations, laboratory measurements, and theory. Theories of the origin and evolution of planets and planetary systems. Prerequisite(s): Mathematics 22 or 23A, and Physics 5B or 6B. Offered in alternate academic years. J. Fortney

119. Introduction to Scientific Computing. W
Introduction to solving scientific problems using computers. A series of simple problems from Earth sciences, physics, and astronomy are solved using a user-friendly scientific programming language (Python/SciPy). (Also offered as Earth Sciences 119. Students cannot receive credit for both courses.) Prerequisite(s): Mathematics 11A or Mathematics 19A or Applied Mathematics or Statistics 15A. (General Education Code(s): IN.) M. Krumholz

135. Astrophysics Advanced Laboratory. *
Introduction to the techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Offered in some academic years as a multiple-term course: 135A in fall and 135B in winter, depending on astronomical conditions. (Also offered as Physics 135. Students cannot receive credit for both courses.) Prerequisite(s): Physics 133 and at least one astronomy course. Intended primarily for juniors and seniors majoring or minoring in astrophysics. G. Brown

135A. Astrophysics Advanced Laboratory (3 credits). F
Introduction to techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Intended primarily for juniors and seniors majoring or minoring in astrophysics. Offered in some academic years as single-term course 135 in fall, depending on astronomical conditions. (Also offered as Physics 135A. Students cannot receive credit for both courses.) Prerequisite(s): Physics 133 and at least one astronomy course. R. Dewey

135B. Astrophysics Advanced Laboratory (2 credits). W
Introduction to techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Intended primarily for juniors and seniors majoring or minoring in astrophysics. Offered in some academic years as single-term course 135 in fall, depending on astronomical conditions. (Also offered as Physics 135B. Students cannot receive credit for both courses.) Prerequisite(s): Physics 133 and at least one astronomy course. G. Brown

171. General Relativity, Black Holes, and Cosmology. F
Special relativity is reviewed. Curved space-time, including the metric and geodesics, are illustrated with simple examples. The Einstein equations are solved for cases of high symmetry. Black-hole physics and cosmology are discussed, including recent developments. (Also offered as Physics 171. Students cannot receive credit for both courses.) Prerequisite(s): courses 105, 110A, 110B, and 116A-B. H. Haber

199. Tutorial. F,W,S
May be repeated for credit. The Staff

Graduate Courses

202. Radiative Processes. *
Survey of radiative processes of astrophysical importance from radio waves to gamma rays. The interaction of radiation with matter: radiative transfer, emission, and absorption. Thermal and non-thermal processes, including bremsstrahlung, synchrotron radiation, and Compton scattering. Radiation in plasmas. (Formerly Electromagnetism and Plasma Physics .) Offered in alternate academic years. E. Ramirez-Ruiz

204. Astrophysical Flows. *
Explores how physical conditions in astrophysical objects can be diagnosed from their spectra. Discussion topics include how energy flows determine the thermal state of radiating objects and how the physics of radiative transfer can explain the emergent spectral characteristics of stars, accretion disks, Lyman-alpha clouds, and microwave background. (Formerly 204A Physics of Astrophysics I and 204B Physics of Astrophysics II .) Enrollment restricted to graduate students. Offered in alternate academic years. G. Laughlin

205. Introduction to Astronomical Research and Teaching. F
Lectures and seminar-style course intended to integrate new graduate students into the department; to introduce students to the research and interests of department faculty; and to expose graduate students to teaching skills and classroom techniques. (Formerly Introduction to Astronomical Research.) Enrollment restricted to graduate students. G. Smith

207. Future Directions/Future Missions. *
Examines possible key science goals for the the next decade, such as planet detection, galaxy formation, and "dark energy" cosmology; the means for addressing these goals, such as new space missions and/or ground-based facilities; and the political, technical, and scientific constraints on such research. Looks at the role of the Decadel Survey. Examines a few existing programs (DEEP, ALMA, SNAP, NGST) as examples. Enrollment restricted to graduate students. Offered in alternate academic years. G. Illingworth

212. Dynamical Astronomy. W
Surveys dynamical processes in astrophysical systems on scales ranging from the planetary to the cosmological, stability and evolution of planetary orbits, scattering processes and the few-body problem, processes in stellar clusters, spiral structure and galactic dynamics, galactic collisions, and evolution of large-scale structure. Enrollment restricted to graduate students. G. Laughlin

214. Special Topics in Galactic and Extragalactic Astronomy. *
Survey of some principal areas of research on the origin and growth of cosmic structures and galaxies: the "dark ages;" 21cm tomography; first galaxies; first stars and seed black holes; reionization and chemical enrichment of the intergalactic medium; the assembly of massive galaxies; quasi-stellar sources; interactions of massive black holes with their environment; extragalactic background radiation; numerical simulations and the nature of the dark matter; the dark halo of the Milky Way. (Formerly Special Topics in Cosmology) Enrollment restricted to graduate students. P. Madau

220A. Stellar Structure and Evolution. F
Survey of stellar structure and evolution. Physical properties of stellar material. Convective and radiative energy transport. Stellar models and evolutionary tracks through all phases. Brown dwarfs and giant planets. Comparison with observations. Enrollment restricted to graduate students. J. Fortney

220B. Star Formation. F
Theory and observations of star formation. Observational techniques used to study star formation, particularly millimeter line and continuum observations, and infrared, visible, and UV star-formation tracers. Physics of giant molecular clouds and galaxy-scale star formation. Gravitational instability, collapse, and fragmentation. Pre-main sequence stellar evolution. Protostellar accretion disks and jets. Radiative feedback and HII regions. (Formerly Star and Planet Formation) Prerequisite(s): course 220A. M. Krumholz

220C. Advanced Stages of Stellar Evolution and Nucleosynthesis. S
The evolution of massive stars beyond helium burning; properties of white dwarf stars; physics and observations of novae, supernovae, and other high energy stellar phenomena; nuclear systematics and reaction rates; the origin and production of all the chemical elements. Prerequisite(s): course 220A. Enrollment restricted to graduate students. S. Woosley

222. Planetary Formation and Evolution. *
Theory and observations of protoplanetary disks. Origin and evolution of the solar nebula. Formation and evolution of the terrestrial planets and the giant planets. (Formerly Planetary Science) Enrollment restricted to graduate students. Offered in alternate academic years. D. Lin

223. Planetary Physics. *
Survey of interiors, atmospheres, thermal evolution, and magnetospheres of planets, with focus on the astronomical perspective. Course covers exoplanets and solar system planets, both giant and terrestrial, with attention to current and future observations. Enrollment restricted to graduate students. J. Fortney

224. Particle Astrophysics and Cosmology. *
Particle physics and cosmology of the very early universe: thermodynamics and thermal history; out-of-equilibrium phenomena (e.g., WIMPs freeze-out, neutrino cosmology, Big Bang nucleosynthesis, recombination); baryogenesis; inflation; topological defects. High-energy astrophysical processes: overview of cosmic ray and gamma ray astrophysics; radiative and inelastic processes; astroparticle acceleration mechanisms; magnetic fields and cosmic ray transport; radiation-energy density of the universe; ultrahigh-energy cosmic rays; dark-matter models; and detection techniques. (Formerly Origin and Evolution of the Universe.) (Also offered as Physics 224. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Offered in alternate academic years. A. Aguirre

225. High-Energy Astrophysics. *
High-energy astrophysics and the final stages of stellar evolution: supernovae, binary stars, accretion disks, pulsars; extragalactic radio sources; active galactic nuclei; black holes. (Formerly Physics of Compact Objects) Offered in alternate academic years. E. Ramirez-Ruiz

226. General Relativity. W
Develops the formalism of Einstein's general relativity, including solar system tests, gravitational waves, cosmology, and black holes. (Also offered as Physics 226. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. S. Profumo

230. Diffuse Matter in Space. *
Fundamental physical theory of gaseous nebulae and the interstellar medium. Ionization, thermal balance, theory and observation of emission spectra. Interstellar absorption lines, extinction by interstellar dust. Ultraviolet, optical, infrared, and radio spectra of gaseous nebulae. (Formerly Low-Density Astrophysics) Offered in alternate academic years. M. Krumholz

231. Diffuse Gas In and In Between Galaxies. *
Examines the observational data and theoretical concepts related to the interstellar medium (gas inside galaxies); intracluster medium (gas in between galaxies in clusters); and intergalactic medium (gas in between field galaxies). Emphases on the inferred physical conditions of this gas and its implications for cosmology and processes of galaxy formation. Enrollment restricted to graduate students. J. Prochaska

233. Physical Cosmology. S
Survey of modern physical cosmology, including Newtonian cosmology, curved space-times, observational tests of cosmology, the early universe, inflation, nucleosynthesis, dark matter, and the formation of structure in the universe. Offered in alternate academic years. C. Conroy

235. Numerical Techniques. *
Gives students a theoretical and practical grounding in the use of numerical methods and simulations for solving astrophysical problems. Topics include N-body, SPH and grid-based hydro methods as well as stellar evolution and radiation transport techniques. Enrollment restricted to graduate students. Offered in alternate academic years. G. Laughlin

237. Accretion Processes. *
Theories of spherical accretion, structure and stability of steady-state accretion disks, and the evolution of time-dependent accretion disks. Applications of these theories to the formation of the solar system as well as the structure and evolution of dwarf novae and X-ray sources are emphasized. (Formerly Accretion in Early and Late Stages of Stellar Evolution) Offered in alternate academic years. D. Lin

240A. Galactic and Extragalactic Stellar Systems. *
Structure and evolutionary histories of nearby galaxies. Stellar populations, galactic

dynamics, dark matter, galactic structure and mass distributions. Peculiar galaxies and starbursting galaxies. Structure and content of the Milky Way. Evolution of density perturbations in the early universe. Hierarchical clustering model for galaxy formation and evolution. Offered in alternate academic years. The Staff

240B. High Redshift Galaxies. *
Galaxy formation and evolution from observations of intermediate-to-high redshift galaxies (z 0.5-5). Complements and builds on 240A. Cluster galaxies and field galaxies. Foundation from classic papers on distant galaxies. Recent discoveries from IR and sub-mm measurements. Impact of AGNs and QSOs. Overview of modeling approaches. Identify theoretical and observational issues. (Formerly Galactic and Extragalactic Stellar Systems) Enrollment restricted to graduate students. Offered in alternate academic years. G. Illingworth

257. Modern Astronomical Techniques. *
Covers physical, mathematical, and practical methods of modern astronomical observations at all wavelengths at a level that prepares students to comprehend published data and to plan their own observations. Topics include: noise sources and astrophysical backgrounds; coordinate systems; filter systems; the physical basis of coherent and incoherent photon detectors; astronomical optics and aberrations; design and use of imaging and spectroscopic instruments; antenna theory; aperture synthesis and image reconstruction techniques; and further topics at the discretion of the instructor. Familiarity with UNIX, computer programming, and completion of Physics 116C is strongly recommended as well as at least one upper-division course in astronomy. Designed for graduate students; available to qualified undergraduate astrophysics majors by instructor permission. Offered in alternate academic years. T. Jeltema

260. Instrumentation for Astronomy. *
An introduction to astronomical instrumentation for infrared and visible wavelengths. Topics include instrument requirements imposed by dust, atmosphere, and telescope; optical, mechanical, and structural design principles and components; electronic and software instrument control. Imaging cameras and spectrographs are described. Offered in alternate academic years. Enrollment restricted to graduate students. C. Rockosi

289. Adaptive Optics and Its Application. *
Introduction to adaptive optics and its astronomical applications. Topics include effects of atmospheric turbulence on astronomical images, basic principles of feedback control, wavefront sensors and correctors, laser guide stars, how to analyze and optimize performance of adaptive optics systems, and techniques for utilizing current and future systems for astronomical observations. (Formerly course 289C.) Enrollment restricted to graduate students. Offered in alternate academic years. C. Max

292. Seminar (no credit). F,W,S
Seminar attended by faculty, graduate students, and upper-division undergraduate students. The Staff

297. Independent Study. F,W,S
Independent study or research for graduate students who have not yet begun work on their theses. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. The Staff

299. Thesis Research. F,W,S
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Biochemistry and Molecular Biology

2014-15 General Catalog

Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Baskin Engineering Building
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

Faculty | Program Statements

Upper-Division Courses

100A. Biochemistry. F
Fundamentals of molecular biology, structure and function of nucleic acids, and protein structure. Designed for students preparing for research careers in biochemistry and molecular biology. Lecture: 3-1/2 hours; discussion: 1-1/4 hours. Prerequisite(s): Chemistry 108B or 112C; and Biology 20A W. Scott

100B. Biochemistry. W
Covers enzyme mechanisms, kinetics, regulations, membrane composition and structure, specialized membrane functions, active transport and electro-chemical storage, excitable membranes and neurotransmitters, membrane receptors and sensory transduction mechanisms. Lecture: 3-1/2 hours; discussion: 1-1/4 hours. Prerequisite(s): course 100A C. Partch

100C. Biochemistry. S
Biochemistry: intermediary metabolism and bioenergetics. How enzymatically catalyzed reactions are organized and regulated; how energy from molecules is extracted for chemical work. Lecture: 3-1/2 hours; discussion: 1-1/4 hours. Prerequisite(s): course 100B R. Ludwig

110L. Advanced Biochemistry Laboratory. F
An introduction to the major techniques used in the isolation and characterization of biological components. Laboratory: 8 hours; lecture: 1-1/4 hours. Students are billed a materials fee. (Formerly course 110, Biochemistry Laboratory) Prerequisite(s): course 100B and satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): W.) O. Einarsdottir

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Biomolecular Engineering

2014-15 General Catalog

Baskin School of Engineering
335 Baskin Engineering Building
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

5. Introduction to Biotechnology. F,W,S
Introduces the tools and applications of biotechnology in the fields of medicine, agriculture, the environment, and industry. (General Education Code(s): PE-T, IN.) W. Rothwell, The Staff

80G. Bioethics in the 21st Century: Science, Business, and Society. F
Serves science and non-science majors interested in bioethics. Guest speakers and instructors lead discussions of major ethical questions having arisen from research in genetics, medicine, and industries supported by this knowledge. (Also offered as Philosophy 80G. Students cannot receive credit for both courses.) (General Education Code(s): PE-T, T6-Natural Sciences or Humanities and Arts.) M. Akeson, S. Dreisbach, The Staff

80H. The Human Genome. F,W,S
Course will focus on understanding human genes. Accessible to non-science majors. Will cover principles of human inheritance and techniques used in gene analysis. The evolutionary, social, ethical, and legal issues associated with knowledge of the human genome will be discussed. (General Education Code(s): PE-T, T2-Natural Sciences.) W. Rothwell, The Staff

88A. BMES Freshman Design Seminar (2 credits). W
A first course in engineering design for bioengineers. In cooperation with the Biomedical Engineering Society (BMES). Students choose a design project and work on it in competitive and cooperative teams. Covers research, design, prototyping, and report writing. Enrollment restricted to freshman majors and proposed majors in Bioengineering. Enrollment limited to 25. (General Education Code(s): PR-E.) K. Karplus

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for

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- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
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- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
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- Electrical Engineering
- Environmental Studies
- Feminist Studies
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- History of Consciousness
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credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Applied Circuits for Bioengineers. S
Introduces analog electronics. Topics include circuit theory (Kirchoff's laws, Thevenin equivalents); constant and sinusoidal signals; RC filters op amps; feedback; oscillators; and instrumentation amplifiers. Emphasis is on design for sensors (thermistors, microphones, electrodes, pressure sensors, phototransistors); voltage dividers are a recurring theme. Prerequisite(s): Mathematics 11B, 19B, or 20B and Physics 5C/N or 6C/N which may be taken concurrently with Biomolecular Engineering 101. K. Karplus

101L. Applied Circuits Laboratory (2 credits). S
Twice weekly, three-hour laboratory to design and build circuits to interface sensors used in bioengineering (thermistors, microphones, electrodes, pressure sensors, phototransistors). Students design and build a one-lead electrocardiograph (EKG). Students are billed a materials fee. Prerequisite(s): Physics 5C/N or 6C/N. Concurrent enrollment in course 101 is required. Enrollment limited to 48. K. Karplus

110. Computational Biology Tools. F,W
Hands-on lectures and laboratory geared to teach basic tools and skills used in computational biology (genome browsers, sequence database searching, motif analysis, multiple sequence alignment, gene finders, phylogenetics analysis, protein structure visualization, and others). Web-based tools/databases are used on student laptops. Open to all science students; no prior programming or Unix experience required. (Also offered as Biology: Molecular Cell & Dev 181. Students cannot receive credit for both courses.) Prerequisite(s): Biology 100, 105, Biochemistry 100A, or Chemistry 103 or declared Bioinformatics majors. Enrollment limited to 25. T. Lowe, The Staff

123A. Bioengineering Project 1 (7 credits). F
First of a two-course sequence that is the culmination of the engineering program. Students apply knowledge and skills gained in elective track to complete a major design project. Students complete research, specification, planning, and procurement for a substantial project. Includes technical discussions, design reviews, and formal presentations; engineering design cycle, engineering teams, and professional practices. Formal technical specification of the approved project is presented to faculty. Students are billed a materials fee. Prerequisite(s): course 140 or 150 and previous or concurrent enrollment in Computer Engineering 185. Enrollment restricted to biogengineering majors. (General Education Code(s): PR-E.) The Staff, M. Akeson, K. Karplus

123B. Bioengineering Project 2 (7 credits). W
Second of two-course bioengineering project sequence. Students implement and test the engineering designs from course 123A. Projects are usually done as group projects, but individual projects are permitted. Requires written progress reports, formal written report, and oral presentation before a panel of faculty. Students are billed a materials fee. Prerequisite(s): course 123A and Computer Engineering 185. Enrollment restricted to biogengineering majors. Enrollment limited to 30. M. Akeson, The Staff

123T. Senior Thesis Presentation (2 credits). W
For bioengineering senior thesis students, guidance in preparing a research seminar and a draft manuscript describing their senior research project. Students collaborate with each other and with investigators from their sponsoring laboratory as they fulfill the course requirements. Prerequisite(s): Computer Engineering (CMPE) 185. Concurrent enrollment in BME 193 or BME 195 or BME 198 or CMPE 193 or CMPE 195 or CMPE 198 or Electrical Engineering (EE) 193 or EE 195 or EE 198 is required. Enrollment limited to 25. (General Education Code(s): PR-E.) The Staff, M. Akeson, K. Karplus

128. Protein Engineering. S
For bioengineering, bioinformatics, and biology majors, focuses on engineering (i.e.,

Management
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Teaching and Administrative Staff

Appendixes

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changing) of proteins. Topics focus on practical aspects of protein engineering strategies that are crucial to modern biotechnology and biomedicinal applications. Prerequisite(s): Biology 20A, and Biology 100 or Biochemistry and Molecular Biology 100A, or by permission of instructor. R. Dubois, The Staff

130. Genomes. F,S
Advanced elective for biology majors, examining biology on the genome scale. Topics include genome sequencing; large scale computational and functional analysis; features specific to prokaryotic, eukaryotic, or mammalian genomes; proteomics; SNP analysis; medical genomics; and genome evolution. (Also offered as Biology: Molecular Cell & Dev 182. Students cannot receive credit for both courses.) Prerequisite(s): Biology 100 or Chemistry 103 or Biochemistry 100A; and Biology 105; or approval of instructor. Enrollment limited to 30. R. Green

140. Bioinstrumentation. F
Introduction to theory, design, and application of bioinstrumentation in clinical, pharmaceutical , and biotechnology laboratories. Highly recommended for students planning careers in the biomolecular industries. Typical topics and demonstrations include thermocycler, polymerase chain reaction (PCR), pyrosequencing, fabless nanofabrication, ion-sensitive measurements, microarray fabrication, and fluorescent-activated cell sorter (FACS). Students are billed a materials fee. Prerequisite(s): course 5, or Biology 100, or Biochemistry and Molecular Biology 100A. N. Pourmand

150. Molecular Biomechanics. S
Considers how assemblies of macromolecules (molecular motors) convert chemical energy into mechanical work on the nanometer-to-Angstrom scale. Processes examined include ATP-dependent movement of organelles in the cytocsol facilitated by kinesin; proton pumping by ATPases in the mitochondrial membrane; viral genome packaging; bacterial movement driven by flagella; processive addition of nucleotides by polymerases during replication and transcription; and protein synthesis by ribosomes. Cannot receive credit for this course and course 250. Prerequisite(s): Biology 20A; and Biology 20B or 105; and Biology 100 or Biochemistry 100A. M. Akeson

155. Biotechnology and Drug Development. W
Recommended for students interested in careers in the biopharmaceutical industry. Focuses on recombinant DNA technology and the drug-development process, including discovery research; preclinical testing; clinical trials; and regulatory review, as well as manufacturing and production considerations. Students may not receive credit for this course and Biomolecular Engineering 255 and Chemistry 255. (Also offered as Biology: Molecular Cell & Dev 179. Students cannot receive credit for both courses.) Prerequisite(s): Biology 20A and Biology 100 or Chemistry 103 or Biochemistry and Molecular Biology 100A. Enrollment limited to 15. P. Berman

160. Research Programming in the Life Sciences. S
No programming experience is required, but basic computer and molecular biology understanding is assumed. Students learn programming in Python to manipulate biological data. Programming assignments comprise the majority of the assignments, and a final project using skills developed in this course is required. BioPython and other modules introduced for use in the final project. (Formerly Research Programming for Biologists and Biochemists.) (Also offered as Biology: Molecular Cell & Dev 180. Students cannot receive credit for both courses.) Prerequisite(s): Biology 20A or 21A. Previous or concurrent enrollment in course 160L is required. (General Education Code(s): MF.) J. Stuart, The Staff

160L. Research Programming in the Life Sciences Laboratory (1 credit). S
Laboratory sequence illustrating topics covered in course 160. One two-hour laboratory per week. (Formerly Research Programming for Biologists and Biochemists Laboratory.) (Also offered as Biology: Molecular Cell & Dev 180L. Students cannot receive credit for both courses.) Prerequisite(s): Biology 20A or 21A. Previous or concurrent enrollment in course 160 is required. J. Stuart, The Staff

170. Drug Action and Development. S
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and

course 270. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Chemistry and Biochemistry 170. Students cannot receive credit for both courses.) Prerequisite(s): Biology 100 or Chemistry 103 or Biochemistry 100A. Biology 110 and 130/L or 131/L are recommended. Enrollment restricted to juniors and seniors. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

177. Engineering Stem Cells. W
For bioengineering students interested in stem cells. Class uses project-based learning to discuss basic stem cell concepts and past breakthrough approaches to identify and design solutions for technological hurdles in stem cell research. Prequisite(s): course 140 or 150, and BIOL 100, or by consent of instructor. Enrollment limited to 30. C. Forsberg

178. Stem Cell Biology. W
Basic concepts, experimental approaches, and therapeutic potential are discussed. Students gain experience in reading the primary scientific literature. (Also offered as Biology: Molecular Cell & Dev 178. Students cannot receive credit for both courses.) Prerequisite(s): Biology 110; Biology 115 recommended. C. Forsberg

193. Field Study. F,W,S
Provides for individual programs of study with specific aims and academic objectives carried out under the direction of a BME faculty member and a willing sponsor at a field site, using resources not normally available on campus. Credit is based upon written and oral presentations demonstrating the achievement of the objectives of the course. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study with specific aims and academic objectives carried out under the direction of a BME faculty member and a willing sponsor at a field site, using resources not normally available on campus. Credit is based upon written and oral presentations demonstrating the achievement of the objectives of the course. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195F. Senior Thesis or Research (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Individual Study or Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Individual Study or Research (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
For fourth-year students majoring in bioinformatics or bioengineering. May be repeated for credit. The Staff

Graduate Courses

200. Research and Teaching in Bioinformatics (3 credits). F
Basic teaching techniques for teaching assistants, including responsibilities and rights of teaching assistants, resource materials, computer security, leading discussion or lab sessions, presentation techniques, maintaining class records, electronic handling of homework, and grading. Examines research and professional training, including use of library and online databases, technical typesetting, writing journal and conference papers, publishing in bioinformatics, giving talks in seminars and conferences, and ethical issues in

science and engineering. Required for all teaching assistants. Enrollment restricted to graduate students. K. Karplus

205. Bioinformatics Models and Algorithms. F
Covers bioinformatics models and algorithms: the use of computational techniques to convert the masses of information from biochemical experiments (DNA sequencing, DNA chips, and other high-throughput experimental methods) into useful information. Emphasis is on DNA and protein sequence alignment and analysis. Enrollment restricted to graduate students. Undergraduates may enroll with prerequisite(s): Computer Science 12B; and Computer Engineering 107 or Applied Math and Statistics 131; and Biology 20A; and concurrent enrollment in Biochemistry 100A. K. Karplus

211. Computational Systems Biology. S
Teaches machine-learning methods relevant for the analysis of high-throughput molecular biology experiments. Students should be fluent in a programming language and should have taken basic molecular biology courses. Prerequisite(s): course 205. Enrollment restricted to graduate students; undergraduates may enroll if they have completed course 205, Computer Science 101, and any upper-division molecular biology or biochemistry course, such as Biochemistry 100 or 100A. J. Stuart

215. Applied Gene Technology. S
Detailed insight into the techniques and technological trends in genomics and transcriptomics, building the necessary foundations for further research in genetic association studies, population genetic association studies, population genetics, diagnostics, medicine, and drug development. Students should already have a deeper understanding of the basic tools of molecular biotechnology than acquired in introductory courses in biotechnology, biochemistry, and molecular biotechnology. Enrollment restricted to graduate students. N. Pourmand

230. Computational Genomics. W
Genomics databases: analysis of high-throughput genomics datasets; BLAST and related sequence comparison methods; pairwise alignment of biosequences by dynamic programming; statistical methods to discover common motifs in biosequences; multiple alignment and database search using motif models; constructing phylogenetic trees; hidden Markov models for finding genes, etc.; discriminative methods for analysis of bioinformatics data, neural networks, and support vector machines; locating genes and predicting gene function, including introduction to linkage analysis and disease association studies using SNPs; and modeling DNA and RNA structures. Prerequisite(s): course 205; concurrent enrollment in course 230L, 296, or 297 is required. Enrollment restricted to graduate students; undergraduates may enroll by instructor permission if they have completed course 205, Computer Science 101, BIOC 100A. J. Stuart, R. Green, D. Haussler

230L. Computational Genomics Laboratory (1 credit). W
Project in computational genomics. Prerequisite(s): course 205; concurrent enrollment in course 230 is required. J. Stuart, R. Green, D. Haussler

235. Banana Slug Genomics.
Students will assemble and annotate the banana slug genome (Ariolimax dolichophallus) from next-generation sequencing data. Students also will explore the capabilities of the latest next-generation bioinformatics tools and write their own as needed. Prerequisite(s): course 205 or graduate status. Seniors who have taken course 110 and a computer programming course may enroll with permission of instructor. May be repeated for credit. K. Karplus, The Staff

237. Applied RNA Bioinformatics.
Teaches methods for RNA gene discovery; probabilistic modeling, secondary structure/trans-interaction prediction; mRNA splicing; and functional analysis. Emphasis on leveraging comparative genomics and employing high-throughput RNA sequencing data. Includes lectures, scientific literature discussion, problem sets, and final gene-discovery project. Enrollment restricted to seniors and graduate students. T. Lowe, The Staff

250. Molecular Biomechanics. S
Considers how assemblies of macromolecules (molecular motors) convert chemical energy into mechanical work on the nanometer-to-Angstrom scale. Processes examined in the course include ATP-dependent movement of organelles in the cytocsol facilitated by

kinesin; proton pumping by ATPases in the mitochondrial membrane; viral genome packaging; bacterial movement driven by flagella; processive addition of nucleotides by polymerases during replication and transcription; and protein synthesis by ribosomes. Cannot receive credit for this course and course 150. Enrollment restricted to graduate students. M. Akeson

255. Biotechnology and Drug Development. W
Recommended for students interested in careers in the biopharmaceutical industry. Focuses on recombinant DNA technology and the drug-development process, including discovery research; preclinical testing; clinical trials; and regulatory review, as well as manufacturing and production considerations. Students may not receive credit for this course and Biomolecular Engineering 155 and Biology 179. (Also offered as Chemistry and Biochemistry 255. Students cannot receive credit for both courses.) Enrollment limited to graduate students. Enrollment limited to 15. P. Berman

268A. Science and Justice: Experiments in Collaboration. S
Considers the practical and epistemological necessity of collaborative research in the development of new sciences and technologies that are attentive to questions of ethics and justice. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267A, Feminist Studies 268A, and Sociology 268A. Students cannot receive credit for more than one course.) Enrollment limited to 15. The Staff

268B. Science and Justice Research Seminar.
Provides in-depth instruction in conducting collaborative interdisciplinary research. Students produce a final research project that explores how this training might generate research that is more responsive to the links between questions of knowledge and questions of justice. Prerequisite(s): Sociology 268A, Biomolecular Engineering 268A, Feminist Studies 268A, or Anthropology 267A. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267B, Feminist Studies 268B, and Sociology 268B. Students cannot receive credit for more than one course.) Enrollment limited to 15. The Staff

270. Drug Action and Development. S
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and course 170. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Chemistry and Biochemistry 270. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

280B. Seminar on Bioinformatics and Bioengineering (2 credits). F,W,S
Weekly seminar series covering topics of current research in computational biology, and bioinformatics. Current research work and literature in these areas are discussed.(Formerly Seminar on Bioinformatics.) May be repeated for credit. The Staff

281A. Seminar on Processive Enzymes and Nanopores (2 credits). F,W,S
Weekly seminar series covering experimental research in nanopore technology and single-molecule analysis of polymerase function. Current research work and literature is discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students. Qualified undergraduates may enroll with permission of instructor. May be repeated for credit. M. Akeson

281B. HIV Vaccine Research (2 credits). F,S
Weekly seminar series covering topics of HIV vaccine research. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. P. Berman

281C. Seminar in Cancer Genomics (2 credits). F,W,S
Presents current computational biology research to identify genomics-based signatures of cancer onset, progression, and treatment response. Examples of such investigations include: genetic pathway interpretation of multivariate high-throughput datasets; discovery of mutations in whole-genome sequence; identifications and quantification of gene

isoforms, alleles, and copy number variants; and machine-learning tools to predict clinical outcomes. Students present their own research, host journal clubs, and attend lectures and teleconferences to learn about research conducted by national and international projects. Enrollment restricted to graduate students. May be repeated for credit. D. Haussler, J. Stuart

281E. Seminar in Genomics (2 credits). F,W,S
Current topics in genomia including high-throughput sequencing, genome assembly, and comparative genomics. Students design and implement independent research projects. Weekly laboratory meetings are held to discuss these projects and related research in the field. Enrollment restricted to graduate students May be repeated for credit. R. Green

281F. Blood Cell Development (2 credits). F,W,S
Weekly seminar covering topics in current research on blood cell development and stem cell biology. Current research and literature in these areas discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. C. Forsberg

281H. Seminar in Comparative Genomics (2 credits). F,W,S
Weekly seminar series covering topics of current computational and experimental research in comparative genomics. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. D. Haussler

281K. Seminar on Protein Structure Prediction (2 credits). F,W,S
Weekly seminar series covering topics of current computational and experimental research in protein structure prediction. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. K. Karplus

281L. Seminar in Computational Genetics (2 credits). W,S
Weekly seminar series covering topics and experimental research in computational genetics. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. T. Lowe

281P. Seminar on Nanotechnology and Biosensors (2 credits). F,W,S
Weekly seminar covering topics of research in the development of new tools and technologies to detect and study genes and proteins. Latest research work and literature in these areas are discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. N. Pourmand

281S. Seminar in Computational Functional Genomics (2 credits). F,W,S
Weekly seminar series covering topics of current computational and experimental research in computational functional genomics. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. J. Stuart

293. Seminar in Biomolecular Engineering.
Weekly seminar series covering topics of bioinformatics and biomolecular engineering research. Current research work and literature in this area discussed. Students lead some discussions and participate in all meetings. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. The Staff

296. Research in Bioinformatics. F,W,S
Independent research in bioinformatics under faculty supervision. Although this course may be repeated for credit, not every degree program accepts a repeated course towards degree requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297. Independent Study or Research. F,W,S
Independent study or research under faculty supervision. Although course may be repeated for credit, not every degree program accepts a repeated course towards degree requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study or Research (2 credits). F,W,S
Independent study or research under faculty supervision. Although course may be repeated for credit, not every degree program accepts a repeated course towards degree requirements. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Thesis research conducted under faculty supervision. Although course may be repeated for credit, not every degree program accepts a repeated course towards degree requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Chemistry and Biochemistry

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Chemistry and Biochemistry Department
230 Physical Sciences Building
(831) 459-4125
http://chemistry.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs
142 Jack Baskin Engineering Building
(831) 459-4143
http://undergrad/pbsci.ucsc.edu/index.html

Faculty | Program Statement

Lower-Division Courses

1A. General Chemistry. F,W,S
First quarter of an integrated study of general chemistry. Covers a range of topics including the atomic structure of matter; molecules; chemical reactions; acids and bases; gases; and equilibria in the gas and liquid phase. Students expected to use algebra to solve problems. Prerequisite(s): Previous or concurrent enrollment in MATH 3 (or equivalent), or score of 300 or higher on math placement exam, or 3 or higher on advanced placement calculus (AB or BC) exam; online chemistry. self-assessment exam strongly recommended. (General Education Code(s): SI, IN, Q.)G. Millhauser, R. Roland, S. Rubin, T. Holman

1B. General Chemistry. F,W,S
Second quarter of an integrated study of general chemistry. Coverage includes quantum mechanics; the hydrogen atom; many-electron atoms and chemical periodicity; elementary covalent bonding; transition metals; and chemical kinetics. Prerequisite(s): Strong high school level chemistry is strongly recommended; taking the online chemistry self-assessment examination is strongly recommended. Concurrent enrollment in course 1M is recommended. (General Education Code(s): IN, Q.) The Staff, R. Bogomolni, R. Roland

1C. General Chemistry. F,W,S
Third quarter of an integrated study of general chemistry. Coverage includes thermodynamics; oxidation-reduction and electrochemistry; liquids and solids; intermolecular forces and solutions, including colligative properties; and nuclear chemistry. Prerequisite(s): course 1A. Concurrent enrollment in course 1N is required. (General Education Code(s): IN, Q.) P. Weiss

1M. General Chemistry Laboratory (2 credits). F,W,S
Laboratory sequence illustrating topics covered in courses 1B and 1C and important experimental techniques. Students are billed a materials fee. Prerequisite(s): Previous or concurrent enrollment in course 1B is required. R. Roland, P. Weiss

1N. General Chemistry Laboratory (2 credits). F,W,S

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
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- Porter College
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- Science Communication
- Social Documentation
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- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Laboratory sequence illustrating topics covered in courses 1B–1C, respectively, and important experimental techniques. Students are billed a materials fee. Prerequisite(s): Concurrent enrollment in course 1C is required. R. Roland

1P. Chemistry Essentials (3 credits). *
Introduction to basic concepts required for the Chemistry 1 series. This course is for students who have little background in high school chemistry or equivalent. Covers elementary topics including units, conversions, the mole, chemical reactions, and balancing. This course is offered during Summer Session only. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

103. Biochemistry. W
Introduction to biochemistry including biochemical molecules, protein structure and function, membranes, bioenergetics, and regulation of biosynthesis. Provides students with basic essentials of modern biochemistry. Students who plan to do advanced work in biochemistry and molecular biology should take the Biochemistry and Molecular Biology (BIOC) 100 series. Students cannot receive credit for this course after they have completed any two courses from the BIOC 100A, 100B, and 100C sequence. Prerequisite(s): course 108B. M. Stone

108A. Organic Chemistry. F,W
Introduction to organic chemistry, with an emphasis on bonding and reactivity or organic compounds. Prerequisite(s): courses 1B and 1C. R. Lokey, The Staff

108B. Organic Chemistry. W,S
Introduction to organic chemistry, with an emphasis on reactivity and synthesis of organic compounds. Prerequisite(s): course 108A. R. Braslau, D. Palleros

108L. Organic Chemistry Laboratory (2 credits). F,W
Laboratory experience in organic chemistry associated with course 108A. Designed to introduce the student to the many techniques associated with organic chemistry while affording an opportunity to explore the concepts discussed in the lecture material. Laboratory: 4 hours, lecture: 1–1/4 hours. Students are billed a materials fee. Prerequisite(s): courses 1C and 1N and previous or concurrent enrollment in 108A is required. D. Palleros

108M. Organic Chemistry Laboratory (2 credits). W,S
Laboratory experience in organic chemistry associated with course 108B. Designed to introduce the student to the many techniques associated with organic chemistry while affording an opportunity to explore the concepts discussed in the lecture material. Laboratory: 4 hours, lecture: 1–1/4 hours. Students are billed a materials fee. Prerequisite(s): courses 108A and 108L and previous or concurrent enrollment in 108B is required. D. Palleros

109. Intermediate Organic Chemistry and Applications to Biology (3 credits). S
Integrated study of fundamental organic chemistry, with emphasis on materials especially relevant to biological sciences. Prerequisite(s): course 108B or equivalent. D. Palleros

110. Intermediate Organic Chemistry with Emphasis on Synthesis and Analytical Methods. S
An intermediate study of organic chemistry, including synthetic methods, reaction mechanisms, and application of synthetic chemistry techniques. Prerequisite(s): course 108B. Enrollment restricted to chemistry majors and minors. R. Linington

110L. Intermediate Organic Chemistry Laboratory (2 credits). S
Laboratory experience in organic chemistry and associated principles. Experiments involve the preparation, purification, characterization, and identification of organic compounds, and make use of modern as well as classical techniques. Students are billed a materials fee. Prerequisite(s): course 108M and previous or concurrent enrollment in course 110. Enrollment restricted to chemistry majors and minors. D. Palleros

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122. Principles of Instrumental Analysis. F
A laboratory course designed to develop familiarity with techniques and instrumentation used in analytical chemistry, emphasizing determination of trace inorganic species. Primary emphasis on applications utilizing the absorption or emission of electromagnetic radiation and on voltammetry. Topics include molecular UV-visible absorption and fluorescence spectrometry; atomic absorption, emission and fluorescence spectrometry; and various forms of voltammetry. Lecture: 2 hours; laboratory: 8 hours. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 110. (General Education Code(s): W.) D. Smith

143. Organic Chemical Structure and Reactions. F
Advanced topics such as the chemistry of terpenes, steroids, synthetic polymers, alkaloids, reactive intermediates, and reaction mechanisms are treated. Lecture: 4 hours. Prerequisite(s): course 110. B. Singaram

146A. Advanced Laboratory in Organic Chemistry (3 credits). F
Exposes students to advanced laboratory techniques in organic chemistry. Designed for students without previous research background in organic chemistry. Experiments carry a research-like format and cover the areas of natural products and reaction chemistry. Modern methods of organic analysis are emphasized including chromatographic methods and organic structure determination by spectroscopy. Laboratory: 8 hours. Students billed a materials fee. Prerequisite(s): courses 110/L; satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to chemistry majors and minors; other majors by permission of instructor. Enrollment limited to 16. D. Palleros

146B. Advanced Laboratory in Inorganic Chemistry (3 credits). S
Designed to expose students to advanced synthetic and spectroscopic techniques in inorganic chemistry. Examples include anaerobic manipulations, characterization of inorganic materials through spectral assignments and synthesis of coordination and organometallic complexes. Lecture: 1-1/4 hours; laboratory: 8 hours. Students billed a materials fee. Prerequisite(s): courses 151A/L; 163A; satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to chemistry majors and minors; other majors by permission of instructor. T. Holman

146C. Advanced Laboratory in Physical Chemistry (3 credits). S
Provides advanced laboratory experience in the areas of nanomaterial synthesis and characterization; spectroscopy; fabrication and measurements energy-conversion devices; and soft lithography techniques and instrumentation. Lecture: 1-1/4 hours; laboratory: 4 hours. Students are billed a materials fee. Prerequisite(s): courses 163B and 164; satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to chemistry majors and minors; other majors by permission of instructor. Enrollment limited to 20. Y. Li

151A. Chemistry of Metals. S
Fundamental topics of inorganic chemistry are presented at the level of the standard texts of field. Special emphasis is given to maintain breadth in the areas of metallic, nonmetallic, and biological aspects of inorganic chemistry. Lecture: 3-1/2 hours; discussion: 1-1/4 hours. Prerequisite(s):courses 108B/M and 163A. Concurrent enrollment in course 151L required. Enrollment restricted to chemistry majors and minors; other majors by permission of instructor. S. Oliver

151B. Chemistry of the Main Group Elements. W
Fundamental aspects of inorganic chemistry of main group elements are discussed. The emphasis is placed on the chemistry of nontransition elements including noble gases and halogens. In addition, students are exposed to the concepts of extended structures, new materials, and solid-state chemistry. Lecture: 3-3/4 hours. Prerequisite(s): courses 110, 110L, and 163A. Recommended for chemistry majors. P. Mascharak

151L. Inorganic Chemistry Laboratory (2 credits). S
Laboratory experience in inorganic chemistry. Experiments involve the preparation, purification, and characterization of inorganic compounds. In addition, experiments are designed to illustrate fundamental principles in inorganic chemistry and are coordinated with lectures in course 151A. Laboratory: 4 hours per week. Laboratory lecture: 1 1/4 hours per week. Students are billed a materials fee. Prerequisite(s):courses 108B/M and

163A. Concurrent enrollment in course 151A required. Enrollment restricted to chemistry majors and minors; other majors by permission of instructor. S. Oliver

156C. Advanced Topics in Inorganic Chemistry. *
Advanced topics in inorganic chemistry and an introduction to solid state chemistry. Synthesis and structure of materials discussed as well as their influence on properties for modern devices and applications. Recent developments in area of material science also explored. Taught in conjunction with course 256C. Prerequisite(s): course 151A. Enrollment restricted to seniors. S. Oliver

163A. Quantum Mechanics and Basic Spectroscopy. F
A detailed introduction to quantum theory and the application of wave mechanics to problems of atomic structure, bonding in molecules, and fundamentals of spectroscopy. Prerequisite(s): courses 1B and 1C, Physics 5A-B-C or 6A-B-C and Mathematics 22 or 23B. Physics 6C can be taken concurrently. J. Zhang

163B. Chemical Thermodynamics. W
Fundamentals of thermodynamics and applications to chemical and biochemical equilibria. (Formerly Thermodynamics and Kinetic Theory.) Prerequisite(s): courses 1B and 1C, Physics 6A or 5A, and Math 22 or 23B. S. Chen

163C. Kinetic Theory and Reaction Kinetics, Statistical Mechanics, Spectroscopic Applications. S
Introduction to statistical mechanics, kinetic theory, and reaction kinetics and topics in spectroscopy. Prerequisite(s): courses 163A and 163B. A. Ayzner

164. Physical Chemistry Laboratory. W
Provides laboratory experience and data analysis in the areas of thermodynamics, kinetics, and spectroscopy. Lecture: 1.75 hours; experimental laboratory: 4 hours; computer laboratory: 2 hours. Students are billed a materials fee. Prerequisite(s): courses 1B and 1C; and Physics 5A and Physics 5B and Physics 5C, or Physics 6A and Physics 6B and Physics 6C; and Mathematics 22 or Mathematics 23B. Course 163A is recommended. S. Chen

169. Chemistry and Biology of Drug Design and Discovery. S
An overview of the central elements of drug discovery, including target selection and validation; computational or virtual screening; high-throughput screening; fragment-based methods; and pharmacokinetics. Prerequisite(s): course 103 or Biochemistry 100A. R. Lokey

170. Drug Action and Development. *
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and course 270. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Biomolecular Engineering 170. Students cannot receive credit for both courses.) Prerequisite(s): Biology 100 or Chemistry 103 or Biochemistry 100A. Biology 110 and 130/L or 131/L are recommended. Enrollment restricted to juniors and seniors. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

182. ACE Program Service Learning (2 credits). F
Students participate in training and development to co-facilitate collaborative learning in ACE chemistry discussion sections and midterm/exam review sessions. Students are role models for students pursuing science- and math-intensive majors. Prerequisite(s): Prior participation in ACE; good academic standing; no non-passing grades in prior quarter. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 10. (General Education Code(s): PR-S.) N. Cox-Konopelski

194. Senior Essay. F,W,S
An individually supervised course with emphasis on reviewing the current scientific literature. Students are required to submit a summary and a critique of a scientific paper in the form of a senior essay. Students submit a petition to the sponsoring agency. This course may not be repeated for credit. The Staff

195A. Senior Research. F,W,S
An individually supervised course with emphasis on independent research. Multiple-term course extending over two or three quarters; the grade and evaluation submitted for the

final quarter apply to all previous quarters. Students submit petition to sponsoring agency; may not be repeated for credit. The Staff

195B. Senior Research. F,W,S
An individually supervised course with emphasis on independent research. Multiple-term course extending over two or three quarters; the grade and evaluation submitted for the final quarter apply to all previous quarters. Students submit petition to sponsoring agency; may not be repeated for credit. The Staff

195C. Senior Thesis. F,W,S
An individually supervised course with emphasis on independent research. Multiple-term course extending over two or three quarters; the grade and evaluation submitted for the final quarter apply to all previous quarters. Students submit petition to sponsoring agency; may not be repeated for credit. (Formerly Senior Research.) The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200A. Advanced Biochemistry: Biophysical Methods. F
An introduction to the theory, principles, and practical application of biophysical methods to the study of biomolecules, especially proteins and nucleic acids. Emphasis on spectroscopic techniques. Topics include magnetic resonance, optical spectroscopy, fast reaction techniques, crystallography, and mass spectrometry. S. Rubin

200B. Advanced Biochemistry: Macromolecular Structure and Function. S
A detailed discussion of nucleic acid and protein chemistry, ranging from the structure, thermodynamics, and folding to the relationship between structure and function, and encompassing the methods used to determine such information. (Formerly Advanced Biochemistry: Protein Structure and Function.) M. Stone

200C. Advanced Biochemistry: Enzyme Mechanisms and Kinetics. W
A study of enzyme kinetics, mechanisms, and factors involved in enzymic catalysis. Lecture: 3-1/2 hours. (Formerly course 231, Enzyme Mechanisms and Kinetics.) W. Scott

234. Bioinorganic Chemistry. S
The role played by transition metals in biological systems is discussed through application of the principles of coordination chemistry and inorganic spectroscopy. Topics include metalloproteins involved in oxygen binding, iron storage, biological redox reactions, and nitrogen fixation, as well as metal complexes of nucleic acids. Lecture: 4 hours. Prerequisite(s): courses 151A/L, 163A; and Biochemistry and Molecular Biology 100A. P. Mascharak

238. Topics in Biophysical Chemistry. S
A discussion of the application of selected topics in biophysical chemistry to contemporary problems in biochemistry and molecular biology. Lecture: 3-1/2 hours. Offered in alternate academic years. C. Partch

242A. Modern Physical Organic Chemisty. W
Covers molecular structure and bonding, strain, and non-covalent binding forces. Other topics include acid-base chemistry, kinetics, thermodynamics, catalysis, organic reactions and mechanism, and quantum mechanical approaches to the analysis of organic molecules. Enrollment restricted to seniors who have taken course 143, and graduate students. J. Raskatov

242B. Modern Synthetic Methods in Organic Chemistry. F
Presents concepts in bond formation, conformation, selectivity, and stereocontrol in modern organic synthesis. Focuses on understanding reaction mechanisms. Culminates with strategy in designing multi-step synthesis of complex targets. Enrollment restricted to seniors who have taken course 143, and graduate students. R. Braslau

242C. Spectroscopy and Applied Analytical Methods. S
Presents strategies in organic structure elucidation, including nuclear magnetic resonance

(NMR) and mass spectrometry. Provides theory and practical elements of structure elucidation and modern analytical methods for organic molecules. Enrollment restricted to seniors who have taken course 143, and graduate students. R. Linington

246. Advanced Topics in Organic Chemistry. *
A graduate course covering advanced topics in organic chemistry. Topics vary from year to year. The Staff

246A. Organic Reactions and Molecular Orbital Theory. *
Qualitative molecular orbital concepts, especially concerning aromaticity, orbital symmetry, and perturbation theory, and their application toward interpretation of reactivity and mechanism. Lecture: 3-1/2 hours. Prerequisite(s): courses 273 and 240A. Offered in alternate academic years. May be repeated for credit. The Staff

246B. Marine Organic Chemistry. *
A survey of organic natural products from marine sources. Organic chemical structural families unique to marine organisms are outlined. Pathways of their synthesis and interconversions; their role in the marine environment; approaches to their analysis; the distribution of organics in seawater. Lecture: 3-1/2 hours. Prerequisite(s): courses 108B/M or 112C/N. Offered in alternate academic years. May be repeated for credit. P. Crews

246C. Computers and Information Processing in Chemistry. *
An introduction to digital computers and their applications in chemistry. Includes Monte Carlo, artificial intelligence, pattern recognition, modeling, simulation, and optimization problem-solving methods. Applications to include structural analysis, spectroscopy, organic synthesis, and kinetics. Lecture: 3-1/2 hours; laboratory: 1-1/2 hours. Offered in alternate academic years. May be repeated for credit. The Staff

246F. Organoboranes in Organic Synthesis. *
An introduction to organoborane chemistry and its applications to synthetic organic chemistry, including principles, synthetic methods, reaction mechanisms, and asymmetric synthesis. A variety of topics including allylboration, boron-enolates, and asymmetric reductions are discussed. Enrollment restricted to seniors and graduate students. Offered in alternate academic years. May be repeated for credit. B. Singaram

246G. Heterocyclic Chemistry. *
Advanced study of synthesis and reactions of heterocyclic organic compounds; particular emphasis on structures with important medicinal value from natural products or pharmaceutical research. Prerequisite(s): course 143 or approval of instructor. J. Konopelski

246H. Organic Free Radical Chemistry. *
Covers a range of topics including radical stabilization, rates of fundamental radical reactions, methods of radical generation, synthetic applications of free radicals, persistent radicals, and some aspects of free radicals in biology. Prerequisite(s): course 143 or permission of instructor. R. Braslau

246I. Advanced Mechanistic Chemistry and Solution Kinetics. *
Kinetic approach to selected topics in mechanistic chemistry with emphasis on structure-reactivity relationships in organic as well as inorganic and biochemical systems. Discussion of significance and treatment of kinetic data illustrated with examples from various branches of chemistry. Prerequisite(s): permission of instructor. C. Bernasconi

255. Biotechnology and Drug Development. W
Recommended for students interested in careers in the biopharmaceutical industry. Focuses on recombinant DNA technology and the drug-development process, including discovery research; preclinical testing; clinical trials; and regulatory review, as well as manufacturing and production considerations. Students may not receive credit for this course and Biomolecular Engineering 155 and Biology 179. (Also offered as Biomolecular Engineering 255. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. P. Berman

256A. Advanced Topics in Inorganic Chemistry. *
Advanced topics in inorganic chemistry are presented. Topics covered vary from year to year, and are announced in advance. Possible topics include A) organometallic chemistry; B) structural methods in inorganic chemistry; C) solid-state chemistry. Prerequisite(s): courses 151A/L and 146B or graduate standing. The Staff

256B. Advanced Topics in Inorganic Chemistry. *
Advanced topics in inorganic chemistry are presented. Topics covered vary from year to year, and are announced in advance. Possible topics include A) organometallic chemistry; B) structural methods in inorganic chemistry; C) solid-state chemistry. Prerequisite(s): courses 151A/L and 146B or graduate standing. T. Holman

256C. Advanced Topics in Inorganic Chemistry. *
Advanced topics in inorganic chemistry are presented. Topics covered vary from year to year, and are announced in advance. Possible topics include A) organometallic chemistry; B) structural methods in inorganic chemistry; C) solid-state chemistry. Prerequisite(s): courses 151A/L and 146B or graduate standing. S. Oliver

256D. X-ray Crystallography. *
Course in chemical crystallography focuses on the needs of small-molecule, single-crystal diffraction studies. Includes diffraction theory, space-group analysis, data collection, structure solution, and refinement. Practical component: use of diffraction equipment and solution/refinement software. Enrollment restricted to graduate students and seniors who have taken courses 151A, 151L, and 163A. The Staff

261. Foundations of Spectroscopy. S
The basic theory of time dependent processes is covered at an advanced level. The interaction of electromagnetic radiation and matter is described using both semiclassical and quantum field formulations. A variety of modern spectroscopic techniques are discussed both in terms of the basic processes and their use in the elucidation of chemical structure and dynamics. Prerequisite(s): course 163A. Offered in alternate academic years. J. Zhang

262. Statistical Mechanics. *
Theory and concepts of statistical mechanics with applications to ideal gases, condensed systems, phase transition, and non-equilibrium thermodynamics. Lecture: 3-1/2 hours. Prerequisite(s): course 160B or 163A. Offered in alternate academic years. I. Benjamin

263. Quantum Mechanics. F
A rigorous introductory course: the Schrödinger equation, operator formalism, matrix mechanics, angular momentum, and spin. Perturbation and other approximate methods. Applications to atomic and molecular problems. Lecture: 3-1/2 hours. Prerequisite(s): courses 163A and Physics 114A-B. Offered in alternate academic years. I. Benjamin

265. Computer Simulation in Statistical Mechanics. *
A detailed introduction of the use of computer simulation methods in physical and biophysical chemistry. Includes review of thermodynamics and statistical mechanics, molecular mechanics, molecular dynamics, and Monte-Carlo methods. Applications to liquid structure, reaction dynamics, and protein dynamics. Offered in alternate academic years. I. Benjamin

266. Advanced Topics in Physical Chemistry. *
A graduate course covering advanced topics in physical chemistry. Topics vary from year to year. The Staff

266A. Lasers and Their Chemical Applications. *
Introduces the basic theoretical principles of lasers and laser light. Various types of lasers and selected applications to chemistry are discussed. The use of lasers in photochemistry, spectroscopy, chemical kinetics, and chemical analysis is considered. Lecture: 3-1/2 hours. Prerequisite(s): course 163A and Physics 114A-B. Offered in alternate academic years. May be repeated for credit. The Staff

268. Solid State and Materials Chemistry. W
Topics include synthesis of solid-state materials and their characterization using experimental techniques: XRD, TEM spectroscopy, NMR, and their applications in technologies. Emphasis on new materials, e.g., polymer, biopolymers, nanomaterials, organic/inorganic composites, ceramics, superconductors, electronic, magnetic, and opto-electronic materials. Prerequisite(s): courses 163A and 163B. Enrollment restricted to senior and graduate chemistry majors. Y. Li

269. Electrochemistry. *

Designed to introduce basic principles and applications of electrochemistry to students at upper undergraduate and lower graduate levels in various fields including analytical, physical, and materials chemistry. Enrollment restricted to seniors and graduate students. S. Chen

270. Drug Action and Development. *
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and course 170. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Biomolecular Engineering 270. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

274. Proseminar in Synthetic and Polymer Chemistry. F,W,S
Weekly meetings devoted to study of synthetic organic chemistry and controlled polymer design for applications in nanotechnology. Topics drawn from current literature and research interests of participants. May be repeated for credit. R. Braslau

275. Proseminar in Biological Inorganic Chemistry. F,W,S
Weekly meetings devoted to biological inorganic chemistry and biochemistry. Topics are drawn from current literature. Papers and reviews are discussed, and participants give short seminars on their research interests. May be repeated for credit. T. Holman

282. Proseminar: Synthetic Methods. F,W,S
Weekly meetings devoted to the study of asymmetric and/or enantio-selective synthesis of optically active organic compounds of biological and medicinal significance. Topics drawn from the current literature and the research interests of the participants. May be repeated for credit. B. Singaram

284. Proseminar in Synthetic Organic Chemistry. F,W,S
Weekly meetings devoted to the study of synthetic organic chemistry. Topics drawn from the current literature and the research interests of the participants. May be repeated for credit. J. Konopelski

285. Proseminar: Photobiochemistry and Photobiology. F,W,S
A detailed study of molecular mechanisms of light energy conversion and light-signal transduction processes in biological systems. Student participation in critical discussion of current literature examples are emphasized. Two-hour lecture and two-hour seminar weekly. Enrollment limited to 8. May be repeated for credit. R. Bogomolni

286. Proseminar in Natural Products Chemistry. F,W,S
Weekly meetings devoted to the study of natural products. Topics drawn from the current literature and research interests of the participants. May be repeated for credit. P. Crews

288. Proseminar in Bioinorganic Chemistry. F,W,S
Weekly meetings devoted to inorganic and bioinorganic research. Topics are drawn from current literature. Papers and reviews are discussed. Participants also give short seminars on topics of their research interests. May be repeated for credit. P. Mascharak

291. Chemistry and Biochemistry Research Seminar. F,W,S
A weekly chemistry and biochemistry seminar series covering recent developments and current research, led by experts from other institutions, as well as local speakers. Open to chemistry and biochemistry graduate students. Enrollment restricted to graduate students. May be repeated for credit. S. Chen

292. Seminar (2 credits). F
Enrollment restrictions: graduate standing or approval of the graduate adviser. A. Ayzner

296. Teaching Chemistry (2 credits). F
University-level pedagogy in chemistry; examines the role of preparation, assessment, and feedback in teaching chemistry discussion and laboratory sections. Effective classroom techniques and organizational strategies discussed; oral presentations analyzed critically. Required of entering chemistry graduate students. R. Roland

297. Independent Study. F,W,S
A topic will be studied with faculty tutorial assistance to satisfy a need for the student when

a regular course is not available. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. The Staff

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Chinese

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. First-Year Chinese. F
Instruction in elementary spoken and written Chinese (Mandarin), beginning with the sounds of Chinese and their representation in the pinyin romanization system. Conversation, structural analysis, and an introduction to character texts. The first-year sequence (1-2-3) begins only in the fall quarter. Students interested in learning Chinese who are uncertain about where they should enter the sequence should meet with the instructor prior to the first class meeting. (Formerly Instruction in the Chinese (Mandarin) Language.) The Staff

2. First-Year Chinese. W
Continuation of Chinese 1, which assumes that students are familiar both with the pinyin romanization system and approximately 150 basic characters. (Formerly Instruction in the Chinese (Mandarin) Language.) Prerequisite(s): course 1 or by consent of instructor. The Staff

3. First-Year Chinese. S
Continuation of Chinese 2, which assumes that students are familiar both with the pinyin romanization system and approximately 300 basic characters. (Formerly Instruction in the Chinese (Mandarin) Language.) Prerequisite(s): course 2 or by consent of instructor. The Staff

4. Second-Year Chinese. F
Instruction in intermediate spoken and written Chinese (Mandarin). Conversation, composition, and the reading of modern texts. The second-year sequence (4-5-6) begins only in the fall quarter. (Formerly Intermediate Chinese (Mandarin).) Prerequisite(s): course 3 or by consent of instructor. (General Education Code(s): IH.) The Staff

4H. Accelerated Chinese for Heritage Speakers. F
Intensive instruction in spoken and written Chinese for heritage students whose limited proficiency in Mandarin or limited familiarity with characters requires an accelerated review of the sounds, sentence patterns, and basic vocabulary before joining the Chinese sequence above the elementary level. Students who successfully complete Chinese 4H proceed to Chinese 5. Enrollment by instructor consent. The Staff

5. Second-Year Chinese. W
Continuation of Chinese 4. Conversation, composition, and the reading of modern texts.

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
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- History of Consciousness
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- Kresge College
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- Literature
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- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

(Formerly Intermediate Chinese (Mandarin).) Prerequisite(s): course 4 or 4H or by consent of instructor. (General Education Code(s): IH.) The Staff

5H. Accelerated Chinese for Heritage Speakers. W
Intensive instruction in spoken and written Chinese for heritage students whose limited proficiency in Mandarin or limited familiarity with characters requires an accelerated review of the sounds, sentence patterns, and basic vocabulary before joining the Chinese sequence above the elementary level. Students who successfully complete Chinese 5H proceed to Chinese 6. Prerequisite(s): Course 4H or by consent of instructor. The Staff

6. Second-Year Chinese. S
Continuation of Chinese 5. Conversation, composition, and the reading of modern texts. (Formerly Intermediate Chinese (Mandarin).) Prerequisite(s): course 5 of 5H or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

103. Advanced Chinese. F
Designed to enhance the students' ability to understand, analyze, and discuss authentic Chinese reading materials. Chinese linguistic and cultural aspects are introduced. (Formerly Advanced Chinese: Readings in Economics and Trade.) Prerequisite(s): course 6 or by consent of instructor. (General Education Code(s): TA.) The Staff

104. Advanced Chinese: Readings in Literature. *
Close readings in Chinese vernacular literature of recognized merit from contemporary and modern writers as wells as from models from the traditional period. Student are introduced to the basic critical issues, in Chinese, relating to narrative and drama, revealed by the works under discussion. Prerequisite(s): course 103 or 105 or 107 or 108; or by consent of instructor. (General Education Code(s): TA.) The Staff

105. Advanced Chinese: Readings in History. *
Offers an appreciation of some of the central issues in Chinese history as defined by Chinese historians of the 20th century. Through readings of graduated difficulty, the vocabulary, style, and form of modern Chinese historical writing are introduced. Prerequisite(s): course 103 or 104 or 107 or 108; or by consent of instructor. (General Education Code(s): TA.) The Staff

107. Introduction to Classical Chinese Prose. W
Introduces the grammar and lexicon of classical Chinese and the language of China's pre-modern canonical writings in philosophy, religion, history, music, visual art, and literature. Reading from the Han and pre-Han era is featured. (Formerly Introduction to Classical Chinese.) Prerequisite(s): course 103 or 104 or 105 or 108; or by consent of instructor. Enrollment limited to 25. (General Education Code(s): TA, IH.) The Staff

108. Introduction to Classical Chinese Poetry. S
Introduces the grammar and lexicon of classical Chinese and the language of China's pre-modern canonical writings in philosophy, religion, history, music, visual art, and literature. Classical poetry and lyrics are featured. Prerequisite(s): course 103 or 104 or 105 or 107; or by consent of instructor. (General Education Code(s): TA, IH.) The Staff

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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College Eight

2014-15 General Catalog

College Office
(831) 459-2361
http://eight.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

10. Academic Success (2 credits). F,W,S
An interactive course providing students with the opportunity to assess and revise methods of and purposes in studying. Critical, effective approaches to reading, writing, participating in lectures and sections, taking exams, balancing competing responsibilities, and utilizing campus resources are all explored. Enrollment restricted to College Eight students and by permission of college adviser. Enrollment limited to 30. The Staff

20C. The Water Environment: Literature of the Sea (2 credits). *
Students consider the representation of the sea in selected texts, noting how it becomes the focal point for the fears, hopes, and prejudices of Western civilization. Students write critical papers and their own narratives. Enrollment restricted to first-year and sophomore College Eight members. Enrollment limited to 25. C. Calsoyas

20D. College Students' Lives (2 credits). *
Students understand their peers and themselves better through an exploration of issues that affect the daily life of college students. Topics include campus/student cultures, the academic system, and other critical issues. Overview of campus resources also provided. Enrollment restricted to first-year and sophomore College Eight members. The Staff

20F. Justice on Earth (3 credits). *
Examines issues of oppression, privilege, and social justice within a global and environmental context through self-reflective and group work. May include an optional service-learning component requiring travel during spring break. Enrollment limited to 20. The Staff

20G. Peregrine Falcons Return (2 credits). W
Required training laboratory for students who wish to pursue a hands-on, two-credit service project (laboratory or field) that is focused on peregrine falcon conservation. Enrollment limited to 26. G. Stewart

28. Peer Leadership in Higher Education (3 credits). *
Overview of theories of student development, critical student issues, and skills needed for appropriate peer leadership interventions. Utilizes a variety of learning modes including readings, discussions, case studies, lectures, and group projects. Interview only: approval of instructor; Resident Assistant (RA) pre-employment training course. Enrollment limited to 25. May be repeated for credit. The Staff

55. College Eight: Service Learning Practicum (2 credits). F
Introduction to service learning theory and practice for students engaging in service-

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
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- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

learning work in College Eight, College Eight-related projects, community service organization, or public agencies. Enrollment restricted to College Eight members. Enrollment limited to 50. (General Education Code(s): PR-S.) R. Lipschutz, S. Watrous

56. Media Internships for Sustainability (2 credits). F,W,S
Students develop and work on media projects related to the college theme of "Environment and Society" in film, on television, in print, and on the Internet. Students work in groups with specific instructors and project leaders. Enrollment by application and instructor consent. May be repeated for credit. S. Watrous

61. Education for Sustainable Living Program (2 credits). S
Analyzes sustainability and its application in daily life and on campus, involving collaboration between students, faculty, staff, administration, and the community. Guest lecturers, discussions, an optional UC-wide retreat, and essays allow engagement with aspects of ecological and social sustainability. The Staff

80A. Introduction to University Discourse: Environment and Society. F
Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Introduces students to environmental history, ethics, and policy options, and teaches them to analyze and interpret key literary texts. Students cannot receive credit for this course and course 80B. Concurrent enrollment in course 81A is required. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. (General Education Code(s): TA, T3-Social Sciences, C1.) The Staff

80B. Rhetoric and Inquiry: Environment and Society. F
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Introduces students to environmental history, ethics, and policy options, and teaches them to analyze and interpret key literary texts. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the C1 requirement; concurrent enrollment in course 81A is required. Enrollment restricted to first-year college members. (General Education Code(s): TA, T3-Social Sciences, C2.) The Staff

80C. Introduction to University Discourse: Writing for Enviroment and Society (I). F
Two-quarter seminar explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Introduces students to environmental history, ethics, and policy options, and teaches them to analyze and interpret key literary texts. Students cannot receive credit for this course and course 80A or 80B. Enrollment restricted to first-year college members who have not satisfied the entry level writing requirement. Concurrent enrollment in course 81A is required. Enrollment limited to 20. (General Education Code(s): TA.) The Staff

80D. Introduction to University Discourse: Writing for Enviroment and Society (II). W
Two-quarter seminar explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Introduces students to environmental history, ethics, and policy options, and teaches them to analyze and interpret key literary texts. Prerequisite(s): course 80C. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 20. (General Education Code(s): C1.) R. Lipschutz

81A. The Environment and Us (3 credits). F
Takes students through a wide range of approaches to environmental citizenship and provides conceptual and practical tools to explore alternatives. Students also participate in a hands-on sustainability project designed to connect academic learning with practical applications. Concurrent enrollment in course 80A or 80B or 80C is required. Enrollment restricted to first-year college members. R. Lipschutz

81B. Fundamentals of Environmental Science. W
Addresses major issues in physical and biological environmental sciences and provides tools to critically evaluate, debate, and make informed choices regarding one's own impact on the environment. Topics include: climate change, water resources, air pollution, evolution, ecology (from populations to ecosystems), and conservation. Quantitative problem solving is an integral part of this course. (Also offered as Earth Sciences 81B. Students cannot receive credit for both courses.) Prerequisite(s): courses 80A or 80B.

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Enrollment restricted to first-year and sophomore college members. (General Education Code(s): MF, IN, Q.) L. Fox, P. Chuang

81C. Designing a Sustainable Future. S
Introduces key technological solutions to environmental problems; discusses their underlying principles; and examines their societal dimensions. Topics include: conventional and renewable energy; emerging technologies for transportation, energy efficiency clean water; planetary engineering; and lean manufacturing. (Formerly Technological Innovation and Environmental Challenges.) (Also offered as Electrical Engineering 81C. Students cannot receive credit for both courses.) Prerequisite(s): courses 80A or 80B. Enrollment restricted to first-year and sophomore college members. (General Education Code(s): SI, T-2 Natural Sciences.) The Staff

82. Environment and Society in Film (2 credits). S
Students write about and discuss a variety of films and articles about environment and society. Topics may include water, food systems, wilderness, wildlife, pollution, global warming, nuclear energy, conservation, and environmental activism. Enrollment limited to 25. N. Schaefer

90. College Eight Garden Internship (1 credit). F,W,S
One-credit internship in the College Eight Garden. Offers students of College Eight an opportunity to become involved in an experimental learning project focusing on application of concepts of sustainable agriculture. Enrollment restricted to members of College Eight. Enrollment limited to 10. May be repeated for credit. The Staff

93. Field Study. F,W,S
The Staff

99. Tutorial. F,W,S
May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Individual study for lower-division students directed by a faculty member affiliated with College Eight. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

128. Advanced Peer Leadership Practicum (3 credits). *
Advanced practicum for the application of skills and theoretical knowledge studied in course 28. Uses many learning modes including readings, discussions, case studies, lectures, and group projects. Prerequisite(s): course 28. Enrollment by permission of instructor. Enrollment limited to 25. May be repeated for credit. The Staff

150A. Sustainability Praxis in the Built Environment (2 credits). F
Introduces the concepts, methods, and practices of research on sustainable energy, water, and food production and consumption. Resources surveying and assessment; building energy auditing; renewable energy systems; water supply, demand, and distribution. Intensive agroecology is conducted at campus sites. Enrollment limited to 25. K. Monsen, K. Bell, R. Lipschutz

150B. Tools of the Trade for Sustainability Analysis (2 credits). W
Problem-solving in sustainability through basic STEM concepts, statistical tools, and analytical methods for engaging in advanced sustainability studies drawn from physics, chemistry, biology, ecology, engineering, electronics, sociology, economics, and public policy. Prerequisite(s): course 150A. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. K. Bell, R. Lipschutz

150C. Green Enterprise and Social Entrepreneurship (2 credits). S
Teaches students how to become green entrepreneurs, develop green enterprises, and incubate green projects, especially in connection with students' research and interests. Students develop business plans; solicit participation from mentors; and prepare and submit funding proposals. Prerequisite(s): courses 150A and 150B. K. Bell, R. Lipschutz

155. College Eight Sustainability Internship (2 credits). W,S
For students undertaking sustainability-oriented service-learning work in the college

(college-related projects, community service organizations, or public agencies). Students are supervised by the college provost and project supervisor, and determine the content of their internship with the provost and supervisor. Enrollment restricted to College Eight members or by permission of instructor. May be repeated for credit. (General Education Code(s): PR-S.) R. Lipschutz, S. Watrous

160. Developing Leadership to Facilitate Environmental Education. W
Prepares students to facilitate an action research team for "Sustainable Living" (courses 61/161) during spring quarter. Workshops and training selected to build the skills and preparation to become successful facilitators. Topics include: facilitation skills; syllabus planning and curriculum building; experiential learning techniques; leadership skills; and non-violent communication training. Enrollment by interview only. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 30. The Staff

161. Education for Sustainable Living Program. S
Analyzes sustainability and its application in daily life and on campus, involving collaboration between students, faculty, staff, administration, and the community. Guest lecturers, discussions, an optional UC-wide retreat, and essays allow engagement with aspects of ecological and social sustainability. Enrollment limited to 25. The Staff

162. Sustainability Internship Practicum. W,S
Introduces students to sustainable practices and state, local, and UC-wide policies through projects. Matches students with UCSC staff partners to work collaboratively on projects that integrate sustainability into aspects of campus operations. Supports students to develop the competencies necessary to become effective environmental professionals through learning models including hands-on work experience; professional skills training; guest lectures; reading, and discussion; and peer-to-peer advising. In addition to project deliverables, students complete and present a portfolio of their work upon completion of their project. Enrollment limited to Sustainability Office Interns and by instructor permission; an interview, resume, and cover letter are required. Enrollment limited to 20. (General Education Code(s): PR-S.) The Staff

193. Field Study. F,W,S
The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Must be sponsored by College Eight faculty. Approval of the student's adviser and the academic preceptor is needed to enroll. May be repeated three times for credit. Students submit petition to sponsoring agency. The Staff

195. Senior Thesis. F,W,S
May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
The Staff

199. Tutorial. F,W,S
May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual study for upper-division students directed by a faculty member affiliated with College Eight. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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College Nine

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College Office
(831) 459-5034
http://collegenine.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

70. Colleges Nine and Ten Community Garden (2 credits). F
Students in this course design and build a new community garden at Colleges Nine and Ten. Students engage in a collaborative design process with campus stakeholders; learn hands-on skills and community gardening best practices; and build regenerative social and ecological systems. Enrollment restricted to College Nine and College Ten students. May be repeated for credit. The Staff

80A. Introduction to University Discourse: International and Global Issues. F
Explores rhetorical principles and conventions of university discourse and provides intensive practice in analytical writing, critical reading, and speaking. Topics address contemporary global issues including economic globalization, human rights, international and inter-ethnic conflicts, poverty, and immigration. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): T3-Social Sciences, C1.) The Staff

80B. Rhetoric and Inquiry: International and Global Issues. F
Explores the intersection of investigation, interpretation, and persuasion and refines strategies for writing, research, and speaking. Topics address contemporary global issues including economic globalization, human rights, international and inter-ethnic conflicts, poverty, and immigration. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. Enrollment limited to 22. (General Education Code(s): T3-Social Sciences, C2.) The Staff

80C. Introduction to University Discourse: International and Global Issues Writing Intensive 1. F
Explores rhetorical principles and conventions of university discourse and provides intensive practice in analytical writing, critical reading, and speaking. Topics address contemporary global issues including economic globalization, human rights, international and inter-ethnic conflicts, poverty, and immigration. More writing intensive than course 80A; prerequisite to 80D. Enrollment restricted to first-year college members who have not satisfied the C1 requirement and who scored a 5 or lower on the Analytical Writing and Placement Exam. Enrollment limited to 22. The Staff

80D. Introduction to University Discourse: International and Global Issues Writing Intensive 2. W

- Community Studies
- Computer Engineering
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- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
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- Physical Education
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- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Continues to provide practice in analytical writing, critical reading, and speaking, and to examine global issues. Prerequisite(s): course 80C. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): C1.) The Staff

80L. College Nine Core Film Course (2 credits). F
Complements the College Nine core course. The films and readings explore the theme of International and Global Perspectives and follow the core course syllabus. Prerequisite(s): Concurrent enrollment in course 80A, 80B, or 80C. Enrollment restricted to first-year college members. The Staff

85. Global Action (2 credits). W
Workshop facilitated by peer instructors. Students learn about current international and global issues through interactive exercises, small-group discussions, and faculty presentations. Students develop an "action plan" to raise awareness about one or more of these concerns and take practical steps to create positive change in the world. Enrollment restricted to College Nine members during priority enrollment only. Enrollment limited to 20. E. Ramsden

86. College Leadership Development (2 credits). S
Students newly appointed into leadership positions at College Nine explore the concept of leadership relating to the college's theme of International and Global Perspectives. Prerequisite(s): current College Nine student leader; permission of instructor. R. Shaw

90. Intercultural Understanding (2 credits). F
Provides an opportunity to enhance the intercultural experience, increase cultural competency, promote further understanding, and examine the various trends facing a uniquely diverse community. Geared toward U.S. and international students affiliated with the International Living Center. Enrollment by instructor permission. Enrollment limited to 50. The Staff

91. Global Issues Colloquium (1 credit). F,W,S
Weekly colloquium on global issues with different topical focus each quarter. Presentations by UCSC faculty and invited speakers. Students must attend class, read an assigned article, and write a one-page synopsis. Enrollment restricted to College Nine members. Enrollment limited to 50. May be repeated for credit. The Staff

Upper-Division Courses

105. Researching Food Sovereignty. S
Students engage in individual and collective research projects on transformational food systems in the United States and abroad. Readings look at the current global food system and grassroots responses to food and environmental crises. Enrollment restricted to junior and senior College Nine and College Ten members during priority enrollment only. Enrollment limited to 20. The Staff

106. Israel and Palestine: Pathways to a Deeper Understanding (2 credits). S
Explores, and seeks to provide a deeper understanding of, the Israeli-Palestinian conflict through materials and guest speakers that offer varying perspectives. Self-reflection and structured communication facilitate the positive exchange of ideas and views. Enrollment by permission of instructor. The Staff

112A. Model United Nations Part A: A Group Seminar (2 credits). W
Introduces the Model United Nations. Students learn parliamentary procedure and U.N. protocols, as well as how to research and present position papers to the general assembly. Students learn resolution writing, alliance building, and persuasive speech. (Formerly course 112, Model United Nations: A Group Seminar) Enrollment limited to 35. May be repeated for credit. The Staff

112B. Model United Nations Part B: International Crises (2 credits). S
Students are assigned a country to represent in the U.N. Three international crises allow students to present position papers, make speeches, and debate the issues. Prerequisite(s): course 112A. May be repeated for credit. The Staff

120. Practical Activism Conference Planning and Development (2 credits). F

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Offers an applied experience of collaborative planning, production, and leadership. Students plan workshops and other event components; conduct outreach and publicity; and address all aspects of educational event planning. Enrollment restricted to members of the spring volunteer Practical Activism planning group. Enrollment by permission of the instructor. May be repeated for credit. (General Education Code(s): PR-E.) W. Baxter

191. Teaching Global Action. W
Undergraduates at upper-division level participate in teaching discussion groups for College Nine 85 (W). Prerequisite(s): permission of instructor: essay describing interest in becoming course assistant, copies of evaluations, and letter of recommendation from faculty member and/or college staff member. Enrollment restricted to College Nine juniors and seniors. E. Ramsden

199. Independent Study. F,W,S
Individual directed study for upper-division college members with college-affiliated faculty. Students must submit petition with one of the college academic advisers with accompanying letter from faculty adviser. Approval of provost required. Enrollment restricted to upper-division College Nine members. May be repeated for credit. The Staff

199F. Independent Study (2 credits). F,W,S
Individual directed study for upper-division college members with college-affiliated faculty. Students must submit petition with one of the college academic advisers with accompanying letter from faculty adviser. Approval of provost required. Enrollment restricted to upper-division College Nine members. May be repeated for credit. The Staff

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College Ten

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College Office
(831) 459-5034
http://collegeten.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

80A. Introduction to University Discourse: Social Justice and Community. F
Explores rhetorical principles and conventions of university discourse and provides intensive practice in analytical writing, critical reading, and speaking. Examines social justice issues; topics include racism, sexism, and other forms of prejudice and discrimination; poverty and welfare; civil liberties; and community involvement and citizenship. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): T3-Social Sciences, C1.) The Staff

80B. Rhetoric and Inquiry: Social Justice and Community. F
Explores the intersection of investigation, interpretation, and persuasion and refines strategies for writing, research, and speaking. Examines social justice issues; topics include racism, sexism, and other forms of prejudice and discrimination; poverty and welfare; civil liberties; and community involvement and citizenship. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. Enrollment limited to 22. (General Education Code(s): T3-Social Sciences, C2.) The Staff

80C. Introduction to University Discourse: Social Justice and Community Writing Intensive 1. F
Explores rhetorical principles and conventions of university discourse and provides intensive practice in analytical writing, critical reading, and speaking. Examines social justice issues. Topics include: racism, sexism, and other forms of prejudice and discrimination; poverty and welfare; civil liberties; and community involvement and citizenship. More writing-intensive than 80A; prerequisite to 80D. Enrollment restricted to first-year college members who have not satisfied the Entry Level Writing and C1 requirencccccccccccct and who scored a 5 or lower on the AWPE (Analytical Writing and Placement Exam). Enrollment limited to 22. The Staff

80D. Introduction to University Discourse: Social Justice and Community Writing Intensive 2. W
Continues to provide practice in analytical writing, critical reading, and speaking, and to examine social justice issues. Prerequisite(s): course 80C. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): C1.) The Staff

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- Critical Race and Ethnic Studies
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- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
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- Education
- Electrical Engineering
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- Feminist Studies
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- History of Consciousness
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- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

80L. College Ten Core Film Course (2 credits). F
Complements the College Ten core course. The films and readings explore the theme of Social Justice and Community, and follow the core course syllabus. Prerequisite(s): Concurrent enrollment in course 80A, 80B, or 80C. Enrollment restricted to first-year college members. The Staff

85. Social Justice Issues Workshop (2 credits). W
Series of presentations, films, and workshops that address personal and cultural identity and examine social, cultural, political, environmental, and other justice concerns. Enrollment restricted to College Ten members during priority enrollment only. Enrollment limited to 20. W. Baxter

86. College Leadership Development (2 credits). S
Students newly appointed into leadership positions at College Ten explore the concept of leadership relating to the college's theme of Social Justice and Community. Prerequisite(s): current College Ten student leader; permission of instructor. R. Shaw

91. Introduction to Nuclear Policy (2 credits). F
Introduces the key aspects of nuclear policy. Examines issues associated with nuclear weapons and civil nuclear power and the interplay between the two with regards to proliferation. Presentations will be given by guest speakers. Enrollment limited to 50. May be repeated for credit. D. Hirsch

92. Social Justice Issues Colloquium (1 credit). F,W,S
Weekly colloquium on social justice issues with a different topical focus each quarter. Presentations by UCSC faculty and invited speakers. Students must attend class, read an assigned article or book chapter(s) on the week's topic, and write a one-page synopsis. May be repeated for credit. The Staff

95. Nonviolent Communication (Living-Learning Community) (1 credit). F,W,S
The Nonviolent Living-Learning Community operates in a spirit of cooperation, compassion, and good will without competition or hierarchy. Students living in the Nonviolent Living-Learning Community enroll in this course each quarter of the academic year. Restricted to residents of the Nonviolent Living-Learning Community. Enrollment limited to 25. May be repeated for credit. The Staff

98. Alternative Spring Break (2 credits). S
Provides students with the opportunity to conduct service-learning work in a local Santa Cruz community over spring break. There are four preliminary class meetings in the winter quarter. Winter meeting attendance is required. Enrollment by interview only. Enrollment restricted to College Nine and College Ten members. (General Education Code(s): PR-S.) A. Asher

Upper-Division Courses

105. The Making and Influencing of Environmental Policy. W
Explores how environmental policy is made and influenced. Students learn about key contemporary environmental issues and the forces at play in determining environmental policy outcomes. Focuses on skills that enable citizens to impact environmental policy. (Formerly The Making and Influencing of Nuclear Policy.) Enrollment restricted to sophomore, junior, and senior College Nine and College Ten members during priority enrollment only. Enrollment limited to 35. (General Education Code(s): PE-E.) D. Hirsch

110. Service Learning Field Study (Esprit de Corps). F,W,S
Provides college members the opportunity to apply their academic learning in a practical setting in the community. Students earn academic credit by volunteering in a non-profit agency or school for approximately 12 hours per week. Students supervised by a professional on site. Students attend a weekly class, complete readings, listen to local leaders from the community, reflect upon their experiences with fellow students, and submit a final project related to their service learning placement. Taught concurrently with course 110B. Enrollment by instructor consent. Enrollment restricted to sophomore, junior, and senior College Nine and College Ten members. Students must attend an informational session to enroll. Contact: aasher@ucsc.edu for more information. Enrollment limited to 22. May be repeated for credit. (General Education Code(s): PR-S.) A. Asher

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110B. Service-Learning Field Study (Esprit de Corps) (2 credits). F,W,S
Provides college members the opportunity to apply their academic learning in a practical setting in the community. Students earn academic credit by volunteering in a non-profit agency or school for approximately three hours per week. Students supervised by a professional on site. Students attend a weekly class, complete readings, listen to local leaders from the community, reflect upon their experiences with fellow students, and submit a final project related to their service learning placement. Taught concurrently with course 110. Enrollment by instructor consent. Enrollment restricted to sophomore, junior, and senior College Nine and College Ten members. Students must attend an informational session to enroll. Contact: aasher@ucsc.edu for more information. Enrollment limited to 22. May be repeated for credit. (General Education Code(s): PR-S.) A. Asher

120. Practical Activism Conference Planning and Development (2 credits). F
Offers an applied experience of collaborative planning, production, and leadership. Students plan workshops and other event components; conduct outreach and publicity; and address all aspects of educational event planning. Enrollment restricted to members of the spring volunteer Practical Activism planning group. Enrollment by permission of the instructor. May be repeated for credit. (General Education Code(s): PR-E.) W. Baxter

191. Teaching Social Justice. W
Undergraduates at upper-division level participate in teaching discussion groups for College Ten 85 (W). Prerequisite(s): permission of instructor: essay describing interest in becoming course assistant, copies of evaluations, and letter of recommendation from faculty member and/or college staff member. Enrollment restricted to College Ten juniors and seniors. W. Baxter

194. Group Tutorial. F,W,S
Independent study through which a group of students explores a particular topic in consultation with an instructor. Prerequisite(s): Course 91 or 105 recommended. Students submit petition to sponsoring agency. Enrollment limited to 15. May be repeated for credit. D. Hirsch, The Staff

194F. Group Tutorial (2 credits). F,W,S
Independent study through which a group of students explores a particular topic in consultation with an instructor. Prerequisite(s): Course 91 or 105 recommended. Students submit petition to sponsoring agency. Enrollment limited to 15. May be repeated for credit. D. Hirsch, The Staff

199. Independent Study. F,W,S
Individual directed study for upper-division college members with college-affiliated faculty. Students must submit petition with one of the college academic advisers with accompanying letter from faculty adviser. Approval of provost required. Enrollment restricted to upper-division College Ten members. May be repeated for credit. The Staff

199F. Independent Study (2 credits). F,W,S
Individual directed study for upper-division college members with college-affiliated faculty. Students must submit petition with one of the college academic advisers with accompanying letter from faculty adviser. Approval of provost required. Enrollment restricted to upper-division College Ten members. May be repeated for credit. The Staff

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Community Studies

2014-15 General Catalog

213 Oakes Academic Building
(831) 459-2371
http://communitystudies.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

10. Introduction to Community Activism. F
Surveys different strategies of community activism including charity, volunteering, labor and community organizing, and recently emerging global activism with goal of demonstrating how certain strategies challenge existing social relations and arrangements while others typically (and often by design) reproduce them. (General Education Code(s): IS.) L. Lopez

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division or graduate students under faculty supervision. (See course 192.) The Staff

93. Field Study. F,W,S
Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

93F. Field Study (2 credits). F,W,S
Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

93G. Field Study (3 credits). F,W,S
Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Individual directed study for lower-division undergraduates. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Individual directed study for lower-division undergraduates. May be repeated for credit. The Staff

Upper-Division Courses

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101. Communities, Social Movements, and the Third Sector. W
Engages with crosscutting ideas and concepts central to the major including constructions of community in social-change efforts and the institutionalization of social movements in third-sector organizations. Deepens students' understanding of the opportunities and obstacles embedded in various avenues of social action. The Staff

102. Preparation for Field Studies. S
A practicum to prepare students for field study. Course must be successfully completed prior to the six-month field study. Prerequisite(s): course 10; course 101; satisfaction of the Entry Level Writing and Composition requirements; submission of the signed Goals and Objectives form; and completion of the declaration of major process. Enrollment restricted to community studies majors. A. Steiner

103. Field Study Practicum (2 credits). S
A practicum in social change work in which the students works for a social change organization on a part-time basis. Concurrent enrollment in course 102 required. A. Steiner

132. American Cities and Social Change. *
Examines the historical development of and contemporary conditions within U.S. cities by focusing on social and economic restructurings of cities, cultural and political transformations, and spatial reorganizations of the urban landscape. Goal is understanding the changing nature of urban experience. M. Pudup

133. Making California: Landscapes, People, Politics, Economy. S
Examines key moments in the development of California to provide understanding of the challenges and opportunities facing California today. Particular focus is given to abiding tensions around wealth and poverty, opportunity and exclusion, and progressive and conservative politics. J. Guthman

141. Economic Justice. F
Examines how markets operate within the political economy of contemporary capitalism to generate myriad and often chronic forms of economic and social inequality in the United States. Explores different approaches to addressing inequality within the multi-faceted economic justice movement. (General Education Code(s): E.) M. Pudup

143. Wal-Mart Nation. *
Examines origins and growth of Wal-Mart stores as powerful guides to understanding dynamics of contemporary global political economy and, relatedly, the changing fortunes of global social classes. M. Pudup

145. Globalization and Its Discontents. W
Provides an overview of the origins and existing character of major institutions, structures, and dynamics of the global political economy. Examines some social consequences of neoliberalism as well as political responses to it. J. Guthman

149. Political Economy of Food and Agriculture. *
Examines key concepts in agrarian political economy; the historical development of the world food system; and a selection of contemporary issues related to food production, consumption, distribution, and regulation. (General Education Code(s): PE-E.) J. Guthman

151. Sex, Race, and Globalization.
Examines globalization by attending to shaping forces of sexuality, gender, and race. Foregrounds Third World feminist theories, social movements. Topics include sexual and racial dynamics of "free trade" and labor fragmentation; global sex trades; HIV/AIDS politics in the South and North; transnational LGBT/queer politics. (General Education Code(s): E.) The Staff

156. Politics of Obesity. *
Critically examines the construction and representation of the so-called epidemic of obesity, the major explanations for the rise in obesity and the interventions they beget, and the implications of naming obesity as a problem. (Formerly course 145.) (General Education Code(s): PE-H.) J. Guthman

157. Ageism and Activism. *
Introduces students to gerontology, the study of aging. Taking a multidisciplinary

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approach, critically examines the theories, stereotypes, and realities of worldwide demographic transition and considers the many interesting implications for organizing social and personal life. A. Steiner

160. Public Health. *
Examination of community activism to address health issues: examples are drawn from a range of concerns, e.g., environmental racism, prison conditions, feminist health matters, the AIDS epidemic, violence, and alcoholism. Special attention is given to the social frameworks of health and to the utilization of social and political strategies for improving community well-being. A. Steiner

161. Women's Health Activism. *
Examines concrete aspects of women's health in social and political contexts, including such factors as environmental and occupational health, the role of race and nationality, diverse sexualities and health, American medical care systems, and international comparisons and organizing approaches. A. Steiner

162. Community Gardens and Social Change. *
Examines history, theory, and practice of community gardening, emphasizing contemporary garden projects using the transformative power of direct contact with nature to effect social change. Aims include understanding the nonprofit sector's response to social problems with novel programs and practices. M. Pudup

163. Health Care Inequalities. F
Examines system and non-system that is American health care with special attention to inequalities in access, financing, and quality of care. Covers concepts such as equality, fairness, and need as well as community organizing and community building for health. A. Steiner

186. Agriculture, Food, and Social Justice. S
Examines the primary ways in which activists are attempting to resist, provide alternatives to, and/or transform aspects of the food system using social and environmental justice frameworks to evaluate such activism. Topics explored include organic farming, food charity, fair trade, relocalization, and farmworker organizing. Enrollment by permission of instructor; admission determined at the first class meeting. J. Guthman

189. Methods of Teaching Community Studies. F,W,S
Each student serves as a facilitator for small discussion groups in connection with core community studies courses. Facilitators complete course readings and meet with instructor as a group to discuss the teaching process. May not be counted toward upper-division major requirements. Prerequisite(s): prior course work in the major. The Staff

191. Student Volunteer Internship (3 credits). F,W,S
Course bridges Santa Cruz and university communities through students organizing volunteer opportunities and charitable events. Students contribute 10 hours per week on and off campus, including outreach, event-planning, and database maintenance; supplemented by reading and biweekly discussions. Enrollment by permission of instructor after application and interview. Enrollment limited to 15. (General Education Code(s): PR-S.) A. Steiner

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar, course 42, under faculty supervision. Students submit petition to sponsoring agency. Approval by the Committee on Educational Policy the prior quarter. The Staff

193. Field Study. F,W,S
Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193G. Field Study (3 credits). F,W,S

Supervised work in a community-based setting conducted under the guidance of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Analysis of Field Materials. W
A seminar for students who have completed a full-time field study. Devoted to the systematic analysis of field materials, integrating appropriate concepts and relevant literature, as well as utilizing the experience of other students. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 198. Enrollment restricted to community studies majors. (General Education Code(s): W.) The Staff

195A. Senior Thesis. F,W,S
Individual study with a faculty member to complete the senior thesis. The Staff

195B. Senior Thesis. F,W,S
Individual study with a faculty member to complete the senior thesis. The Staff

195C. Senior Thesis. F,W,S
Individual study with a faculty member to complete the senior thesis. The Staff

198. Independent Field Study. F
Full-time field study off-campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Prerequisite(s): course 102. May be repeated for credit. (General Education Code(s): PR-S.) M. Pudup

199. Tutorial. F,W,S
Advanced directed reading and research for the serious student. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Advanced directed reading and research for the serious student. May be repeated for credit. The Staff

Graduate Courses

297. Independent Study. F,W,S
Either study related to a course being taken or a totally independent study. Designed for graduate students. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Hands-On Computer Engineering (2 credits). *
Hands-on introduction to computer engineering practice and research, including computer hardware, robotics, and embedded systems. Encourages interaction with UCSC's School of Engineering community. Designed for students without previous background in computer engineering. Enrollment restricted to first-year students and sophomores. Enrollment limited to 20. The Staff

3. Personal Computer Concepts: Software and Hardware. F,W,S
Provides an introduction to computers. Personal computing is emphasized, and students are introduced to word processing, spreadsheets, database management, graphics, and programming. Covers fundamentals of computing and current and future uses of computer technology, PC hardware, Windows operating system, applications software, networking and the Internet, and developments in the computer industry. Designed for students with little or no experience using computers. Students cannot receive credit for this course and Computer Science 2. (General Education Code(s): IN.) G. Moulds

7. Statistical Reasoning in the Age of the Internet. S
Elementary methods of statistical and probabilistic reasoning are introduced through applications from the Internet. Computer simulations and analyses performed by the instructor are presented to develop and discuss these methods. Students experiment with their own simulations (programming skills not required), analyzing and interpreting results. Students cannot receive credit for this course if they have already received credit for course 107 or Applied Mathematics and Statistics 5 or 7 or 131. Prerequisite(s): Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3. (General Education Code(s): SR.) A. Brandwajn

8. Robot Automation: Intelligence through Feedback Control. F
Introduction to dynamical systems, feedback control, and robotics. Fundamental concepts in dynamical systems, modeling, stability analysis, robustness to uncertainty, feedback as it occurs naturally, and the design of feedback-control laws to engineer desirable static and dynamic response. Course includes an introduction to MATLAB and programming in MATLAB. Priority enrollment restricted to first-year students and sophomores. (General Education Code(s): MF, IN, Q.) M. Teodorescu

9. Introduction to Statics, Dynamics, and Biomechanics. W

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- Technology and Information

Theory and application of mathematical models to analyze statics and dynamics of mechanical and biomechanical systems (partials and rigid bodies) using a vector algebra. Covers: Newton's laws; free-body diagrams; structure analysis; friction; virtual work; energy and momentum methods; dynamics of bodies in two and three dimensions. Prerequisite(s): Mathematics 19A, and Physics 5A/L or 6A/L., and Applied Mathematics and Statistics 10 or Mathematics 21. D. Milutinovic

12. Computer Systems and Assembly Language. F,W,S
Introduction to computer systems and assembly language and how computers compute in hardware and software. Topics include digital logic, number systems, data structures, compiling/assembly process, basics of system software, and computer architecture. May include C language. Prerequisite(s): course 3 or 8, or Computer Science 10 or 12A or 5C or 5J or 5P, or Biomolecular Engineering 60, or suitable programming experience; previous or concurrent enrollment in course 12L required. (General Education Code(s): IN, Q.) M. Guthaus, T. Larrabee

12L. Computer Systems and Assembly Language Laboratory (2 credits). F,W,S
Laboratory sequence in assembly language programming. The basics of logic design, both RISC and microcontroller programming. May include C language programming. Two two-hour laboratories per week . Prerequisite(s): course 3 or 8, or Computer Science 10 or 12A or 5C or 5J or 5P, or Biomolecular Engineering 60, or suitable programming experience; previous or concurrent enrollment in course 12 required. M. Guthaus, T. Larrabee

13. Computer Systems and C Programming. W,S
Introduction to the C programming language as a means for controlling embedded and general computing systems. Continuing the exploration begun in course 12, students move to higher levels of abstraction in the control of complex computer systems. Prerequisite(s): courses 12 and 12L. Concurrent enrollment in course 13L is required. G. Elkaim, The Staff

13L. Computer Systems and C Programming Lab (2 credits). W,S
Laboratory sequence in C programming for embedded and general computing systems. Two 2-hour laboratories per week. Concurrent enrollment in course 13 is required. G. Elkaim, The Staff

16. Applied Discrete Mathematics. F,W,S
Introduction to applications of discrete mathematical systems. Topics include sets, functions, relations, graphs, predicate calculus, mathematical proof methods (induction, contraposition, contradiction), counting methods (permutations, combinations), and recurrences. Examples are drawn from computer science and computer engineering. Knowledge of computer programming is useful before taking this course. Students who do not have prior programing experience are strongly recommended to take Computer Science 5C, 5J, or 5P before taking this course. Prerequisite(s): Mathematics 19A or 11B or Applied Mathematics and Statistics 11B or 15B or Economics 11B. (General Education Code(s): MF, Q.) J. Garcia-Luna-Aceves, M. Schlag, T. Larrabee

80A. Universal Access: Disability, Technology, and Society. F,S
Overview of human-centered technology and of its potential for increasing the quality of life and independence of disabled individuals. A substantial portion of the course is devoted to studying physical, psychological, and psychosocial aspects of disability. Topics include: diversity and integration, legislation, accessibility, and universal design. (Formerly Assistive Technology and Universal Access .) (General Education Code(s): PE-T, T7-Natural Sciences or Social Sciences.) S. Kurniawan, R. Manduchi

80E. Engineering Ethics. S
Ethical theories, analysis, and their application to issues in the practice of engineering, such as safety and liability, professional responsibility to clients and employers, codes of ethics, legal obligations, environmental issues, and social issues. Emphasis on developing independent ethical analysis through the use of case studies. (General Education Code(s): PE-T, T6-Natural Sciences or Humanities and Arts.) R. Hughey, The Staff

80H. History of Modern Computing. *
Presents a history of the development of computing technologies (CPUs and I/O devices, operating systems, and languages) through the latter half of the 20th century in order to build an understanding of how today's computing environment evolved. (General Education Code(s): T2-Natural Sciences.) The Staff

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80N. Introduction to Networking and the Internet. F,S
Introduction to the evolution, technological basis, and services of the Internet, with descriptions of its underlying communications structure, routing algorithms, peer-to-peer hierarchy, reliability, and packet switching. Network security, mail, multimedia and data compression issues, HTML, and digital images. Students who have completed course 150 cannot receive credit for this course. (General Education Code(s): PE-T, T2-Natural Sciences.) T. Larrabee, The Staff

80U. Ubiquitous and Mobile Computing. *
Ubiquitous computing integrates computer and communication technology with day-to-day life. Ubiquitous and mobile technology includes: MP-3 players, camera cell phones, Bluetooth headsets, sensor networks, and new emerging technologies. Course provides an overview of the technology and economics of ubiquitous computing. (General Education Code(s): T2-Natural Sciences.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100. Logic Design. W,S
Boolean algebra, logic minimization, finite-state machine design, sequential circuits, common logic elements, programmable logic devices, and an introduction to system level design. The electrical behavior of circuits including three state outputs, propagation delay, logic levels, and fanout. Prerequisite(s): courses 12 and 12L; previous or concurrent enrollment in course 100L required. Enrollment limited to 60. M. Guthaus, M. Schlag

100L. Logic Design Laboratory (2 credits). W,S
Laboratory sequence illustrating topics covered in course 100. Two 2-hour laboratory sessions per week. Weekly laboratory assignments which require the use of the oscilloscopes, TTL circuits, computer-aided design and simulation tools, and programmable logic. Students are billed a materials fee. Prerequisite(s): courses 12 and 12L; previous or concurrent enrollment in course 100 required. Enrollment limited to 60. M. Schlag, The Staff

107. Probability and Statistics for Engineers. W,S
Introduction to fundamental tools of stochastic analysis. Probability, conditional probability; Bayes Theorem; random variables and transforms; independence; Bernnoulli trials. Statistics, inference from limited data; outcomes of repeated experiments; applications to design; assessment of relative frequency and probability; law of large numbers; precision of measurements. Elements of stochastic processes, Poisson processes; Markov chains. Students cannot receive credit for this course and Applied Mathematics and Statistics 131. (Formerly Mathematical Methods of Systems Analysis: Stochastic.) Prerequisite(s): course 16 or 16H and Mathematics 22 or 23A. (General Education Code(s): SR.) The Staff

108. Data Compression. *
Basics of information theory, lossless coding (Huffman coding, arithmetic coding, dictionary coding), lossy coding (PCM, predictive coding, transform coding). Application to the compression of specific data set, which may include biological time series, DNA sequences, and multimedia streams. Programming experience is required. Prerequisite(s): course 107 or Applied Mathematics and Statistics 131. The Staff

110. Computer Architecture. F,W
Introduction to computer architecture including examples of current approaches and the effect of technology and software. Computer performance evaluation, basic combinatorial and sequential digital components, different instruction set architectures with a focus on the MIPS ISA and RISC paradigm. Evolution of CPU microarchitecture from single-cycle to multi-cycle pipelines, with overview of super-scalar, multiple-issue and VLIW. Memory system, cache, virtual memory and relationship between memory and performance. Evolution of PC system architecture. May include advanced topics, such as parallel processing, MIMD, and SIMD. Prerequisite(s): courses 12/L, and courses 13/L or Computer Science 12A/L or Computer Science 11. Course 16 recommended. The Staff

112. Computer and Game Console Architecture. *
Introduces computer and game console architecture, including examples of current approaches and the effect of technology and software. Computer performance evaluation; instruction-set architectures; RISC CPU and pipelining; cache and memory; multi-core, system-level architecture; video card; special console architectures. Pre-requisite(s): course 12. The Staff

113. Parallel and Concurrent Programming.
Introduction to parallel and concurrent programming. Topics include: types of parallel computers and programming platforms; design, implementation, and optimization of programs for parallel and multicore processors; basic and advanced programming techniques; performance analysis and load balancing; and selected parallel algorithms. (Also offered as Computer Science 113. Students cannot receive credit for both courses.) Prerequisite(s): Computer Engineering 12 and 12L and Computer Science 101. Computer Engineering 110 or 112 recommended. The Staff

115. Introduction to Solid Mechanics. *
Introduces the solid mechanics of materials. Topics include: stress and strain, torsion, bending of beams, shearing stresses in beams, compound stresses, principal stresses, deflections of beams, and statically indeterminate members and columns. Prerequisite(s): course 9 and Mathematics 19B, and Applied Mathematics and Statistics 10 or Mathematics 21. The Staff

118. Introduction to Mechatronics. F
Technologies involved in mechatronics (intelligent electro-mechanical systems) and techniques necessary to integrate these technologies into mechatronic systems. Topics include electronics (A/D, D/A converters, opamps, filters, power devices), software program design (event-driven programming, state machine-based design), DC and stepper motors, basic sensing, and basic mechanical design (machine elements and mechanical CAD). Combines lab component of structured assignments with a large and open-ended team project. Cannot receive credit for this course and course 218. Prerequisite(s): Electrical Engineering 101/L and courses 12/L and 100/L. Concurrent enrollment in course 118L is required. Enrollment limited to 36. G. Elkaim

118L. Introduction to Mechatronics Laboratory (2 credits). F
Laboratory sequence illustrating topics covered in course 118. Two 2-hour laboratory sessions per week. Students cannot receive credit for this course and course 218L. Students are billed a materials fee. Prerequisite(s): Concurrent enrollment in course 118 is required. Enrollment limited to 36. G. Elkaim

121. Microprocessor System Design. S
The design and use of microprocessor-based systems. Covers microprocessor and microcontroller architecture, programming techniques, bus and memory organization, DMA, timing issues, interrupts, peripheral devices, serial and parallel communication, and interfacing to analog and digital systems. Enrollment restricted to Computer Engineering and Robotics majors during First Pass Enrollment. Prerequisite(s): courses 12/L and 100/L and Electrical Engineering 101/L; and course 13/L or Computer Science 12B/M. Previous or concurrent enrollment in course 121L required. Enrollment limited to 40. A. Varma

121L. Microprocessor System Design Laboratory (2 credits). S
Laboratory sequence illustrating topics covered in course 121. Two 2-hour laboratory sessions per week. Students design, build, program, debug, document, and demonstrate a microprocessor-based system. Students are billed a materials fee. Prerequisite(s): courses

12/L and 100/L and Electrical Engineering 101/L; and course 13/L or Computer Science 12B/M. Previous or concurrent enrollment in course 121 required. Enrollment limited to 40. A. Varma

122. Introduction to VLSI Digital System Design. S
Introduces very large scale integrated (VLSI) custom integrated circuits. Topics include: semiconductor manufacturing, logic families, field-effect transistors (FETs), interconnect models, simulation, and circuits. Introduces the design flow from logic design to layout with a focus on high performance and low power. Students cannot receive credit for this course and course 222. Prerequisite(s): courses 100/L and Electrical Engineering 101/L. Enrollment limited to 25. M. Guthaus

123A. Engineering Design Project I. *
First of a two-course sequence that is the culmination of the engineering program. Students apply knowledge and skills gained in elective track to complete a major design project. Students complete research, specification, planning, and procurement for a substantial project. Includes technical discussions, design reviews, and formal presentations; engineering design cycle, engineering teams, and professional practices. Formal technical specification of the approved project is presented to faculty. Students are billed a materials fee. Prerequisite(s): Computer Engineering 121; previous or concurrent enrollment in Computer Engineering 185; permission of department and instructor. (General Education Code(s): PR-E.) The Staff

123B. Engineering Design Project II (7 credits). *
Second of two-course sequence in engineering system design. Students fully implement and test system designed and specified in course 123A. Formal written report, oral presentation, and demonstration of successful project to review panel of engineering faculty required. Students are billed a materials fee. Prerequisite(s): courses 123A and 185. Enrollment limited to 35. The Staff

125. Logic Design with Verilog. W
Verilog digital logic design with emphasis on ASIC and FPGA design. Students design and verify large-scale systems. Assignments and project use the Verilog Hardware Description Language with emphasis on verification and high-frequency ASIC/FPGA targets. Prerequisite(s): courses 100 and 100L. Concurrent enrollment in course 125L required. Enrollment limited to 40. M. Guthaus

125L. Logic Design with Verilog Laboratory (2 credits). W
Laboratory sequence illustrating topics covered in course 125. Two 2-hour laboratory sessions per week. Students are billed a materials fee. Prerequisite(s): courses 100 and 100L. Concurrent enrollment in course 125 is required. Enrollment limited to 40. The Staff

129A. Capstone Project I (2 credits). F
First of a three-course sequence in which students apply knowledge and skills gained in elective track to complete a major design project. In this first course, students complete the specification and planning for a substantial project. Topics covered: engineering design cycle, engineering teams, and professional practices. Prerequisite(s): previous or concurrent enrollment in courses 121 and 121L. P. Mantey

129B. Capstone Project II. W
Second of a three-course sequence in which students apply knowledge and skills gained in elective track to complete a major design project. In this second course, students complete the research and procurement for a substantial project and a preliminary implementation. Students are billed a materials fee. Prerequisite(s): courses 121, 121L, and 129A. Previous or concurrent enrollment in course 185. Enrollment by permission of instructor. (General Education Code(s): PR-E.) P. Mantey

129C. Captone Project III. S
Third of a three-course sequence in which students apply knowledge and skills gained in elective track to complete a major design project. In this third course, students work in teams to complete the project specified and advanced in the first two courses. A formal written report, oral presentation, and demonstration of the successful project to a review panel of engineering faculty is required. Students are billed a materials fee. Prerequisite(s): courses 129B and 185. Enrollment by permission of instructor. P. Mantey, The Staff

131. Human-Computer Interaction. W
Theory and hands-on practice to understand what makes user interfaces usable and accessible to diverse individuals. Covers human senses and memory and their design implications, requirement solicitation, user-centered design and prototyping techniques, and expert and user evaluations. Interdisciplinary course for social science and engineering majors. Students cannot receive credit for this course and Computer Engineering 231 or Digital Arts and New Media 231. Prerequisite(s): Computer Science 12B. S. Kurniawan

141. Feedback Control Systems. F
Analysis and design of continuous linear feedback control systems. Essential principles and advantages of feedback. Design by root locus, frequency response, and state space methods and comparisons of these techniques. Applications. (Also offered as Electrical Engineering 154. Students cannot receive credit for both courses.) Prerequisite(s): Electrical Engineering 103. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors, or by permission of instructor. Enrollment limited to 30. D. Milutinovic

142. Introduction to Cyber-physical Systems. F
Presents the basic concepts and tools for the study of cyber-physical systems, including modeling and analysis tools for continuous-time and discrete-time systems, finite state machines, stateflow, timed and hybrid automata, concurrency, invariants, linear temporal logic, verification, and numerical simulation. Students are guided on methods for simulation and encouraged to apply them to several applications. The course is self-contained. Students are expected to have a basic background in logic circuits, programming, the mathematical modeling of dynamical systems (course 8 is recommended), differential equations, linear algebra, and basic calculus. Knowledge of MATLAB/Simulink is useful. Prerequisite(s): courses 100/L or equivalent, and courses 13/L or equivalent. R. Sanfelice

150. Introduction to Computer Networks. F,W
Addresses issues arising in organizing communications among autonomous computers. Network models and conceptual layers; Internet-working; characteristics of transmission media; switching techniques (packet switching, circuit switching, cell switching); medium access control (MAC) protocols and local area networks; error-control strategies and link-level protocols; routing algorithms for bridges and routers; congestion control mechanisms; transport protocols; application of concepts to practical wireless and wireline networks and standard protocol architectures. Students who have completed course 80N can take this course for credit. Prerequisite(s): course 16 and either courses 12 and 12L, or Computer Science 12B and 12M. Concurrent enrollment in course 150L is required. K. Obraczka, The Staff

150L. Introduction to Computer Networks Laboratory (2 credits). F,W
Illustrates the concepts covered in course 150 and provides students with hands-on experience in computer networks. Students are billed a materials fee. Prerequisite(s): course 16 and either courses 12 and 12L, or Computer Science 12B and 12M. Concurrent enrollment in course 150 is required. K. Obraczka, The Staff

151. Advanced Computer Networks. S
Provides an in-depth coverage of fundamental topics introduced in course 150 including routing, transport, and internetworking. Also introduces advanced concepts not covered in course 150 including wireless, application-layer services, security, etc. (Formerly Network Administration.) Prerequisite(s): course 150. Concurrent enrollment in course 151L is required. Enrollment limited to 60. B. Smith

151L. Advanced Computer Networks Laboratory (2 credits). S
Laboratory illustrating the concepts covered in course 151: provides students with hands-on experience in computer networks. Students are billed a materials fee. Prerequisite(s): course 150/L. Concurrent enrollment in course 151 is required. Enrollment limited to 30. B. Smith

153. Digital Signal Processing. F
Introduction to the principles of signal processing, including discrete-time signals and systems, the z-transform, sampling of continuous-time signals, transform analysis of linear time-invariant systems, structures for discrete-time systems, the discrete Fourier transform, computation of the discrete Fourier transform, and filter design techniques.

Taught in conjunction with Electrical Engineering 250. Students cannot receive credit for this course and Electrical Engineering 250. (Also offered as Electrical Engineering 153. Students cannot receive credit for both courses.) Prerequisite(s): Electrical Engineering 103. A. Fletcher

156. Network Programming. W
Methods and tools used for network programming. Topics include: operating system (OS) support for network protocols; inter-process communication (IPC) facilities, such as pipes, sockets, and remote procedure call (RPC); design of client and server sides of network applications; network security; and programming projects. Prerequisites: course 150/L and Computer Science 101. Concurrent enrollment in course 156L required. The Staff

156L. Network Programming Laboratory (2 credits). W
Laboratory sequence illustrating concepts taught in course 156. Students learn use of network programming tools and methods via programming exercises. Students are billed a materials fee. Prerequisites: course 150/L and Computer Science 101. Concurrent enrollment in course 156 required. The Staff

158. Network Management and Operations.
Computer networking internship in the Network Management and Operations (NMO) Lab, an industry-sponsored, networks-research center at UCSC. Working in teams under faculty mentorship, students solve problems posed by industry sponsors over the course of a quarter. Students learn technical topics relevant to the problem, and gain experience and training in best practices for collaborative, multi-site problem solving. Prerequisite(s): course 150/L and 151/L; and previous or concurrent enrollment in course 185. Enrollment by instructor permission. The Staff

161. Mobile Sensing and Interaction. W
Provides hands-on knowledge and experience with modern mobile computing platforms for sensing and interactions tasks. Students learn how to create usable applications on a sensor-laden, mobile computing platform with adequate level of user interface. Prerequisite(s): courses 13/L or Computer Science 12B/M; and Physics 5A or Physics 6A. R. Manduchi

167. Sensing and Sensor Technologies. W
Introduces the fundamental issues in sensing and various sensor technologies including motion sensors, velocity sensors, GPS sensors, acoustic sensors, light and image sensors, and range sensors. Also demonstrates sensor technologies using a system approach to show how they can be integrated into a complete digital system. Prerequisite(s): Electrical Engineering 103. Concurrent enrollment in course 167L is required. The Staff

167L. Sensing and Sensor Technologies Lab (2 credits). W
Lab assignments reinforce the concepts and techniques learned in course 167. Assignments include measurement and estimation techniques, experiments with various sensors, and a course project in which students build digital sensing systems. Students are billed a materials fee. Prerequisite(s): Electrical Engineering 103. Concurrent enrollment in course 167 is required. The Staff

177. Applied Graph Theory and Algorithms. *
Basic concepts and algorithms are reviewed including trees, Eulerian and Hamiltonian graphs, and graph transversal. Algorithms are explored to solve problems in connectivity, routing, matching, and embedding of graphs. Graph theory and algorithms are developed around applications in computer engineering. Prerequisite(s): Computer Science 101. The Staff

185. Technical Writing for Computer Engineers. F,W,S
Writing by engineers and computer scientists, not to general audiences, but to engineers, engineering managers, and technical writers. Exercises include job application and resume, in-code documentation, algorithm description, naive-user documentation, library puzzle, survey article, proposal, progress report, formal technical report, and oral presentation. Offered in alternate quarters. Enrollment restricted to majors in Computer Engineering, Electrical Engineering, Bioengineering, Bioinformatics, Robotics Engineering, or Network and Digital Technology, or by permission of instructor. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; and Computer Science 12B or Computer Engineering 12 or Biomolecular Engineering 160. Enrollment limited to 60. (General

Education Code(s): W.) G. Moulds

193. Field Study. F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a faculty member of the Computer Engineering Department and a willing sponsor at the field site using resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives by submitting a written and oral presentation. May not be repeated for credit. Students submit petition to sponsoring agency. The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a faculty member of the Computer Engineering Department and a willing sponsor at the field site using resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives by submitting a written and oral presentation. May not be repeated for credit. Students submit petition to sponsoring agency. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis Research. F,W,S
Students submit petition to sponsoring agency. Prerequisite: course 123A. The Staff

195F. Senior Thesis Research (2 credits). F,W,S
Students submit petition to sponsoring agency. Consent of instructor required. Prerequisite: course 123A. The Staff

198. Individual Study or Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Individual Study or Research (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
For fourth-year students majoring in computer engineering. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
For fourth-year students majoring in computer engineering. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Research and Teaching in Computer Science and Engineering (3 credits). F
Basic teaching techniques for teaching assistants including responsibilities and rights of teaching assistants, resource materials, computer security, leading discussion or lab sessions, presentation techniques, maintaining class records, electronic handling of homework, and grading. Examines research and professional training, including use of the library and online databases, technical typesetting, writing journal and conference papers, publishing in computer science and computer engineering, giving talks in seminars and conferences, and ethical issues in science and engineering. Required for all T.A.s. Enrollment restricted to graduate students. A. Varma

202. Computer Architecture. S
Provides a thorough and fundamental treatment of the art of computer architecture. Topics include concepts of von Neumann architectures, methods of evaluating CPU performance, instruction-set design and examples, compiler issues, instruction pipelining, superscalar processors, methods for reduction of branch penalty, memory hierarchies, I/O systems, floating-point arithmetic, and current issues in parallel processing. Prerequisite(s): course

110 or 112. Enrollment restricted to graduate students; undergraduates may enroll if they have completed course 110 or 112 and with consent of instructor. Enrollment limited to 30. The Staff

215. Models of Robotic Manipulation. W
Theory and application of mathematical models to analyze, design, and program serial kinematic chains (robot arms). Covers models of arbitrary articulated robotic or biological arms and their application to realistic arms and tasks, including the homogeneous coordinate model of positioning tasks; the forward and inverse kinematic models; the Jacobian matrix; trajectory generation;and dynamic models, including Newton-Euler and Lagrangian formulations. Enrollment restricted to graduate students; and to seniors who have taken electrical engineering 154, and applied mathematics and statistics 10 or 10A or mathematics 21; or by permission of instructor. S. Ellerson

216. Bio-Inspired Locomotion. S
Presents the principles of biological locomotion and application to robotics problems. Students learn about effective movements in the biological world (slithering, walking, climbing, and flying); extract their underlying principles; and apply them creatively to robotics design. Prerequisite(s): course 9 or equivalent. Enrollment restricted to graduate students, and seniors by permission of instructor. Enrollment limited to 20. The Staff

218. Mechatronics. F
Introduction to intelligent electro-mechanical systems, combining aspects of computer, electrical, mechanical, and software engineering. Students become proficient in all aspects of mechanical, electrical, computer system design, analysis, prototyping, presentation and team mentorship. Cannot receive credit for this course and course 118. Prerequisite(s): concurrent enrollment in course 218L. Enrollment restricted to graduate students. Enrollment limited to 36. G. Elkaim

218L. Mechatronics Lab (2 credits). F
Laboratory sequence illustrating topics covered in course 218. Two 2-hour laboratory sessions per week. Students cannot receive credit for this course and course 118L. Students are billed a materials fee. Prerequisite(s): concurrent enrollment in course 218. Enrollment restricted to graduate students. Enrollment limited to 36. G. Elkaim

220. Advanced Parallel Processing. *
Introduction to programming advanced parallel computer architecture. Topics may include: SIMD massively parallel processor arrays; streaming parallel coprocessors, such as graphics cards used for general-purpose processing (GPGPU); or other hybrid MIMD/SIMD architectures. Course has programming lab component, a project, and student presentation on related topics. (Formerly Parallel Processing .) Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. The Staff

221. Advanced Microprocessor Design. *
Introduction to latest advances in computer architecture. Focuses on processor core design. Topics include simultaneous multithreading, thread level speculation, trace caches, novel out-of-order mechanisms, and energy-efficient processor core designs. Final project is modification/enhancement of an out-of-order processor on an FPGA development system. Prerequisite(s): course 202; and course 125, 225, or equivalent Verilog experience. Concurrent enrollment in course 221L required. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

221L. Advanced Microprocessor Design Laboratory (3 credits). *
Laboratory sequence illustrating topics covered in course 221. Prerequisite(s): course 202; and course 125, 225, or equivalent Verilog experience. Concurrent enrollment in course 221 required. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

222. VLSI Digital System Design. S
Advanced Very Large Scale Integrated (VLSI) custom integrated circuits. Topics include: semiconductors; field-effect transistors (FETs); circuits; and interconnect simulation, along with advanced material on manufacturability, variability, short-channel devices, and non-volatile memories. Students cannot receive credit for this course and course 122. (Formerly VLSI Digital System Design.) Prerequisite(s): course 122 or equivalent. Enrollment limited to 15. M. Guthaus

223. VLSI System-on-a-Chip Design. *
Design methodologies for Application Specific Integrated Circuits (ASICs). Topics include: behavioral specification; logic synthesis; standard-cell libraries; advanced timing analysis; and physical design automation tools. Familiarizes students with real-world tools during the design of a small system-on-a-chip project. Students are encouraged to fabricate and test their chips in an independent study. Prerequisite(s): course 222 or permission of instructor. Enrollment restricted to graduate students. The Staff

224. Testing Digital Circuits. *
An introduction to the theory and practice of testing. Topics are chosen from fault and defect models, test generation for combinational and sequential circuits, fault simulation, scan-design and built-in self-test. Enrollment restricted to graduate students; undergraduates may enroll if they have completed Computer Science 101. The Staff

225. Introduction to ASIC Systems Design. *
Introduces reconfigurable computing systems with emphasis on field-programmable devices. Topics include: architectures of field-programmable devices; novel reconfigurable systems; and hardware algorithms. Students are billed a materials fee. Enrollment restricted to computer engineering graduate students. Enrollment limited to 10. Offered in alternate academic years. The Staff

229. Field-Programmable Gate Arrays Computer-Assisted Design. *
Design methods for Field-Programmable Gate Arrays (FGPAs), including algorithms for technology mapping, routability estimation, placement, and routing. The relationship between FPGA architectures and their computer-aided design tools. Course project involves the modification and analysis of an FPGA tool. Enrollment restricted to graduate students or by consent of instructor. Courses 100, 125, 126, 222, 225, or other digital design experience recommended. Enrollment limited to 20. The Staff

230. Computer Performance Evaluation. *
Introduction to methods of analysis of computer system performance. Predictive performance models with emphasis on queuing models; exact and appropriate solution methods, discrete-event simulation, and numeric iterative approaches; analytical solutions and their computation; separable queuing networks, decomposition approaches; examples of practical application; and performance measurement, model validation, robustness of models, and operational analysis. Enrollment restricted to graduate students. Enrollment limited to 20. Offered in alternate academic years. The Staff

231. Human-Computer Interaction. W
Theory and hands-on practice to understand what makes user interfaces usable and accessible to diverse individuals. Covers human senses and memory and their design implications, requirement solicitation, user-centered design and prototyping techniques, and expert and user evaluations. Individual research project. Interdisciplinary course for art, social science and engineering graduate students. Students cannot receive credit for this course and course 131. (Also offered as Digital Arts and New Media 231. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. S. Kurniawan

232. Arithmetic Processors. *
Concept of number systems: binary additions, multiplications, divisions; elementary function evaluations; algorithm acceleration; floating-point and significant arithmetics; IEEE standards; technology related issues; algorithm evaluation by implementation with gate arrays. Prerequisite(s): course 202. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

233. Human Factors. *
Course focuses on theories, practices, and design of systems to optimize human well-being and system performance through consideration of psychological, social, physical, and biological factors. Covers human sensory systems and memory, workload management, error and reliability, performance measurement, and ergonomic design. Interdisciplinary course for social science and engineering graduate students. Enrollment restricted to graduate students; undergraduates may enroll if they have completed course 131. The Staff

235. User Evaluation of Technology.

Presents a variety of evaluation methodologies to assess usability, acceptance, and effectiveness of technology with the intended users. Combines lectures and exercises for students to gain firsthand experiences of these methodologies with real users. Enrollment restricted to graduate students. Seniors may enroll with completion of course 131. The Staff

240. Introduction to Linear Dynamical Systems. *
Introduction to applied linear algebra and linear dynamical systems with applications to circuits, signal processing, communications, and control systems. Topics include the following: Least-squares approximations of over-determined equations and least-norm solutions of underdetermined equations. Symmetric matrices, matrix norm and singular value decomposition. Eigenvalues, left and right eigenvectors, and dynamical interpretation. Matrix exponential, stability, and asymptotic behavior. Multi-input multi-output systems, impulse and step matrices; convolution and transfer matrix descriptions. Control, reachability, state transfer, and least-norm inputs. Observability and least-squares state estimation. Enrollment restricted to graduate students; undergraduates may enroll if they have completed Electrical Engineering 103 and Applied Math and Statistics 147. W. Dunbar

241. Introduction to Feedback Control Systems. F
Graduate-level introduction to control of continuous linear systems using classical feedback techniques. Design of feedback controllers for command-following error, disturbance rejection, stability, and dynamic response specifications. Root locus and frequency response design techniques. Extensive use of Matlab for computer-aided controller design. Course has concurrent lectures with Electrical Engineering 154. (Also offered as Electrical Engineering 241. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. D. Milutinovic

242. Applied Feedback Control. W
Sequel to Electrical Engineering 154. After reviewing control design techniques examined in EE 154, this course explores state space control, discrete time control, and two case studies in control design. Students design and implement feedback controllers on an inverted pendulum experiment. Prerequisite(s): Electrical Engineering 154 or course 241. Enrollment restricted to juniors, seniors, and graduate students. G. Elkaim

243. System Identification. *
Course provides introduction to the construction of linear dynamical models from experimental data using parametric and non-parametric identification techniques. Theoretical and practical aspects of these techniques addressed. Prerequisite(s): course 240, or by permission of instructor. The Staff

244. Digital Control. *
Teaches the design and analysis of digital control systems. The topics covered are discrete-time system modeling; z-transform; stability, controllability, and observability of discrete-time systems; various design approaches to control design in which sensor, computer hardware, actuation, communication, and user interface are part of the design. Note: knowledge of linear algebra, calculus, basic differential equations, Laplace transform, signals and systems, linear-system control theory, MATLAB, and the use of word-processing software are assumed. Prerequisite(s): course 141 or 241. Enrollment restricted to graduate students, or by permission of the instructor. The Staff

246. Hybrid Dynamical Systems. W
Examines the modeling and analysis of hybrid dynamical systems, including the modeling of hybrid systems, the concept of solutions, Zeno behavior, equilibrium sets, stability, convergence, Lyapunov-based conditions, robustness, and simulation. Students are guided on methods for simulation and encouraged to apply them to several applications. Prerequisite(s): course 241. Enrollment restricted to graduate students. R. Sanfelice

248. Games in Design and Control. *
Graduate-level introduction to game theory and its applications to system design, verification, analysis, and optimal control. Enrollment restricted to graduate students. Computer Science 101, 201, or equivalent recommended. The Staff

250. Multimedia Systems. *
Study of state-of-the-art technology for networked multimedia systems. Topics include

audio, image, and video acquisition and compression standards (JPEG, MPEG, and ITU families); networking for multimedia; and digital television. Proficiency in C or C++ required. Prerequisite(s): Enrollment restricted to graduate students. The Staff

251. Error-Control Coding. S
Overview of coding to protect messages against error during transmission or storage. Topics include channel models, linear algebra over finite fields, linear block codes and bounds, cyclic codes (BCH and RS), decoding algorithms, spectral analysis, codes on graphs, and low-complexity algorithms. Enrollment restricted to graduate students or consent of instructor. H. Sadjadpour

252A. Computer Networks. F
Issues resulting from organizing communication among autonomous computers. Includes network models and switching techniques; medium access control protocols and local area networks; error control and retransmission strategies; routing algorithms and protocols; congestion control mechanisms and end-to-end protocols; application-level protocols; and application of concepts to wireless and wireline networks, with emphasis on the Internet. Enrollment restricted to graduate students. J. Garcia-Luna-Aceves

252B. Principles of Computer Communication. *
Theory and practice of computer communication networks. Emphasis is on verification and performance analysis of network control processes. Topics include protocols for channel access, point-to-point and multipoint reliable transmission, routing, congestion control, network management, multicasting, and ATM networks. (Formerly Modeling of Communications Protocols.) Prerequisite(s): courses 107 and 252A. The Staff

253. Network Security. *
Fundamental mechanisms for network security and their application in widely deployed protocols. In-depth treatment of security mechanism at the data-link, network, and transport layers for both wired and wireless networks. Covers mechanisms for privacy and integrity, and methods for intrusion detection. Prerequisite(s): course 252A and Computer Science 201. Enrollment restricted to graduate students. The Staff

254. High Speed Computer Networks. *
Fiber-optic technology; fiber-optic link design; network protocol concepts; coding and error control; high-speed local area and metropolitan area networks; gigabit networks; error and congestion control; photonic networks; research topics. Prerequisite(s): course 252B. The Staff

256. Design Project in Computer Networks. *
Students develop a working implementation of a network protocol with the goal of obtaining hands-on experience in implementing real-world network protocols. Prerequisite(s): course 252A; enrollment restricted to graduate students. The Staff

257. Wireless and Mobile Networks. S
An interdisciplinary course on wireless communication and mobile computing. Covers the physical aspects of wireless communication but emphasizes higher protocol layers. Topics include cellular networks, packet radio and ad hoc networks, wireless transport protocols, security, and application-level issues. Prerequisite(s): course 252A or permission of instructor. Enrollment limited to 20. K. Obraczka

258. Unix Networking Internals. *
In-depth treatment of the implementation of network protocols in typical open-source Unix systems. Topics include implementation of send and receive functions, buffer management, interrupt handling, locking, scheduling and timer management. Major implementation project required. Prerequisite(s): course 252A. Computer Science 111 recommended. Enrollment restricted to graduate students. The Staff

259. Sensor Networks. *
Focus is on the networking aspects of sensor networks: protocols at the various layers and how they answer the specific requirements posed by these networks (e.g., data driven, energy efficient, etc.) and their applications (monitoring, tracking, etc.). Explore how physical layer and hardware issues may influence protocol design. Courses 252A and 257 recommended. The Staff

263. Data Compression. *

Introduction to information theory and data compression. Lossless coding (Huffman, arithmetic, dictionary codes). Lossy coding (scalar and vector quantization, differential coding, transform coding). Applications to the compression of real data sets (DNA sequences, biological time series, multimedia streams). Concurrent lectures with course 108. Students cannot receive credit for both this course and course 108. Students must have basic knowledge of probability theory. Enrollment restricted to graduate students. The Staff

264. Image Analysis and Computer Vision. W
Brief review of image processing. Binary images, thresholding, morphological operations; edge detection and segmentation; contours: digital curves and curve fitting; statistical texture analysis, shape from texture; depth cues, stereo matching, depth from stereo; color perception and segmentation; and shading and image radiance, surface orientation, and shape from shading. Electrical Engineering 264 encouraged, but not required. Undergraduate students who are interested in enrolling should meet with the instructor first. R. Manduchi

277. Graph Algorithms. S
Explores graph theory and algorithms for solving problems in engineering. A review of basic graph concepts and algorithms is followed by topics in network flow, partitioning, spectral analysis of graphs, graph isomorphism, and intractability. Prerequisite(s): Computer Science 101 and 102; or course 177; or Computer Science 201; or equivalent. Enrollment restricted to graduate students. Enrollment limited to 20. M. Schlag

280C. Seminar on Control (2 credits). F,W,S
Weekly seminar series covering topics of current research in theory and application of control to engineering systems. Current research work and literature in these areas discussed. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. May be repeated for credit. G. Elkaim

280G. VLSI/CAD Seminar (2 credits). F,W,S
Weekly seminar on advanced topics in VLSI and computer-aided design (CAD). Students present and discuss modern issues in semiconductor design, fabrication, and CAD. Frequent guest speakers present pertinent results from industry and academia. Enrollment limited to 20. May be repeated for credit. M. Guthaus

280N. Seminar on Networks (2 credits). F,W,S
Weekly seminar series covering topics of current research in networks and networked systems. Current research work and literature in these areas are discussed. Prerequisite(s): permission of instructor. Enrollment restricted to graduate students. May be repeated for credit. K. Obraczka, J. Garcia-Luna-Aceves

280P. Seminar on Parallel Processing (2 credits). *
Weekly seminar series covering topics of current research in parallel systems, architectures, and algorithms. Current research work and literature in these areas are discussed. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. The Staff

280T. Seminar on New Technologies (2 credits). *
Weekly seminar series in which distinguished speakers from industry, universities, and government discuss current developments in networking and computer technology. The emphasis is on open research questions that may lead to collaborative work with faculty and graduate students. The Staff

280V. Seminar on Computer Vision (2 credits). F,W,S
Weekly graduate-level seminar series discussing advanced topics in computer vision and image analysis. Current research and literature presented during each meeting. Enrollment limited to 20. May be repeated for credit. R. Manduchi

285. Technical Writing for Engineering Graduates. *
Writing skills development for graduate engineers. Students produce a major writing project with many subtasks. Exercises includes fellowship application; mathematical and algorithmic description; use of tables and graphs; experiment description; and producing technical web sites, presentations, and posters. Enrollment restricted to graduate biomolecular engineering, computer engineering, computer science, and electrical

engineering majors. (Open to all School of Engineering graduate students.) Enrollment limited to 20. The Staff

290L. Advanced Topics in VLSI Computer-Aided Design. *
A graduate course on a research topic in VLSI computer-aided design. Topic varies according to instructor. Possible topics include, but are not limited to specification languages and formal verification, logic minimization, testing and verification, electrical simulation, layout synthesis, and behavioral synthesis. Course 100, 125, 126, 222, or 225 recommended. The Staff

290M. Topics in Parallel Computation. *
Investigates selected topics in applied parallel computation. Topics may include numerical methods, artificial intelligence and machine learning algorithms, graphics and image processing, systolic algorithms, and the interplay between hardware and algorithms. Students are encouraged to investigate and discuss the parallelization of their own research. Enrollment restricted to graduate students. The Staff

290N. Topics in Computer Performance. *
Selected topics of current interest in the area of computer system performance. Subjects may include aspects of large systems, performability, computer networks, storage subsystems, and nontraditional approaches and are subject to periodic revision. Enrollment restricted to graduate students. The Staff

290V. Advanced Topics in Visual Computing. *
Advanced course in image analysis and computer vision. Topics include motion analysis, multiple view geometry, 3D reconstruction, image-based rendering, vision-based graphics, face detection and recognition, tracking, image and video retrieval, and human-computer interface. Enrollment restricted to seniors and graduate students. Enrollment limited to 20. The Staff

293. Advanced Topics in Computer Engineering. *
A graduate seminar on a research topic in computer engineering which varies according to instructor. Possible topics include, but are not limited to, communication networks, data compression, special-purpose architectures, computer arithmetic, software reliability and reusability, systolic arrays. The Staff

296. Masters Project (2 credits). F,W,S
Independent completion of a masters project under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study or Research. F,W,S
Independent study or research under faculty supervision. Students submit petition to sponsoring agency. The Staff

299. Thesis Research. F,W,S
Thesis research conducted under faculty supervision. Students submit petition to sponsoring agency. The Staff

299F. Thesis Research (2 credits). F,W,S
Independent study or research under faculty supervision. Enrollment restricted to graduate students. Recommended for part-time students. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Computer Science

2014-15 General Catalog

Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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Lower-Division Courses

2. Computer Literacy.
Introduction to how computers work and how to use them. Topics covered include network information systems, text editors, formatting, file and directory system, spreadsheets and databases. Computers as symbol manipulation devices. Introduction to programming concepts and computer languages. Impact of computers on society. Designed for students with little or no experience using computers. Preference is given to students who have not taken other computer engineering or computer science courses. Students cannot receive credit for this course and Computer Engineering 3. (General Education Code(s): PE-T, IN.) N. Polyzotis, The Staff

5C. Introduction to Programming in C/C++.
Students learn programming and documentation skills as well as algorithmic problem-solving and programming methodologies. Introduces computers, compilers, and editors. Students write small to medium-sized programs. No prior programming experience required, but a mathematics background at the pre-calculus level is assumed. This course and courses 5J and 5P cover similar concepts, but use different programming languages. This course is recommended for students that have a specific desire or need to learn C/C++; others are encouraged to consider taking course 5P or 5J whcmpsich use languages that provide a gentler introduction to programming. (General Education Code(s): MF, IN.) C. McDowell, D. Long

5J. Introduction to Programming in Java. F,W
Introduces programming in Java for students who have no prior programming experience. Students learn programming and documentation skills, as well as algorithmic problem-solving, and programming methodologies. Introduces computers, compilers, and editors. Students write small to medium-sized programs. This course and courses 5C and 5P cover similar concepts, but use different programming languages. Because 5J followed by course 11 is a two-quarter alternative to the accelerated course 12A/L, engineering majors and students planning on continuing the programming sequence are encouraged to take 5J rather than 5C or 5P. Students may not receive credit for 5J taken concurrently or subsequently to course 12A, 12B, or Computer Engineering 13. (General Education Code(s): MF, IN.) P. Tantalo, D. Helmbold, C. McDowell

5P. Introduction to Programming in Python.
Introduces programming in Python, a high-level programming language used in the physical and social sciences and for Internet scripting. Students learn programming and

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
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- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
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- Politics
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- Science Communication
- Social Documentation
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- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

documentation skills, as well as algorithmic problem-solving, coding, and debugging methodologies. Students write programs to solve sample problems drawn from a wide range of disciplines, primarily in the sciences. No prior programming experience is required, but a mathematics background at the pre-calculus level is assumed. This course and courses 5C and 5J cover similar concepts, but use different programming languages. Students may not receive credit for course 5P after receiving credit for course 11, 12A, or Computer Engineering 13. (General Education Code(s): MF, IN.) D. Long, E. Miller

10. Introduction to Computer Science. F,W
An overview of the theory, foundations, and practice of computer science with emphasis on what computers can and cannot do, now and in the future. Topics include algorithms and data, correctness and efficiency of algorithms, hardware, programming languages, limitations of computation, applications, and social issues. No programming skills are required as a prerequisite. Major concepts and open problems in computer science are presented without reliance on sophisticated mathematical tools. Students cannot receive credit for this course after completing course 12B. (General Education Code(s): MF, IN.) The Staff, P. Tantalo, M. Walker, S. Lodha, C. McDowell, C. Flanagan, N. Whitehead

11. Intermediate Programming. W,S
Continuation of course 5J. Covers basic object-oriented programming, event-driven programming, graphical user interface (GUI) creation, recursion, two-dimensional arrays. The two-quarter sequence courses 5J and 11 cover in two quarters the same material as the accelerated introductory course and lab 12A/L cover in one quarter. Students cannot receive credit this course and course 12A. Prerequisite(s): course 5J, and Mathematics 3 or 11A or 19A or Applied Mathematics and Statistics 3 or Applied Mathematics and Statistics/Economics 11A or a score of 400 or higher on the mathematics placement examination (MPE). (General Education Code(s): MF.) C. McDowell, P. Tantalo

12A. Introduction to Programming (Accelerated). F,W,S
Accelerated introduction to programming. Students write medium-sized programs. Topics include: functions; conditionals and loops; classes; event-driven programming and graphic user interfaces (GUIs); recursion; and arrays. Students who have no or very limited programming experience should consider courses 5J and 11 which cover the same material in two quarters. Students may not receive credit for both this course and course 11. Some prior programming experience in a language such as C, C++, Java, or C# strongly recommended. Prerequisite(s): Mathematics 3 or 11A or 19A or Applied Mathematics and Statistics 3 or Applied Mathematics and Statistics/Economics 11A, or a score of 400 or higher on the mathematics placement examination (MPE). Concurrent enrollment in 12L required. (General Education Code(s): IN.) W. Mackey, N. Polyzotis, D. Helmbold, C. Flanagan, A. Pang, C. McDowell, D. Long, N. Whitehead

12B. Introduction to Data Structures. F,W,S
Teaches students to implement common data structures and the algorithms associated with each data structure, through progressively difficult exercises. Topics include big "O" notation; pointers, recursion (induction), and dynamic allocation; linked lists and list processing; stacks, queues, binary trees and binary search trees; simple sorting techniques and simple search techniques. Students will gain a working knowledge of the elements of the Java and C programming languages. Prior experience with Unix is assumed. Prerequisite(s): course 11 or 12A or Computer Engineering 13. Concurrent enrollment in course 12M required. (General Education Code(s): MF, IN.) W. Mackey, P. Tantalo, N. Whitehead

12L. Computer Programming Laboratory (2 credits). F,W,S
Laboratory sequence complementing topics taught in course 12A by providing training and exposure to several software development tools and practices not covered in course 12A. In addition, the lab provides an initial exposure to a second programming language to reinforce concepts from course 12A. Concurrent enrollment in course 12A is required. W. Mackey, N. Polyzotis, D. Helmbold, C. Flanagan, A. Pang, C. McDowell, D. Long, N. Whitehead

12M. Data Structures Laboratory (2 credits). F,W,S
Complements course 12B, gaining additional competence with a number of important software development tools, languages, and techniques. Included are advanced Unix features and utilities such as grep, find, diff, the shell, and pipes; C programs utilizing I/O,

Management
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- Yiddish

Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

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arrays, pointers, and structures; a scripting language to perform simple text and file manipulation; and the make utility. Concurrent enrollment in course 12B required. W. Mackey, P. Tantalo, N. Whitehead

13H. Introduction to Programming and Data Structures (Honors).
Provides an accelerated introduction to programming and data structures. Includes a review of basic programming, including loop and conditional control structures, procedures and parameter passing, and arrays. Course goes on to cover same material as course 12B. Students cannot receive credit for this course and course 12A or 12B. Prerequisite(s): interview only; students must have completed a high school or college level programming course in Java, C, or C++. A short oral examination given to ascertain programming level. Concurrent enrollment in course 13L required. (General Education Code(s): IN.) D. Long

13L. Introduction to Programming and Data Structures Laboratory (2 credits).
Provides accelerated introduction to practical aspects of programming and data structures. Covers three areas: 1) common programming tools, including Unix commands, compilers and linkers, editors, debuggers, and Makefiles; 2) basic programming techniques, including design, testing, and debugging; and 3) C programming, focusing on the major differences between C and Java. Previous or concurrent enrollment in course 13H required. Prerequisite(s): interview only; students must have completed a high school or college level programming course in Java, C, or C++. A short oral examination given to ascertain programming level. D. Long

17. Social Networks.
Introduction to social networks and game theory. Topics include the structure of social networks; the world wide web; the flow of information and behavior through networks; and the principles behind modern web search and search-ad placement. Prerequisite(s): Mathematics 3 or 11A; or Applied Mathematics and Statistics 2 or 3 or 6 or 11A or 15A; or Economics 11A; or score on math placement exam of 31 or higher. (General Education Code(s): SR.) B. Ten Cate, P. Kolaitis

20. Game Design Experience. W
Introduction to computer game development. Topics covered include: animating sprites; use of game development frameworks; collision detection; game audio; scrolling game worlds; basic artificial intelligence for games; and basic 3-D graphics. Also covers basic object-oriented design and software design patterns. Course 80K recommended. Prerequisite(s): course 12B. (General Education Code(s): PR-E, IN.) E. Whitehead, A. Jhala, M. Mateas

25. Introduction to Computer Graphics: 3D Modeling. F,W
Introduces theory and techniques of 3D computer graphics. Topics include: capabilities of modern graphics hardware; 3D coordinate spaces; modeling with polygons; NURBS and subdivision surfaces; applying textures and materials; lighting; and simple effects. Students develop proficiency in 3D modeling via lectures and assignments focused on the use of a 3D modeling tool. (General Education Code(s): PR-C.) The Staff, C. Yonge, E. Whitehead

26. Introduction to Computer Graphics: 3D Animation.
Introduces theories and techniques of 3D computer animation. Topics include: character animation; rigging; simulation of cloth, liquids, and fire; motion capture; rendering; and editing animated scenes. Students develop proficiency in 3D animation via lectures and assignments focused on the use of a 3D animation tool and use of motion-capture software. Prerequisite(s): course 25. (General Education Code(s): PR-C.) C. Yonge

60M. Scientific Computation with Matlab and Maple.
Basic concepts from calculus visualized using Matlab and Maple; plotting data and functions, integration, differentiation, limits; solving systems of equation; linear regression; and example applications from science and engineering. Prerequisite(s): Mathematics 19B, or 20B, or by consent of instructor. M. Warmuth

80B. Systems and Simulation.
An introduction to systems analysis as an approach to understanding and solving complex problems. The use of simulation as an aid in this problem solving. Examples are taken from ecology, economics, physics, computer science, and other fields. Intended as a generally accessible undergraduate course in which students can develop and explore computer simulation models matched to their individual interests. (General Education Code(s): T2-

Natural Sciences, Q.) The Staff

80G. Introduction to Unix.
Introduction to computing, the Internet, and the World Wide Web through the language of the Unix operating system. Oriented to the beginner, the course presupposes no previous acquaintance with any particular sort of computer. It covers the basic concepts of text editing and formatting, writing Web pages in basic HTML, and promotes a rigorous understanding of Unix commands and shell scripts. Views communication with a computer as a matter of learning a few simple though powerful languages. (General Education Code(s): T2-Natural Sciences.) The Staff

80J. Technology Targeted at Social Issues.
Introduces the idea that engineering can be a means for addressing social issues. Case studies and guest speakers. Issues might include: economic development, privacy, activism, safe drinking water, inexpensive shelters, sustainable energy, education, and waste disposal. (General Education Code(s): PE-T, T7-Natural Sciences or Social Sciences.) J. Davis, S. Lodha

80K. Foundations of Interactive Game Design. S
Surveys history, technology, narrative, ethics, and design of interactive computer games. Work in teams to develop novel game-design storyboards. Intended as a generally accessible undergraduate course in which students can explore the interplay of narrative, graphics, rule systems, and artificial intelligence in the creation of interactive games. Programming experience not required. (General Education Code(s): IM, T2-Natural Sciences.) N. Wardrip-Fruin, E. Whitehead, N. Whitehead

80L. Social Data Analysis and Visualization. F
Course examines: social data analytics--veracity, consistency, uncertainty, volume; statistical computation--misuse, bias, dispersion, correlation, regressions, differential scales, normal distributions, factor and cluster analysis, extrapolation, inference, simple programming; visual representations--communication, critique and design of infographics; applications--environment, energy, economics, education, empowerment. (General Education Code(s): SR.) S. Lodha

80S. From Software Innovation to Social Entrepreneurship.
Emerging software innovations with emphasis on social software. Web 2.0 companies and services. Software that has social impact in a global context. Entrepreneurial plan including social, economic, and innovation value. Final group project on innovative software design and entrepreneurship plan. (General Education Code(s): PE-T, T7-Natural Sciences or Social Sciences, E.) S. Lodha

80V. Creating Virtual Worlds on the Web.
Project-oriented course about creating and publishing interactive 3D content on the web. Focuses on the creation of static and dynamic objects, such as characters, terrain, accessories, and works of art. Also covers inclusion of animation and sound effects with these objects. The objects created can be used in a stand-alone setting (e.g., a 3D document) or incorporated into existing virtual worlds (e.g., as part of a level design in a computer game or assets in massively multiplayer online games). Uses 3D authoring tools (pending availability of resources) like VRML, Second Life, Alice, and/or Acrobat 3D. (Formerly VRML 3D Worlds on the Web.) (General Education Code(s): PR-C, T2-Natural Sciences.) A. Pang

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S

Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Algorithms and Abstract Data Types. F,W,S
Studies basic algorithms and their relationships to common abstract data types. Covers the notions of abstract data types and the distinction between an abstract data type and an implementation of that data type. The complexity analysis of common algorithms using asymptotic (big "O") notation is emphasized. Topics include sorting and searching techniques, basic graph algorithms, and algorithm design techniques. Abstract data types covered include priority queues, dictionaries, disjoint sets, heaps, balanced trees, and hashing. Familiarity with C, Java, and Unix is assumed. Prerequisite(s): course 12B or 13H; CMPE 16 or 16H; MATH 19B, 20B or 11B; and one course from the following: MATH 21, 22, 23A, or AMS 10. P. Tantalo, D. Helmbold, A. Van Gelder, M. Warmuth

102. Introduction to Analysis of Algorithms. W,S
Methods for the systematic construction and mathematical analysis of algorithms. Order notation, the RAM model of computation, lower bounds, and recurrence relations are covered. The algorithm design techniques include divide-and-conquer, branch and bound, and dynamic programming. Applications to combinatorial, graph, string, and geometric algorithms. Prerequisite(s): course 101. M. Warmuth, A. Van Gelder, D. Achlioptas, D. Helmbold, S. Lodha

104A. Fundamentals of Compiler Design I. F,S
An introduction to the basic techniques used in compiler design. Topics include compiler structure, symbol tables, regular expressions and languages, finite automata, lexical analysis, context-free languages, LL(1), recursive descent, LALR(1), and LR(1) parsing; and attribute grammars as a model of syntax-directed translation. Students use compiler building tools to construct a working compiler. Prerequisite(s): course 101 and Computer Engineering 12 and 12L. W. Mackey

104B. Fundamentals of Compiler Design II.
Advanced study of compiler implementation. Topics include compiler structure back end, run-time environments, storage management, garbage collection, register allocation, code generation, basic blocks, control flow, data flow, local and global optimization, interpretation, and machine-code generation. Students may not receive credit for this course and course 204. Taught in conjunction with course 204. Prerequisite(s): course 104A. W. Mackey

105. Systems Programming.
Covers fundamentals of systems programming including standard tools, shell programming, file I/O, files and directories, system data files and information, Unix processes, process control, synchronization, signals, event-driven programming, terminal I/O, daemons, interprocess communication, basic network programming, and basic user-interface programming. Prerequisite(s): course 101 and Computer Engineering 12 and 12L. Enrollment restricted to School of Engineering majors. D. Long, E. Miller

109. Advanced Programming. W,S
An introduction to object-oriented techniques of software development including data abstraction, inheritance, polymorphism, and object-oriented design. Extensive practice using a computer to solve problems, including construction of graphical user interfaces and a multithreaded client/server applications. Prerequisite(s): course 12B/M or 13H. C. McDowell, W. Mackey

111. Introduction to Operating Systems. W,S
Fundamental principles of operating systems: process synchronization, deadlocks, memory management, resource allocation, scheduling, storage systems, and study of several operating systems. A major programming project will be required. Prerequisite(s): course 101, and Computer Engineering 110 or Computer Engineering 112. E. Miller, D. Long, W. Mackey

112. Comparative Programming Languages. F,W
Covers several programming languages and compares styles, philosophy, and design principles. Principles underlying declarative, functional, and object-oriented programming styles are studied. Students write programs emphasizing each of these techniques.

Prerequisite(s): course 101 or 109. W. Mackey, W. Tan, C. McDowell, C. Flanagan, A. Van Gelder, D. Long

113. Parallel and Concurrent Programming.
Introduction to parallel and concurrent programming. Topics include: types of parallel computers and programming platforms; design, implementation, and optimization of programs for parallel and multicore processors; basic and advanced programming techniques; performance analysis and load balancing; and selected parallel algorithms. (Also offered as Computer Engineering 113. Students cannot receive credit for both courses.) Prerequisite(s): Computer Engineering 12 and 12L and Computer Science 101. Computer Engineering 110 or 112 recommended. J. Renau Ardevol, E. Miller

115. Introduction to Software Engineering. F,W
Emphasizes the characteristics of well-engineered software systems. Topics include requirements analysis and specification, design, programming, verification and validation, maintenance, and project management. Practical and research methods are studied. Imparts an understanding of the steps used to effectively develop computer software. (Formerly Software Methodology.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 101. Enrollment restricted to computer science, computer engineering, and technology and information management majors. E. Whitehead, L. Werner, C. Flanagan

116. Software Design Project. W
Students in teams specify, design, construct, test, and document a complete software system in a specialized application domain. Class time is spent in technical discussions and ongoing design reviews. A formal presentation and demonstration of each project is required. An organizational meeting will be held during the preceding quarter. Projects may be drawn from industry and campus research groups. Students are billed a materials fee. Prerequisite(s): course 115. (General Education Code(s): PR-E.) E. Whitehead, L. Werner, L. De Alfaro

117. Software Design Project II. S
Continuation of course 116. Students work in teams to develop, test, document, and deploy a substantial software project. Teams give a formal presentation and demonstration of each project. Students are billed a materials fee. Prerequisite(s): course 116. E. Whitehead, L. Werner, L. De Alfaro

119. Software for Society.
Provides experience with applying computing to social issues. Case studies on multiple issues. For example: privacy, copyright, voting, education, poverty, energy, activism. Team project in which students develop software to address a pre-identified need of a global or local non-profit. Prerequisite(s): course 101. (General Education Code(s): PE-T.) J. Davis

121. Mobile Applications. S
Introduces programming and application development for mobile devices. Covers the SDK and main programming platforms available on mobile devices, methodologies for developing native applications, division of computation between the mobile platform and servers, and mobile-to-server communications. Introduces platforms based on JavaScript and HTML5 for the development of applications that are portable across platforms. Students develop components of applications, leading to fully functional applications by the end of the course. Course based on emulators and SDK tools, so ownership of a cellphone/tablet is not required for the course. Prerequisite(s): courses 12B and 12M. L. De Alfaro, E. Whitehead

122. Computer Security. F
Introduction to computer security (including selected topics in network security). Access control. Security in programming languages. Basic cryptography. Security protocols. Prerequisite(s): course 111 or permission of instructor. Enrollment restricted to School of Engineering majors. E. Miller

128. Distributed Systems: File Sharing, Online Gaming, and More.
Covers topics in distributed computing including communication, naming, synchronization, consistency and replication, fault tolerance, and security. Examples drawn from peer-to-peer systems, online gaming, the World Wide Web; other systems also used to illustrate approaches to these topics. Students implement simple distributed systems over the course

of the quarter. Prerequisite(s): course 101 or Computer Engineering 150. Course 111 or 105 recommended. D. Long, E. Miller

129. Data Storage Systems.
Covers all aspects of storage systems technology from magnetic media up through system software, including principles of magnetic recording, hard drive technology and evolution, performance measurement, file systems, storage networking, disk arrays, network-attached storage, and alternative storage technologies. Prerequisite(s): course 101, 111, and Physics 5A or 6A. E. Miller, D. Long, S. Brandt

130. Computational Models. F,W
Various representations for regular languages, context-free grammars, normal forms, parsing, pushdown automata, pumping lemmas, Turing machines, the Church-Turing thesis. Prerequisite(s): course 101. P. Tantalo, M. Warmuth, D. Helmbold, P. Kolaitis, A. Van Gelder

132. Computability and Computational Complexity. S
Turing machines, general phase-structure grammars, the Chomsky hierarchy, recursive functions, diagonalization, the Halting problem, computability and unsolvability, computational complexity, time and space bounds, NP-completeness with emphasis on reductions between problems from various areas. Prerequisite(s): course 130. M. Warmuth, D. Helmbold, P. Kolaitis, A. Van Gelder

132W. Computability and Computational Complexity (2 credits). S
Disciplinary Communication (DC) course to be taken concurrently with course 132. Students satisfy the DC requirement by writing a survey paper on a topic related to computability and computational complexity. Possible topics include: an overview of a different model of computation (e.g., quantum computing); an overview of a major complexity class; a critical analysis of the Church-Turing thesis. Prerequisite(s): course 130; satisfaction of the Entry Level Writing and Composition requirements.Concurrent enrollment in course 132 required. Enrollment by permission of instructor. Enrollment limited to 15. M. Warmuth, D. Helmbold, P. Kolaitis, A. Van Gelder

140. Artificial Intelligence. W
Introduction to the contemporary concepts and techniques of artificial intelligence, including any or all of: machine perception and inference, machine learning, optimization problems, computational methods and models of search, game playing and theorem proving. Emphasis may be on any formal method of perceiving, learning, reasoning, and problem solving which proves to be effective. This includes both symbolic and neural network approaches to artificial intelligence. Issues discussed include symbolic versus nonsymbolic methods, local versus global methods, hierarchical organization and control, and brain modeling versus engineering approaches. Lisp or Prolog may be introduced. Involves one major project or regular programming assignments. Prerequisite(s): course 101. M. Walker, The Staff

142. Machine Learning. S
Introduction to machine learning algorithms and their applications. Topics include classification learning, density estimation and Bayesian learning regression, and online learning. Provides introduction to standard learning methods such as neural networks, decision trees, boosting, and nearest neighbor techniques. Prerequisite(s): course 101, Mathematics 23A, and Applied Mathematics and Statistics 131 or Computer Engineering 107. D. Helmbold, M. Warmuth

143. Introduction to Natural Language Processing. S
Introduces the theory and practice of natural language processing (NLP)-- the creation of computer programs that can understand, generate, and learn natural language. Introduces the three major subfields of NLP: syntax (the structure of a sentence); semantics (the explicit meaning of a single sentence); and pragmatics (the implicit meaning of a sentence when it is used in a specific discourse). Projects focus on the techniques useful for a particular application area, alternating in different years. Project application areas include information extraction, narrative understanding, sentiment analysis, dialogue systems, and question answering. Prerequisite(s): course 101. Enrollment limited to 40. M. Walker

146. Game AI.
Course provides a comprehensive introduction to the use of artificial intelligence (AI) in

computer games. Building on fundamental principles of AI, course explains how to create non-player characters (NPCs) with progressively more sophisticated capabilities. Prerequisite(s): course 101; familiarity with C++. Enrollment restricted to sophomores, juniors, seniors, and graduate students. M. Mateas, The Staff

148. Interactive Storytelling.
Covers a range of design approaches and technologies including storytelling in games, interactive fiction, interactive drama, and artificial intelligence-based story generation. Through a mixture of readings, assignments, and project work, students explore the theoretical positions, debates, and technical and design issues arising from these approaches. Prerequisite(s): course 101. Enrollment restricted to juniors and seniors. M. Mateas

160. Introduction to Computer Graphics. F,S
Introduces techniques of modeling, transformation, and rendering for computer-generated imagery. Topics: 2D/3D primitives, projections, matrix composition, and shading algorithms. Programming assignments and a major project are required. Students cannot receive credit for both this course and course 260. Prerequisite(s): course 101 and Mathematics 21 or Applied Mathematics and Statistics 10. Concurrent enrollment in course 160L required. A. Pang, J. Davis, S. Lodha

160L. Introduction to Computer Graphics Laboratory (2 credits). F,S
Complements course 160, gaining additional competence with a number of important software development tools, graphics libraries, and graphical user interfaces. Included are OpenGL program, utilizing rubberbanding, picking, trackballing, display lists, double buffering, lighting, shading, materials and textures; and FLTK program, utilizing sliders, buttons, and dialog boxes. Concurrent enrollment in course 160 required. A. Pang, J. Davis, S. Lodha

161. Introduction to Data Visualization.
Concepts and methods for data analysis, information and scientific visualization, and effective communication of technical data. Topics include: mathematical foundations; scalar, vector, and tensor field visualization; multivariate visualization; and tree and graph visualizations. Applications are drawn from social-network analysis; environmental and space science; and medical imaging. Evaluation based on examinations, programming exercises, and a project. (Formerly Visualization and Computer Animation.) Prerequisite(s): course 160 or equivalent. Concurrent enrollment in course 161L required. S. Lodha, A. Pang

161L. Data Visualization Laboratory (2 credits).
Complements course 161. Students gain additional competence with a number of important software development tools and techniques. Included are Paraview, Visualization Toolkit (VTK), and Insight Toolkit (ITK). Students get hands-on experience with designing transfer functions, isosurfacing, direct volume rendering, vector-field visualization techniques, as well as methods for dealing with non-spatial data. (Formerly Visualization and Computer Animation Laboratory.) Concurrent enrollment in course 161 required. S. Lodha, A. Pang

162. Advanced Computer Graphics and Animation.
Covers concepts and methods for modeling and rendering static and dynamic scenes Topics include: mathematical foundations (e.g., splines and numerical integration; global illumination models; texture mapping; morphing; physically based animation; behavioral animations; and procedural animations. Evaluation based on examinations, programming exercises, and a project. Prerequisite(s): course 160 or equivalent. Concurrent enrollment in course 162L required. A. Pang, J. Davis, S. Lodha

162L. Advanced Computer Graphics and Animation Laboratory (2 credits).
Complements course 162. Students gain additional competence in a hands-on computational laboratory setting. Representative examples include topics, such as interactive curve and surface design; shaders for advanced effects; crowd and behavioral animation; experiments with particle systems; facial animation; and motion and planning. Prerequisite(s): concurrent enrollment in course 162 is required. A. Pang, J. Davis, S. Lodha

164. Game Engines.
Covers the graphic elements in computer games. Topics include modifying, optimizing,

adding components, and building a game engine. Course evaluation based on exams and several programming projects, including a game built using the student's game engine. Prerequisite(s): courses 160 and 160L. Concurrent enrollment in course 164L required. A. Jhala

164L. Game Engines Lab (2 credits).
Provides hands-on experience in using, designing, and building game engines. Students also explore different special effects, such as particle systems, spring systems, and game physics. Concurrent enrollment in course 164 required. A. Jhala

165. Data Programming for Visualization. W
Presents the basics of open-source programming tools to perform data analysis and create interactive visualizations and maps for the web: data integrity and scraping, statistical computation, simple and novel visualizations, and geomapping. The examples are drawn from social science, public policy, and data journalism. Prequisite(s): courses 12B and 12M. S. Lodha

166A. Game Theory and Applications I.
Introduces modern game theory, including applications in social science, biology, and engineering. Topics include extensive form, strategic form, mixed strategies, incomplete information, repeated games, evolutionary games, and simulation techniques. (Also offered as Technology & Info Management 166A. Students cannot receive credit for both courses.) Prerequisite(s): Applied Math and Statistics 5 or 7 or Economics 113; and Economics 11B, Applied Math and Statistics 11B, or Mathematics 11B or 19B. Enrollment restricted to juniors and seniors. Enrollment limited to 100. J. Musacchio

166B. Game Theory and Applications II. W
Explores research frontiers in game theory, emphasizing applications in social science, biology, and engineering. Each interdisciplinary team develops a topic, and presents it to the class in oral and written reports and demonstrations. Students must have shown a strong performance in course 166A or equivalent. Students cannot receive credit for this course and Economics 272, Computer Science 272, or Biology: Ecology and Evolutionary 274. (Also offered as Economics 166B. Students cannot receive credit for both courses.) Prerequisite(s): course 166A or Economics 166A; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors. Enrollment limited to 40. (General Education Code(s): W.) The Staff

170. Game Design Studio I. F
First of a three-course capstone sequence for the computer game design program. Students work in teams to develop a comprehensive game design for a substantial computer game, including detailed storyline, level design, artistic approach, implementation technologies, and art-asset pipeline. Emphasis placed on creating novel, artistic game design concepts. Includes design reviews and formal presentations. Companion lectures cover advanced topics in game design, game programming, and software project management. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Courses 20 and 80K and 101 and 109, and any two of: 102,104A,104B,105,111,112,115,116,121,122,128,129,130,132,140,142,146,148,160/L,161/L, 164/L,166A,179,180,181,183; CMPE 110,112,113,118/L,131,150/L; AMS 131,147. The Staff, N. Wardrip-Fruin, M. Mateas, E. Whitehead

171. Game Design Studio II. W
Second of a three-course capstone sequence for the computer game design program. Students work in teams on the software design, implementation, and testing of the computer game designed in course 170. Includes design reviews, progress reviews, and formal presentations. Companion lectures cover topics in software engineering, including design, testing, and project management. Game design and game programming also covered. Students are billed a materials fee. Prerequisite(s): course 170, and satisfaction of the Entry Level Writing and Composition requirements. E. Whitehead, N. Wardrip-Fruin, M. Mateas

172. Game Design Studio III. S
Third of a three-course capstone sequence for the computer game design program. Students work in teams on the software design, implementation and testing of the computer game designed in courses 170 and 171. Includes progress reviews and formal

presentations. Companion lectures cover topics in software engineering, including user and software testing, release engineering and project management; also covered are game design and game programming. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 171. E. Whitehead, A. Jhala, N. Wardrip-Fruin, M. Mateas

177. Creative Strategies for Designing Interactive Media. F
Surveys tactical, structural, contextual, and other methods to enhance creativity and innovation in the design of games and other interactive media. Investigates strategies for creativity and innovation drawn from diverse fields, including interactive affordances, narrative and poetics, biology, contextual inquiry, and design research. To innovate in a field of fixed genres is challenging: the allure of modeling exemplars is strong. Although imitation can be successful in the marketplace, the most creative action occurs on the leading edge of change. Innovation benefits from strategies and methods that are directly aimed at exploring new perspectives and structures to learn through the process of discovery. Enrollment restricted to juniors and seniors. B. Laurel, N. Wardrip-Fruin

178. Human-Centered Design Research. W
Students move through a rigorous design-research process involving skills and principles in human-centered design research as well as selected formal research methods. They learn to use tools for ideation, human-centered qualitative research, domestic probes, mock-ups, and prototypes. Enrollment restricted to juniors, seniors, and graduate students. (General Education Code(s): PR-C.) E. Whitehead, B. Laurel, N. Wardrip-Fruin

179. Game Design Practicum. F
Provides the opportunity to practice the creation of novel computer games. Students learn a new game-making technology, then create three games using this technology. (Also offered as Digital Arts and New Media 179. Students cannot receive credit for both courses.) Prerequisite(s): courses 20 and 80K. May be repeated for credit. (General Education Code(s): PR-C.) The Staff, E. Whitehead, M. Walker, N. Wardrip-Fruin, A. Jhala, M. Mateas

180. Database Systems I. W
Introduction to the concepts, approaches, tools, and methodology of database design. Covers the entity-relationship model, the relational model, relational algebra, relational calculus, commercial languages (such as SQL and QBE), functional dependencies, normal forms, and design theory. Other topics may include knowledge-bases, constraint databases, and alternative database models. Prerequisite(s): course 101. W. Tan, P. Kolaitis, N. Polyzotis

180W. Database Systems (2 credits). W
Disciplinary Communication (DC) course to be taken concurrently with course 180. Students satisfy the DC requirement by producing a database design document, a document with comments on the source code for complex queries, and a literature survey or systems survey. Prerequisite(s): course 101, or permission of instructor; satisfaction of the Entry Level Writing and Composition requirements. Concurrent enrollment in course 180 required. Enrollment limited to 15. W. Tan, P. Kolaitis, N. Polyzotis

181. Database Systems II.
Introduction to the architecture and implementation of database systems. Topics covered include data storage, tree and hash indexes, storage management, query evaluation and optimization, transaction management, concurrency control, recovery, and XML data management. Prerequisite(s): course 180. N. Polyzotis, W. Tan

182. Introduction to Database Management Systems. S
Concepts, approaches, tools, and methodology of database design. Topics include the entity-relationship model; the relational data model; normal forms; commercial languages such as SQL (SQL constraints, SQL triggers, and update languages); query-by-example (QBE); XML data model, and XML query language (XQuery); as well as relational database-management support for XML and object-relational features in database-management systems. Involves a database -application development project. Prerequisite(s): course 12B. Course intended for non-majors; computer science majors should enroll in course 180. N. Polyzotis, W. Tan

183. Web Applications. F,W

The World-Wde Web is one of the main mechanisms by which computer applications are delivered to users. This course introduces the design of Web applications. Students learn the main technologies involved, and build web applications as part of homework assignments and group class projects.(Formerly Hypermedia and the Web.) Prerequisite(s): courses 12B and 12M. (General Education Code(s): PR-E.) L. De Alfaro, E. Whitehead

185. Technical Writing and Communication in Computer Science. S
Writing and communication by computer science professionals to a technical audience. Geared toward students planning to pursue an advanced degree in computer science. Assignments include: cover letter and resume for job application, statement of purpose for graduate school application, algorithm description and analysis, user documentation, proposal preparation, critical analysis of published papers, survey of the literature, term paper, and oral presentations. Prerequisite(s): course 101 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment is restricted to computer science majors, or by permission of the instructor. May be repeated for credit. P. Kolaitis

191. Computer Science and Technology Seminar (2 credits).
Weekly talks by industry experts, university researchers, field practitioners, and video presentations provide an in-depth exposure to a specific or a broad area of computer science and technology. Topics include emerging ideas, opportunities, challenges, and future of the industry. May be repeated for credit. The Staff

192. Supervised Student Teaching/Tutoring. F,W,S
Students hold tutoring hours, run a lab, or lead discussion section in conjunction with a regularly offered course and under close supervision by the course's instructor. Weekly meetings with a regular faculty member to discuss teaching techniques, pedagogy, sensitivity to students' needs, maintaining a comfortable learning environment, and strategies for handling difficult situations. Students submit a report on their teaching experience. Enrollment by permission of instructor and restricted to sophomores, juniors, and seniors. D. Helmbold

192F. Supervised Student Teaching/Tutoring (2 credits). F,W,S
Students hold tutoring hours, run a lab, or lead discussion section in conjunction with a regularly offered course and under close supervision by the course's instructor. Weekly meetings with a regular faculty member to discuss teaching techniques, pedagogy, sensitivity to students' needs, maintaining a comfortable learning environment, and strategies for handling difficult situations. Students submit a report on their teaching experience. Enrollment by permission of instructor and restricted to sophomores, juniors, and seniors. D. Helmbold

193. Field Study. F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a member of the Computer Science Department and using resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives, usually a term paper or project. Cannot normally be repeated for credit. Students submit petition to sponsoring agency. The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a faculty member of the Computer Science Department and a willing sponsor at the field site. Uses resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives by submitting a written and oral presentation. Cannot normally be repeated for credit. Intended for students majoring in computer science. Students submit petition to sponsoring agency. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty member. Intended for students majoring in computer science. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis Research. F,W,S
Students submit petition to sponsoring agency. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. The Staff

195F. Senior Thesis Research (2 credits). F,W,S
Intended for majors. Students submit petition to sponsoring agency. The Staff

198. Individual Study or Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Individual Study or Research (2 credits). F,W,S
Intended for majors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
For fourth-year students majoring in computer science. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
For fourth-year students majoring in computer science. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Research and Teaching in Computer Science and Engineering (3 credits). F
Basic teaching techniques for teaching assistants, including responsibilities and rights of teaching assistants, resource materials, computer security, leading discussion or lab sessions, presentation techniques, maintaining class records, electronic handling of homework, and grading. The course examines research and professional training, including use of the library and online databases, technical typesetting, writing journal and conference papers, publishing in computer science and computer engineering, giving talks in seminars and conferences, and ethical issues in science and engineering. Required for all teaching assistants. Enrollment restricted to graduate students. W. Tan, The Staff

201. Analysis of Algorithms. F,W
Rigorous analysis of the time and space requirements of important algorithms, including worst case, average case, and amortized analysis. Techniques include order-notation, recurrence relations, information-theoretic lower bounds, adversary arguments. Analysis of the key data structures: trees, hash tables, balanced tree schemes, priority queues, Fibonacci and binomial heaps. Algorithmic paradigms such as divide and conquer, dynamic programming, union-find with path compression, augmenting paths. Selected advanced algorithms. Introduction to NP-completeness. Enrollment restricted to graduate students; undergraduate students may enroll in this course if they have completed either course 102 or Computer Engineering 177 and have the consent of the instructor. A. Van Gelder, D. Achlioptas, D. Helmbold

203. Programming Languages. S
Covers current issues in programming languages. Language topics include object oriented, concurrent, functional, and logic programming, and other programmable applications such as symbolic manipulators and simulation. Enrollment restricted to graduate students; undergraduate students may enroll for this course if they have completed course 112 and have the consent of the instructor. C. McDowell, A. Van Gelder, C. Flanagan, N. Whitehead

204. Compiler Design.
Advanced study of compiler implementation. Topics include compiler structure back end, run-time environments, storage management, garbage collection, register allocation, code generation, basic blocks, control flow, data flow, local and global optimization, interpretation, machine code generation. Students may not receive credit for this course and course 104B. Taught in conjunction with 104B. Prerequisite(s): course 104A or equivalent. Enrollment restricted to graduate students. Offered in alternate academic years. W. Mackey

210. Computational Models and Complexity.
Finite automata and regular expressions, universal models of computation, computability and unsolvability, relations between complexity classes, hierarchy theorems, reductions, complete problems for the major complexity classes (L, NL, P, NP, PSPACE). Other topics

may include complexity of counting and enumeration problems, complexity of approximation, randomized complexity classes. Prerequisite(s): course 201. M. Warmuth, D. Helmbold, P. Kolaitis

211. Combinatorial Algorithms. W
Fundamental combinatorial algorithms, graph algorithms, flow problems, matching problems, linear programming, integer programming, NP-completeness, approximation algorithms for optimization problems. Prerequisite(s): course 201. Offered in alternate academic years. A. Van Gelder, D. Achlioptas, P. Kolaitis

217. Logic in Computer Science.
The applications and uses of formal systems to computer science. Covers the syntax and semantics of propositional logic and first-order logic, normal forms, soundness and completeness theorems, Herbrand's theorem, unification and resolution, foundations of logic programming, automated theorem proving. Other topics may include deductive databases, database query languages, nonmonotonic reasoning. Enrollment restricted to graduate students. Offered in alternate academic years. P. Kolaitis, A. Van Gelder

221. Advanced Operating Systems.
A detailed study of the issues involved in operating systems design and implementation. Readings cover current research topics and systems of historical significance. Topics include (but are not restricted to) process and memory management, protection, security, synchronization, performance evaluation, file systems, distributed systems. Enrollment restricted to graduate students; undergraduates by interview only. D. Long, E. Miller

223. Advanced Computer Security. S
Overview of research topics in computer and network security. Topics may include cryptographic operations, security properties and policies, authentication and access control, attacks on computer systems and defenses against them, security in programming languages, and network protocols for security. Enrollment restricted to graduate students or consent of instructor. D. Long, E. Miller

229. Storage Systems. W
Topics include storage devices, storage architectures, local file systems, high-performance file systems, and next-generation storage devices and architectures; covers issues of performance, reliability, scalability, robustness, and security. Enrollment restricted to graduate students. E. Miller, C. Maltzahn, D. Long

232. Distributed Systems. S
Overview of research topics in distributed computer systems. Topics may include communication paradigms, process management, naming, synchronization and coordination, consistency and replication, fault tolerance, and security. Examples include distributed operating systems, distributed file and object systems, distributed document systems, and peer-to-peer systems. Enrollment restricted to graduate students. E. Miller, C. Maltzahn, D. Long

240. Artificial Intelligence.
Prepares students for doing research in artificial intelligence. Major topics covered are search and heuristics, knowledge representation, planning, deduction and inference, reinforcement learning, associative pattern retrieval, and adaptive search. Discussion includes current research issues in AI problem-solving methods. Individualized projects. Enrollment limited to 30. M. Walker, The Staff

241. Knowledge Engineering.
Introduction to the acquisition, representation, and application of knowledge in expert systems. Topics include production systems, backward and forward chaining, dependency-directed backtracking, reasoning with uncertainty, certainty factors, fuzzy systems, knowledge representation (rules, frames, and semantic nets), inference engines, and metaknowledge. Discussion includes current research issues in adaptive expert systems. Involves one major project. Undergraduates may enroll in this course if they have completed course 140. Offered in alternate academic years. The Staff

242. Machine Learning. F
Introduction to machine learning algorithms. Covers learning models from fields of statistical decision theory and pattern recognition, artificial intelligence, and theoretical

computer science. Topics include classification learning and the Probably Approximately Correct (PAC) learning framework, density estimation and Bayesian learning, EM, regression, and online learning. Provides an introduction to standard learning methods such as neural networks, decision trees, boosting, nearest neighbor, and support vector machines. Requirements include one major experimental learning project or theoretical paper. Students may not receive credit for both this course and course 142. Enrollment restricted to graduate students. Enrollment limited to 30. D. Helmbold, M. Warmuth

244. Artificial Intelligence in Games. F
Artificial intelligence has long used game-playing as a metric for progress. Key algorithms such as alpha-beta and HPA search studied. Computer algorithms for backgammon, poker, and chess examined. There will be individualized projects. Prerequisite(s): course 201; and course 211 or 240 or 242. Enrollment limited to 20. A. Jhala, M. Mateas

245. Computational Models of Discourse and Dialogue. W
Focuses on classic and current theories and research topics in the computational modeling of discourse and dialogue, with applications to human-computer dialogue interactions; dialogue interaction in computer games and interactive story systems; and processing of human-to-human conversational and dialogue-like language such as e-mails. Topics vary depending on the current research of the instructor(s) and the interests of the students. Students read theoretical and technical papers from journals and conference proceedings and present class lectures. A research project is required. (Also offered as Psychology 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. May be repeated for credit. The Staff, M. Walker

247. AI: Problem Solving and Intelligent Search.
Surveys topics in contemporary deductive artificial intelligence (AI). Coursework involves weekly readings and a project. Prerequisite(s): courses 201 and 240. Enrollment restricted to graduate students. The Staff

248. Interactive Storytelling. S
Covers wide range of practices including hypertext, interactive fiction, embedded narratives in games, interactive drama, and artificial intelligence-based story generation. Through a mixture of readings, assignments, and project work, explores the theoretical positions, debates, and technical and design issues arising from these different approaches. Enrollment restricted to graduate students. Enrollment limited to 20. N. Wardrip-Fruin, M. Mateas

250. Introduction to Information Theory. F
An introduction to information theory including topics such as entropy, relative entropy, mutual information, asymptotic equipartition property, channel capacity, differential entropy, rate distortion theory, and universal source coding. (Also offered as Electrical Engineering 253. Students cannot receive credit for both courses.) Prerequisite(s): Computer Engineering 107, or Applied Mathematics and Statistics 131 or equivalent course, or permission of instructor. H. Sadjadpour

253. Advanced Programming Languages. S
Covers issues in the design, implementation, analysis, and specification of programming languages. Topics include formal semantics (including operational, axiomatic, and denotational semantics), advanced type systems, program analysis (including abstract interpretation and model checking), specification, and verification. Prerequisite(s): course 203 or equivalent. C. Flanagan

260. Computer Graphics. W
Introduces current research and techniques of modeling, 2D/3D transformation, matrix composition, shading algorithms, and rendering to obtain computer-generated imagery. Programming assignments and major project required. Students cannot receive credit for both this course and course 160. Enrollment restricted to graduate students; undergraduates by interview only. Enrollment limited to 20. A. Pang, J. Davis, S. Lodha

261. Advanced Visualization.
Covers advanced topics in visualization, e.g., tensor-field visualization, uncertainty visualization, information visualization. Topics vary with differing offerings of the course. Course includes lectures, exam, research paper reading/presentation, and projects. Final

project is expected to be at a sufficiently advanced level for submission to a conference. Students work individually or in pairs. Enrollment by permission of instructor. Enrollment restricted to graduate students. A. Pang

262. Computer Animation.
An in-depth treatment of computer animation, including its origins in conventional animation, 2-D animation, inbetweening, motion control, morphing, graphical motion editors, animation languages, motion blur, simulation of articulated body motion, real-time animation, and special-purpose animation hardware. Enrollment restricted to graduate students. Enrollment limited to 15. J. Davis, A. Pang

263. Data Driven Discovery and Visualization.
Explores high-quality interdisciplinary research using socio-economic data and software available on the Internet, and data curation, computation, and visualization to strengthen scientific inquiry to bear on large-scale societal problems. Applications include inequality, poverty, water, energy, environment, health, education, and democracy. Enrollment restricted to graduate students. Enrollment by instructor consent. Enrollment limited to 25. S. Lodha

265. Generative Methods. S
In-depth exploration of algorithms for the automated generation of 2D and 3D models and content. Covers multiple approaches, including noise, grammars, genetic algorithms and programming, parametric design, and answer-set programming. Includes application of techniques to computer-game content and level design. Enrollment restricted to graduate students. M. Mateas, E. Whitehead

272. Evolutionary Game Theory. W
Reviews static equilibrium concepts, games of incomplete information, and the traditional theory of dynamic games in discrete time. Develops recent evolutionary game models, including replicator and best reply dynamics, and applications to economics, computer science, and biology. Prerequisite(s): upper-division math courses in probability theory are strongly recommended. Cannot receive credit for this course and Economics 166B or Computer Science 166B. (Also offered as Biology:Ecology & Evolutionary 274. Students cannot receive credit for both courses.) M. Warmuth, B. Sinervo, D. Friedman

276. Software Engineering.
Introduction to the general principles of software engineering. Covers current and classical topics from both practical and theoretical viewpoints. Topics include software evolution, project management, software inspections, design methods, requirements analysis and specification, software testing, maintenance, software implementation, human interfaces, and software engineering experimentation. (Formerly Computer Engineering 276.) Enrollment restricted to graduate students; undergraduates may enroll in this course if they have completed Computer Science 115. The Staff, E. Whitehead

277. Principles of Database Systems. F
Advanced course on principles of database systems. Main topics include overview of the relational data model and relational query languages; recursive queries, datalog, and fixed-points; query processing and optimization; database design, dependencies, normal forms, and the chase procedure. Additional topics may include information integration, complex objects, semistructured data, and XML. (Formerly Database Systems I.) Prerequisite(s): course 180 (or equivalent) or consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 20. Offered in alternate academic years. W. Tan, P. Kolaitis, N. Polyzotis

278. Design and Implementation of Database Systems. W
Advanced course in implementation techniques for database systems. For students who wish to do research in databases or to learn more about large-scale data processing. Topics include: indexing of complex data; techniques for high-volume concurrency control; query processing and optimization; database recovery; parallel database system architectures; database systems for streaming data; approximate query answering. Additional topics may include: self-managing database systems; advanced query optimization techniques; and query processing techniques for semi-structured data. (Formerly Database Systems II.) Prerequisite(s): course 181 (or equivalent) or consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 20. N. Polyzotis

279. Software Reuse and Component-Based Software Engineering.
Detailed study of interlocking business, organizational, and technical issues in large-scale software reuse and component-based software engineering. Topics include architecture, design for reuse, domain engineering, model-driven development, domain-specific kits, components, frameworks, software agents, generators, problem-oriented languages, library design, reuse tools, patterns, and aspects. Assumes prior exposure to software engineering topics. Prerequisite(s): computer engineering 276 or consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 20. C. McDowell

280A. Seminar in Computer Science Research (2 credits).
Weekly seminar covering topics of current research in computer science. Enrollment by permission of instructor. May be repeated for credit. The Staff

280D. Seminar in Database Systems (2 credits). W,S
Covers advanced research topics from the recent literature in database systems and related fields. Involves presentations from UCSC students and faculty, and guest talks from researchers in industry and other academic institutions. Enrollment by permission of instructor. Enrollment limited to 30. May be repeated for credit. W. Tan, P. Kolaitis, N. Polyzotis

280G. Seminar on Software Engineering (2 credits).
Weekly seminar covering topics of current research in software engineering. Prerequisite(s): permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 30. May be repeated for credit. C. McDowell, C. Flanagan

280H. Seminar in Human Computation Systems (2 credits).
Covers advanced topics and current research in the general area of human computation. Material is drawn from several disciplines that involve or deal with human computation, including computer vision, human-computer interaction, databases, and machine learning. The course comprises presentations from faculty, enrolled students, and external visitors. Enrollment restricted to graduate students. May be repeated for credit. J. Davis, N. Polyzotis

280J. Seminar on Computer Graphics (2 credits). F,S
Weekly seminar covering topics of current research in computer graphics. Enrollment restricted to graduate students and by permission of instructor. Enrollment limited to 30. May be repeated for credit. J. Davis

280S. Seminar on Computer Systems (2 credits). F,W,S
Weekly seminar series covering topics of current research in computer systems. Enrollment by permission of instructor. Enrollment limited to 30. May be repeated for credit. E. Miller, C. Maltzahn, D. Long

280W. Seminar in Digital Media (2 credits).
Covers advanced topics and current research in digital media—the interdisciplinary field at the intersection of computer science, media authoring, and models of interpretation from the humanities and social sciences. Focuses on student presentations and seminar participation. Enrollment restricted to graduate students. May be repeated for credit. N. Wardrip-Fruin

280X. Expressive AI (2 credits). F,W,S
Weekly seminar covering topics of current research in artificial intelligence applied to interactive art and entertainment, including computer games. Enrollment by permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 30. May be repeated for credit. N. Wardrip-Fruin, M. Mateas

280Z. Seminar in Natural Language Processing and Dialogue (2 credits). F,W,S
Covers advanced topics and current research in natural language processing. Focuses on student presentations and seminar participation. Enrollment restricted to graduate students. May be repeated for credit. M. Walker

290A. Topics in Algorithms and Complexity Theory: Probabilistic Algorithms and Average Case Analysis. W
Graduate seminar in algorithms and complexity theory on topics from recently published research journal articles and conference proceedings. Topics vary from year to year depending on the current research of the instructor(s) and interests of students. Students

read technical papers from relevant journals and conference proceedings and present class lectures. Guest lectures may supplement the student presentations. A research project and/or paper may be required. Enrollment restricted to graduate students. Enrollment limited to 15. Offered in alternate academic years. May be repeated for credit. D. Achlioptas

290B. Advanced Topics in Computer Graphics. S
A graduate seminar in computer graphics on topics from recently published research journal articles and conference proceedings. Topics vary from year to year depending on interests of students. Primary areas of interest are likely to be scientific visualization, modeling, rendering, scattered data techniques, wavelets, and color and vision models. Students read technical papers and present class lectures. Guest lecturers supplement the student presentations. A research project is required. Enrollment limited to 15. May be repeated for credit. A. Pang, J. Davis, S. Lodha

290C. Advanced Topics in Machine Learning. S
In-depth study of current research topics in machine learning. Topics vary from year to year but include multi-class learning with boosting and SUM algorithms, belief nets, independent component analysis, MCMC sampling, and advanced clustering methods. Students read and present research papers; theoretical homework in addition to a research project. Prerequisite(s): course 242. May be repeated for credit. D. Helmbold, M. Warmuth

290D. Neural Computation.
An introduction to the design and analysis of neural network algorithms. Concentrates on large artificial neural networks and their applications in pattern recognition, signal processing, and forecasting and control. Topics include Hopfield and Boltzmann machines, perceptions, multilayer feed forward nets, and multilayer recurrent networks. Enrollment restricted to graduate students. Offered in alternate academic years. May be repeated for credit. M. Warmuth

290E. Object-Oriented Programming Methodology.
Object-oriented programming methodology is the application of abstract-data types and polymorphism to coding solution. Topics geared to beginning thesis research in this field. Prerequisite(s): courses 201 and 203. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. C. McDowell, I. Pohl

290F. Applications of Combinatorics.
Combinatorial mathematics, including summation methods, working with binomial coefficients, combinatorial sequences (Fibonacci, Stirling, Eulerian, Harmonic, Bernoulli numbers), generating functions and their uses, Bernoulli processes, and other topics in discrete probability. Oriented toward problem solving, applications mainly to computer science, but also physics. Prerequisite(s): Computer Engineering 16 and Applied Mathematics and Statistics 10. Enrollment restricted to graduate students and upper-division undergraduates. Offered in alternate academic years. May be repeated for credit. The Staff

290G. Topics in Software Engineering.
Research seminar on current topics in software engineering. Topics vary from year to year depending on the current research of the instructor(s) and interests of students. Students read technical papers from relevant journals and conference proceedings. Synthesis and understanding of materials is demonstrated by a required research project. Prerequisite(s): Computer Engineering 276 recommended. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 35. May be repeated for credit. E. Whitehead, C. McDowell, L. De Alfaro, C. Flanagan

290H. Topics in Database Systems.
Focuses on current research topics in database systems. Different offerings cover different topics depending on current research of instructor(s) and the interests of students. Students read technical papers from journals and conference proceedings and present class lectures. A research project is required. Prerequisite(s): course 180 (or equivalent) or 277 or consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. W. Tan, P. Kolaitis, N. Polyzotis

290J. Playable Media. W
Focuses on media, such as computer games, that invite and structure play. Work includes building and critiquing a series of prototypes; studying major examples in the field; and

discussing both theoretical and practice-oriented texts. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Digital Arts and New Media 250D. Students cannot receive credit for both courses.) May be repeated for credit. N. Wardrip-Fruin, M. Mateas

290L. Topics in Crowdsourcing and Collaboration. F
Explores the foundations of crowdsourcing and computer-mediated collaboration. Covers the algorithmic and statistical foundations of crowdsourcing, introducing and analyzing algorithms, and experimenting with concrete systems. Also, provides an introduction to computational systems for mediating user interaction and collaboration. Enrollment restricted to graduate students. L. De Alfaro, N. Polyzotis

290P. Topics in Computational Cinematography.
Focuses on discussion of recent advances in visual storytelling in graphical environments. Major topics covered are: intelligent camera control, shot-compositions, lighting design, interactive storytelling, and computational techniques associated with these applications. Class consists of in-class discussions and student presentations of research papers and a final student project. (Also offered as Digital Arts and New Media 290P. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. A. Jhala

290S. Advanced Topics in Computer Systems.
Focuses on current research topics in computer systems. Topics vary from year to year depending on the current research of the instructor(s) and the interests of the students. Students read technical papers from current journals and conference proceedings, and present class lectures. A research project is required. Prerequisite(s): course 221 recommended. Enrollment restricted to graduate students; qualified undergraduates may enroll with instructor's consent. May be repeated for credit. E. Miller, C. Maltzahn, D. Long

290T. Topics in Computing for Society.
Current research topics on computer technology that is intentionally targeted to benefiting society. Topics vary year to year. Students read papers from current conferences and journals, and present class lectures. A research project is required. Enrollment restricted to graduate students. May be repeated for credit. J. Davis

290X. Cryptography and Computer Security.
Research seminar on encryption and related technologies. Topics include theory of codes, random sequences and generators, public key cryptosystems, private key cyphers, key exchange protocols, quantum computing and cryptography. Major project required. Prerequisite: interview with instructor. Enrollment limited to 12. May be repeated for credit. The Staff

296. Masters Project (2 credits). F,W,S
Independent completion of a masters project under faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297. Independent Study or Research. F,W,S
Independent study or research under faculty supervision. Although this course may be repeated for credit, not every degree program will accept a repeated course towards degree requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study or Research (2 credits). F,W,S
Independent study or research under faculty supervision. Although this course may be repeated for credit, not every degree program will accept a repeated course toward degree requirements. Formerly offered as Directed Readings in Machine Learning. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Thesis research conducted under faculty supervision. Although the course may be repeated for credit, not every degree program will accept a repeated course towards degree requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Program Statement | Computer Science Course Descriptions

Graduate Courses

210. Game Art Intensive. F
Teaches the basic vocabulary, concepts, and practices of creating 2D and 3D art assets for games, as well as their management and integration into game engines. Includes sprites, models, textures, animations, and an introduction to effects. Enrollment restricted to games and playable media graduate students; others by interview. The Staff

215. Audio Direction. W
Introduces fundamentals of digital audio and its implementation into a game project. Explores elements of acoustic audio therapy, musical theory, and digital audio theory, coupled with hands-on creation. Students work with audio software, synthesis, plug-in processing and microphones to develop and create an audio direction. Enrollment restricted to games and playable media graduate students. A. Romero, B. Romero, E. Whitehead

221. Professional Development for Game Makers I (2 credits). F
First course in a three-course sequence covering the game industry, game jobs, current thinking on games, and becoming a professional game maker. Focuses on presenting yourself and your ideas. Includes elements of writing, speaking, and designing professional communication. Enrollment restricted to games and playable media graduate students; others by interview. The Staff

222. Professional Development for Game Makers II (2 credits). W
Second course in a three-course sequence covering the game industry, game jobs, current thinking on games, and becoming a professional game maker. Focus on design considerations and methodologies employed in the game industry with emphasis placed upon the student's ability to develop designs beyond mere ideas through to execution. Enrollment restricted to games and playable media graduate students. *A. Romero, B. Romero, E. Whitehead*

223. Professional Development for Games Makers III (2 credits). S
The third course in a three-course sequence covering the game industry, game jobs, current thinking on games, and becoming a professional game maker. Focuses on the business of the game industry, including funding, corporation types and formation, budgeting and burn rates, pitch decks, and marketing. Enrollment restricted to games and playable media graduate students. B. Romero, N. Wardrip-Fruin, E. Whitehead

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- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
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- Ecology and Evolutionary Biology
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- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

270. Game and Playable Media Studio I. F
First course in a three-course sequence covering the fundamentals and advanced topics in game and playable-media development. Focuses on developing innovative project concepts using methods ranging from prototyping to design documents, planning, and initiating project development. Enrollment restricted to games and playable media graduate students; others by interview. The Staff

271. Games and Play Media Studio II. W
The second course in a three-course sequence in which students work in teams to develop an innovative computer game. Coursework involves multiple aspects of game production, including agile methodology; game and level design; development of code to implement game behavior; art direction; and audio design. Students receive frequent critiques on emerging game projects. Prerequisite(s): course 270. Enrollment restricted to games and playable media graduate students. N. Wardrip-Fruin, E. Whitehead

272. Game and Playable Media Studio III. S
The third course in a four-course sequence in which students work in teams to develop an innovative computer game. Coursework involves multiple aspects of game production including agile methodology; game and level design; development of code to implement game behavior; art direction; and audio design. Students receive frequent critiques on emerging game projects. Enrollment restricted to graduate students in the games and playable media program. A. Romero, N. Wardrip-Fruin, E. Whitehead

273. Game Production Intensive (10 credits). S
Fourth course in a four-course sequence in which students work in teams to launch an innovative computer game. Coursework involves multiple aspects of game production, including agile methodology, game and level design, development of code to implement game behavior, art direction, and audio design. The emphasis is on interacting with game media to publicize the game. Students receive frequent critiques on emerging game projects. Enrollment restricted to graduate students in the games and playable media program. A. Romero, N. Wardrip-Fruin, E. Whitehead

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Cowell College

2014-15 General Catalog

College Office
(831) 459-2253
http://cowell.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

10. Becoming a Successful Student (2 credits). *
An interactive approach to effective studying, note-taking, critical thinking, and exams. Also explored: time management; good communication with staff and faculty; major and career exploration; and use of campus resources. Enrollment priority given to first-year students and sophomores. Enrollment restricted to college members, or by permission of instructor. Enrollment limited to 15. The Staff

12. Public Speaking (2 credits). W
Introduces students to the theory and practice of formal and informal public speaking through composition, presentation, and evaluation of informative reports, persuasive speech, introductory remarks, panels, and extemporaneous speech. Enrollment restricted to college members during priority enrollment. Enrollment limited to 20. C. Carlstroem

39. Brain, Mind, and Consciousness. W
An interdisciplinary introduction to the study of the brain, mind, and consciousness. Topics include the philosophy of mind, neuroscience, cognition, and social psychology, and their applications in fields such as health science, technology, and social development. The Staff

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

50. Library Skills for the Digital Age (2 credits). *
Intended to enhance students' skills in using the most powerful learning tool in any university: the library. Topics: organization of the library; how to begin researching; search engine and database use; judging the quality of sources; using sources responsibly. Disciplinary focus changes from quarter to quarter. Enrollment restricted to first-year and sophomore Cowell college members, or by permission of instructor. Enrollment limited to 22. The Staff

61. Critical Journeys (2 credits). *
For publication in a Cowell literary journal, students substantively revise one of their fall quarter essays by studying a major work that influences, acknowledges, or further clarifies a required reading of the Cowell core course. Prerequisite(s): course 80A or 80B; enrollment restricted to members of Cowell College. Enrollment limited to 20. J. Wilson, C. Carlstroem

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- Russian
- Science Communication
- Social Documentation
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- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

62. Studying Conflict and Compassion. W
Students gain a multidimensional understanding of the Israeli-Palestinian conflict. Academic speakers present their research. Class time is used to reflect on the speakers' presenting and studies. Enrollment restricted to college members, others by permission of instructor. F. Crosby

64. Social Justice: Issues and Debates (2 credits). *
Focused followup on social justice topics and readings introduced in the Cowell core course. Allows first-year students to pursue social justice themes in greater depth. Students must have previously taken a Cowell core course (or equivalent). Enrollment restricted to first-year students. Enrollment limited to 20. J. Christianson

70A. Introduction to Book Arts. F
Students learn techniques of bookbinding, construction, and design, and fundamentals of letterpress printing. Enrollment by permission of instructor. Students are billed a materials fee. (Formerly Bookbinding.) Enrollment limited to 10. (General Education Code(s): A.) G. Young

70B. Intermediate Book Arts. W
Learn fundamental skills in fine letterpress printing, including hand typesetting and instruction in the operation of printing presses. Basic typography explored as students design and print a small edition of a selected text. Students are billed a materials fee. (Formerly Printing I: Elements of Printing.) Prerequisite(s): course 70A or by permission of instructor. Enrollment limited to 12. (General Education Code(s): A.) G. Young

70C. Advanced Book Arts. S
Students learn fundamental skills in fine letterpress printing, including hand typesetting and instruction in the operation of printing presses. Basic typography explored as students design and print a small edition of a selected text. Students are billed a materials fee. (Formerly Printing II: Typography and Book Design.) Prerequisite(s): course 70B or by instructor permission. Enrollment limited to 12. May be repeated for credit. (General Education Code(s): A.) G. Young

80A. Introduction to University Discourse: Imagining Justice Past and Present. F
Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Focuses on conceptions of justice, historic and contemporary, and considers how literary and artistic media may transmit, question, or revise notions of the just. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): T4-Humanities and Arts, C1.) The Staff

80B. Rhetoric and Inquiry: Imagining Justice Past and Present. F
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Focuses on conceptions of justice, historic and contemporary, and considers how literary and artistic media may transmit, question, or revise notions of the just. Incorporates independent research. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. Enrollment limited to 22. (General Education Code(s): T4-Humanities and Arts, C2.) The Staff

84. Chinese Approaches to Human Values. *
Through study of primary sources in translation, considers a range of classic Chinese approaches to basic reflective questions about human experience, with special focus on issues of justice, social engagement, and meaning and authenticity in everyday life. Enrollment restricted to Cowell and Crown Honors students. Enrollment limited to 28. (General Education Code(s): CC.) R. Birnbaum

85. Introduction to Chinese Writing Systems. *
Gateway course illuminating the operation of the writing systems of greater China. Intended for students who are curious about the world's longest continually used symbol set as well as for those who may be considering a serious commitment to learning the language. D. Keenan

86. College Leadership Development (2 credits). *

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Students newly appointed as residential life assistants in the college prepare for taking up their positions by studying identity and diversity issues; student development; community building; conflict resolution; intercultural competency; and leadership skills. Restricted to students selected for Cowell College Resident Assistantship, and by permission of instructor. May be repeated for credit. The Staff

89. Faculty Research Colloquium (2 credits). S
Introduction of UCSC as a research university, our notable researchers, and their work. Weekly discussions with UCSC faculty from a variety of disciplines. Enrollment restricted to participants in the first-year honors program. R. Birnbaum

93. Field Study. F,W,S
Various topics to be arranged. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

93F. Field Study (2 credits). F,W,S
Various topics to be arranged. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty instructor. Students submit petition to sponsoring agency. Enrollment limited to 10. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Various topics to be arranged. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Various topics to be arranged. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

107. Trust Rules: How to Tell the Good People from the Bad (2 credits). F
Students learn practical tools and techniques for assessing trustworthiness, including your own, and applying these tools in a variety of situations. Integrating insights from practical experience, philosophy, and psychology, this course teaches us how to pay attention to red flags in relationships and ultimately develop a network of trustworthy people that will help us succeed in work and in our personal lives. (Formerly Trust Rules: How to Tell Good People from Bad People in Work and Life.) Enrollment restricted to college members or by permission of instructor. Enrollment limited to 20. The Staff

110. Introduction to Mock Trial (2 credits). S
Introduces Mock Trial, which is open to all students. Covers the basics of argumentation, cross and direct examinations, permissible evidence, witness testimony, and courtroom protocol. Special emphasis is on public speaking. Students write speeches for opening and closing arguments and create questions for witnesses. Students must read the Mock Trial handbook for examples and strategies. Each student has an opportunity for public speaking and creating a coherent legal argument. Enrollment restricted to college members. D. Robertson

111. Mock Trial Workshop (2 credits). W
Reserved for the Mock Trial team to practice arguments and refine techniques for the competition nationwide. Students drilled on the case from both the perspective of the defense and of the offense. Direct examination and cross examination strategies explored, and practice given in witness testimony. Enrollment limited to 20. May be repeated for credit. D. Robertson

118B. Words & Music: Poetry, Musical Theater, Opera. *
Study of significant texts enhanced by music for performance. Topics vary annually. Course

compares original texts in English translation with their adaptation to musical theater (My Fair Lady, Oklahoma, etc.) and opera (Carmen, etc.) May be repeated for credit. (General Education Code(s): IH.) The Staff

122. Researching Trust (2 credits). F
How can we know what is good? Are there moral absolutes? These questions have troubled philosophers and theologians for centuries, while psychologists have shifted this conversation to include examination of what people think is good. Students study trust across a variety of texts and cultural perspectives. Enrollment restricted to college members, others by permission of instructor. Enrollment limited to 30. F. Crosby

126. The Trajectory of Justice in America: Eight Cases that Changed the U.S.. *
Reviews changing concepts of justice in constitutional law cases that changed the United States politically and socially. These cases include the Pentagon Papers, the Watergate burglary, Karen Silkwood, the American Sanctuary Movement, and Iran-Contra. Enrollment restricted to juniors, seniors, and graduate students. The Staff

136. La Francophonie. *
In-depth multidisciplinary study of one or more French-speaking regions of the world. Topics may include history, language, society, literature, and the arts. All coursework will be done in French. (Also offered as French 136. Students cannot receive credit for both courses.) Prerequisite(s): French 6 or consent of instructor. May be repeated for credit. The Staff

138A. The Place of Higher Education in a Democratic Society. S
Centers around interviews of alumni and involves a reflective term paper on a specific topic having to do with the role of higher education in a democratic society. Teaches students how to conduct interviews. Prerequisite(s): course 80A or 80B. Enrollment limited to 20. (General Education Code(s): PE-H.) F. Crosby

138B. Life Development (2 credits). *
Visits from alumni form the centerpiece of this course. In teams, students study the lives and the issues of the visitors. The aim is to reflect on the meaning of education in adult development. Prerequisite(s): course 80A or 80B. Enrollment limited to sophomore, junior, and senior Cowell College members. Enrollment limited to 40. F. Crosby

156M. Medical Ethics and Justice in Literature and Film. *
Course approaches literature and literary devices in their capacity to address the patient's experience of illness, medical education and practice, and medical ethics and to understand and assess how considerations of justice impact these themes in medicine. Particular issues raised by a variety of topics are examined and discussed in the context of case examples as presented in literature and film, e.g., informed consent, the doctor-patient relation, withdrawing vs. withholding life-sustaining treatment, organ transplantation, health care reform, rationing/social justice, etc. (Formerly Arts and Sciences.) Enrollment limited to 15. May be repeated for credit. D. Schultz

158A. Special Topics: Oral History. *
Introduction to the art and science of conducting and oral history. Readings include books that offer both theoretical and practical insights. Students conduct interviews and construct oral histories, focusing on the alumni of Cowell College. Enrollment restricted to sophomore, junior, and senior college members. Enrollment limited to 25. The Staff

168. Social Change (2 credits). F,W,S
How do you change the world, working alone and in concert with others? To find out, students work in groups with specific community partners who, in turn, help place students in social-change organizations in Santa Cruz County. Enrollment restricted to college members. May be repeated for credit. (General Education Code(s): PR-S.) D. Baldini

184A. Leadership and Institution Building (2 credits). F
Through lectures by senior administrators and student consensus-and-recommendation teams, students learn how leaders work with constituent groups, build cooperation, and develop implementation plans in an institution such as the University of California, specifically, UC Santa Cruz. Enrollment restricted to undergraduates accepted in the Chancellor's Undergraduate Internship Program. Enrollment limited to 40. (General Education Code(s): PR-S.) R. Hughey

184B. Leadership and Institution Building (2 credits). W
Through lectures by senior administrators and student consensus-and-recommendation teams, students learn how leaders work with constituent groups, build cooperation, and develop implementation plans in an institution such as the University of California, specifically, UC Santa Cruz. Enrollment restricted to undergraduates accepted in the Chancellor's Undergraduate Internship Program. Enrollment limited to 40. (General Education Code(s): PR-S.) R. Hughey

184C. Leadership and Institution Building (2 credits). S
Through lectures by senior administrators and student consensus-and-recommendation teams, students learn how leaders work with constituent groups, build cooperation, and develop implementation plans in an institution such as the University of California, specifically, UC Santa Cruz. Enrollment restricted to undergraduates accepted in the Chancellor's Undergraduate Internship Program. Enrollment limited to 40. (General Education Code(s): PR-S.) R. Hughey

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Upper-division standing required and a proposal supported by a faculty member willing to supervise. The Staff

193. Field Study. F,W,S
Program of study arranged between a group of students and an instructor, which may involve work with an off-campus or non-departmental agency (e.g., internship or field work). Interview only; prior arrangement with instructor. Enrollment restricted to juniors and seniors. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Program of study arranged between a group of students and an instructor, which may involve work with an off-campus or non-departmental agency (e.g., internship or field work). Interview only; prior arrangement with instructor. Enrollment restricted to juniors and seniors. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and an instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and an instructor. Students submit petition to sponsoring agency. Enrollment restricted to juniors and seniors. May be repeated for credit. The Staff

195. Senior Thesis. F,W,S
Students submit petition to sponsoring agency. The Staff

198. Independent Field Study. F,W,S
Provides for college-sponsored individual study programs off campus, for which faculty supervision is not in person (e.g., supervision is by correspondence.) Up to three such courses may be taken for credit in any one quarter. Approval of student's adviser, certification of adequate preparation, and approval by provost required. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Various topics to be arranged. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
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Critical Race and Ethnic Studies

2014-15 General Catalog

416 Humanities I
(831) 459-3981
http://humanities.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

10. Critical Race and Ethnic Studies: An Introduction. W
Examines the concept of race, followed by an investigation of colorblindness, multiculturalism, and post-racialism. Race and ethnicity are examined as historically formulated in relationship to the concepts of gender, sexuality, class, nationalism, indigeneity, citizenship, immigration, and inequality. Prerequisite(s): Satisfaction of the Entry Level Writing and C1 requirements. (General Education Code(s): ER.) The Staff

70S. Introduction to the Sikhs (2 credits). W
Introduces the Sikh community, including origins, history, belief system, and contemporary issues. Other topics include: Sikh music, art, literature, and aspects of Sikh society. Attention paid to the Sikh diaspora in the United States and in California in particular, including comparative perspectives with other minority communities. (Formerly Humanities 70S.) N. Singh

Upper-Division Courses

100. Comparative Theories of Race and Ethnicity. W
Examines race and ethnicity as categories of lived identity intersecting with gender, sexuality, class, and culture; historical discourses of difference underwriting social inequalities and movements to redress those inequalities; and concepts critical to the understanding and reshaping of power and privilege. Prerequisite(s): course 10 and satisfaction of the Entry Level and C1 requirements. (General Education Code(s): ER.) V. Cooppan

101. Research Methods and Writing in Critical Race and Ethnic Studies. S
Examines how scholars and activists produce knowledge in critical race and ethnic studies. Interrogates key terms to build a foundation and literacy in research methods. The course is project-based; and requires work on a team. Prerequisite(s): course 10 and satisfaction of the Entry Level Writing and Composition requirements. The Staff

190. Senior Seminar. *
Required research seminar for Critical Race and Ethnic Studies majors in which students write a substantial research paper or a series of short papers. May be organized around a specific theme at the instructor's discretion. Prerequisite(s): courses 10 and 100, and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior CRES majors Enrollment limited to 25. E. Porter

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Ethnic Studies">http://cres.ucsc.edu/

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Crown College

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College Office
(831) 459-2665
http://crown.ucsc.edu/

For college description and list of faculty, see colleges.

Lower-Division Courses

28. Crown Student Leadership Development Seminar (2 credits). W
Explore leadership as it relates to student development at Crown College. Examine how values, ethics, involvement, identity, and theory affect leadership in a variety of content areas. Evaluate student's leadership strengths to determine objectives for improvement. The Staff

31. Crown College Student Leadership in Action Seminar (2 credits). S
Focuses on developing and establishing leadership skills and styles for new leaders at Crown College. Explores communication styles, group dynamics, community development, programming, moral development and conflict resolution concepts and strategies. Applies theory to action. Enrollment limited to college members and by permission of instructor. The Staff

60. The Environment on Film: Rhetoric of Ecocriticism. *
Examines the overt as well as the subtle cinematic elements that depict, ponder, and persuade concerning issues of the environment and the role of humans regarding nature, animals, and the human-made landscape. Enrollment restricted to college members during priority enrollment. Enrollment limited to 24. (General Education Code(s): IM, IH.) The Staff

70. Introduction to Broadcast Media: Radio. F,W,S
Comprehensive history of noncommercial radio as a mass-communication medium. Course also serves as an introduction to UCSC's radio station KZSC-FM and broadcasting. Through lectures, hands-on instruction, and written assignments, students learn the fundamentals of program presentation and audio production. Enrollment by permission of instructor. Enrollment limited to 14. (General Education Code(s): PR-S.) M. Bryant, K. Rozendal

79. Introduction to Ethical Foundations (2 credits). F
Introduces the foundations of ethical decision making. Develops students' skills in understanding and making ethical arguments. Prepares students for the winter quarter sections of course 80A or 80B. Enrollment restricted to first-year Crown College members. K. Crouse, D. Bernick

80A. University Discourse: Ethical Issues in Emerging Technologies. F,W
Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Examines ethical challenges brought about by rapidly changing science and technology. Students cannot receive credit

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for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. (General Education Code(s): T6-Natural Sciences or Humanities and Arts, C1.) The Staff

80B. Rhetoric/Inquiry: Ethical Issues in Emerging Technologies. F,W
Explores intersection, interpretation, and persuasion and hones strategies for writing and research. Examines ethical challenges brought about by rapidly changing science and technology. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year Crown College members. (General Education Code(s): T6-Natural Sciences or Humanities and Arts, C2.) The Staff

80F. Science Fictions. *
Examines how science fictions have imagined better and worse worlds, social relations, and identities by using science and technology. Students read novels and short stories from the 19th Century to the present and discuss and debate questions of justice, freedom, difference, and identity. (Formerly "Seminar in Science Fiction.") Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment limited to 22. (General Education Code(s): TA, T7-Natural Sciences or Social Sciences.) The Staff

80J. Cyborg Society: Myths, Realities, Choices. *
Examines content and methodologies of the emerging field of cyborgology. Includes social studies of science, anthropology, sociology, philosophy, politics, art, biology, and informatics. Enrollment limited to 25. (General Education Code(s): PE-T, T5-Humanities and Arts or Social Sciences.) C. Gray

80L. Food Safety and Environmental Quality: The Complexities of a Safe Salad. *
In recent years, outbreaks of food-borne illness have alarmed farmers and consumers alike. This course examines the complexities of ensuring food safety in the complex natural, economic, and social settings that characterize U.S. food-production systems. Enrollment limited to 24. (General Education Code(s): PE-E, T7-Natural Sciences or Social Sciences.) The Staff

80S. Undergraduate Seminar in Science, Technology, and Society. *
An honors seminar for first year students on selected topics that examine the relationship between science, technology, and society. Precise focus of each seminar varies and is announced by the college. Preference given to Crown College students. Enrollment restricted to first-year and sophomore students. Enrollment limited to 20. (General Education Code(s): T2-Natural Sciences.) The Staff

84H. Extreme Environment Virology. W
Students sample viruses from an extreme environment during a field trip, and sequence DNA from that sample and other viruses and assemble their genomes. This is an integrated course in molecular genetics and bioinformatics focusing on extreme environments. Enrollment restricted to Crown and Cowell Honors students. Enrollment limited to 24. (General Education Code(s): SI.) D. Bernick

93. Field Study. F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Students should review plans with an appropriate fellow of the college. A proposal should be presented to the college academic preceptor no later than the seventh week of the preceding quarter. Credit is granted by the sponsor upon approval of the work performed. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

93F. Field Study (2 credits). F,W,S
Provides for individual field study in the vicinity of the campus under the direct supervision of a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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123. Examining Our Life Through Writing. S
Writing-intensive seminar. Based on course readings and discussions, students write reflective response papers at the end of each class and weekly papers on their own lives and what they care most about. Intense class discussions, often started by students sharing their essays. Prerequisite(s): satisfaction of the Composition 1 requirement. Admission by permission of instructor after student reads lengthy syllabus, writes application, and interviews with instructor during faculty office hours. (Formerly Science and Human Values) F. Andrews

185. Career and Internship Preparation (1 credit). F,W,S
For juniors and seniors preparing for an internship experience or career position. Subjects include: self-assessment of career objectives and/or internship goals; exploration of resources and techniques for finding and evaluating potential positions; resume writing; interview techniques; techniques to maximize learning in an internship and advancement in a job; communication; conflict resolution and problem solving in the organizational setting. Students are billed a materials fee. Enrollment limited to 40. A. Goral

191. Student Practicum. F,W,S
The student learns teaching skills by working with a faculty member in a Crown College course. Activities include facilitating discussions, helping students improve skills, and modeling leadership. The student must have demonstrated excellent performance in the course in which he/she will be assisting to be considered. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment by interview only. Enrollment limited to 1. F. Ferguson

198. Independent Field Study. F,W,S
Provides for college-sponsored individual study programs off campus. Approval of student's faculty sponsor and college academic provost required. The Staff

199. Tutorial. F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Digital Arts and New Media

2014-15 General Catalog

DARC 204
(831) 459-1919
http:// danm.ucsc.edu

Faculty | Program Statement

Upper-Division Courses

179. Game Design Practicum. F
Provides the opportunity to practice the creation of novel computer games. Students learn a new game-making technology, then create three games using this technology. (Also offered as Computer Science 179. Students cannot receive credit for both courses.) May be repeated for credit. (General Education Code(s): PR-C.) The Staff

199. Tutorial. F,W,S
Independent digital arts and new media research project under the guidance of a digital arts and new media faculty member or other faculty. Students submit petition to sponsoring agency. Enrollment restricted to juniors and seniors. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Independent digital arts and new media research project under the guidance of a digital arts and new media faculty member or other faculty. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

201. Recent Methods and Approaches to Digital Arts and Culture. F
Students examine methods and approaches to research and writing in digital art and new media, while exploring key theories concerning technology, art, and culture. Focus is on the interaction between digital technologies and socio/cultural formations. Enrollment restricted to graduate students. S. Murray

202. Dialogues and Questions in Digital Arts and Culture. S
Students engage in dialogues at the intersection of theory and practice with the goal of producing a pre-thesis proposal and essay. Readings and seminar discussions inform the development of project proposals and essays, which theoretically contextualize students' work. (Formerly Digital Arts and New Media 203.) (Also offered as Music 254Q. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. K. O'Riordan

203. Frameworks and Arguments in Digital Arts and Culture. S
Intended to help students develop and write the MFA thesis. Students conduct research on the thesis topic, design outlines, construct strong theoretical arguments, and draft the final

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- Social Documentation
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document. (Formerly course 202, Genealogies and Theories of Digital Arts and Culture.) Enrollment restricted to graduate students. W. Sack

210. Project Design Studio. F
Students work on the design of individual projects by developing project proposals, budgets, "proof of concept" design documents and/or prototypes and exploring tools, technologies, programming languages, hardware, software, and electronics techniques relevant to their projects. Enrollment restricted to graduate students. E. Crichton

211. Critique. S
First-year digital arts and new media graduate students are required to present work-in-progress based on the projects developed in earlier courses and during the current quarter in individual studio critiques with the instructor as well as in group critiques. Enrollment restricted to graduate students. Enrollment limited to 18. The Staff

212. Thesis Proposal (no credit). S
First-year digital art and new media graduate students work on the development and completion of their thesis-project proposal and abstract under the supervision of the program chair and their thesis committees. Enrollment restricted to DANM students. The Staff

215. MFA Exhibition Production. W
Second-year digital arts and new media graduate students work with faculty curator/coordinator to develop thesis projects specifically for the group exhibition context. Students contribute to exhibition design and collateral materials while studying the unique presentation and curatorial challenges of new media. Enrollment restricted to graduate students. S. Graham

216. Digital Bodies. *
Explores the appearance, form, and theoretical status of the human body/political subject in online art. Focuses on representations of race and gender, family resemblances, and local communities, as well as the political and colonial metaphors of spatial interaction operating on the World Wide Web. Visual representations of bodies that take the form of avatars, advertising, robots, and anime studied in their contextual usage. Enrollment restricted to graduate students. Upper-division undergraduates may enroll with permission of instructor. Enrollment limited to 17. J. Gonzalez

217. Computer-Assisted Composition. *
Study of techniques of algorithmic and computer-assisted composition in a variety of contemporary idioms. Topics may include stochastic methods, generative grammars, search strategies, and the construction of abstract compositional designs and spaces. Final project for course involves students formulating and algorithmically implementing their own theoretical assumptions and compositional strategies. (Also offered as Music 206B. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. L. Polansky

219. Introduction to Electronics for Artmaking. F
Intensive introduction to electronic devices used in artmaking, providing hands-on experience with sensors, motors, switches, gears, lights, simple circuits, microprocessors, and hardware storage devices to create kinetic and interactive works of art. Students are billed a materials fee. Enrollment restricted to graduate students. The Staff

220. Introduction to Programming for the Arts. W
Covers aspects of computer programming necessary for digital art projects. Students learn to manipulate digital media using program control for installations, presentations, and the Internet. No prior programming experience required. Enrollment restricted to graduate students. W. Sack

221. Mathematics and the Arts. *
Examines the role of mathematics in the arts since the computer revolution with an emphasis on chaos, fractals, and symmetry. Covers abstract animation and algorithmic music, including the history of leading innovators and techniques from 1950 to the present. Student projects explore the creative process today using cutting-edge technologies. Enrollment restricted to graduate students. Upper-division undergraduates may enroll with permission of instructor. Enrollment limited to 30. May be repeated for

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credit. R. Abraham

224. Digital Arts Project Studio. *
Provides a context for significant development of digital arts projects: in the first year, individual and collaborative; in the second year, resolution of thesis projects. Individuals and collaborative groups meet with the instructor for focused critical feedback. Students create a public exhibition of their work-in-progress. Enrollment restricted to graduate students. Enrollment limited to 18. E. Crichton

227. Projected Light in Performance. *
Exploration of projected light in performance and art. The history of lighting as art is covered in a hands-on demystifying format from the shadow of a bare light bulb to the latest in automated and projection equipment and techniques. Enrollment restricted to graduate students. Juniors and seniors may enroll with permission of instructor. Enrollment limited to 20. D. Cuthbert

231. Human-Computer Interaction. W
Theory and hands-on practice to understand what makes user interfaces usable and accessible to diverse individuals. Covers human senses and memory and their design implications, requirement solicitation, user-centered design and prototyping techniques, and expert and user evaluations. Individual research project. Interdisciplinary course for art, social science and engineering graduate students. Students cannot receive credit for this course and course 131. (Also offered as Computer Engineering 231. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. S. Kurniawan

233. The Object as Interface. *
Combination theory and studio-based exploration into the role of the object in real and virtual space. Provides a broad conceptual and theoretical examination of issues relating to object-making on a physical and dematerialized plane. Enrollment restricted to graduate students. Enrollment limited to 15. W. Hibbert-Jones

241B. Modern Art: Cubism to Pop. W
A history of the visual arts from the 1910s to the 1960s beginning in Europe and moving to the United States. Follows key movements of modern art while emphasizing the social, political, and philosophical events that inform it. Students cannot receive credit for this course and History of Arts and Visual Culture 141B. Enrollment restricted to graduate students in digital arts new media, film, music, social documentation, theater, or visual studies. J. Gonzalez

250A. Collaborative Research Project Group: Mechatronics. F,W,S
Three-quarter collaborative research project group involves faculty-initiated research in the use of a variety of media including video, performance, and sculpture, for the creation of complex, kinetic, audio-visual systems exploring temporality, materiality, experience, and perception. Enrollment restricted to graduate students. Enrollment limited to 8. May be repeated for credit. J. Parker

250B. Collaborative Research Project Group: Participatory Culture. F,W,S
Three-quarter collaborative research project group encompasses a range of faculty-initiated projects in social computing and community-media activism, which involve the design of new technologies to address social problems and facilitate broader participation in culture and politics. Enrollment restricted to graduate students. Enrollment limited to 8. May be repeated for credit. S. Daniel, H. Harrison, N. Harrison

250C. Collaborative Research Project Group: Performative Technologies. F
Three-quarter collaborative research project group generates faculty-initiated new public and performative spaces where digital media, communication networks, and interactive systems may be fused with lighting, movement, stage, and sound design to create shared multimedia experiences for audiences and performers. Enrollment restricted to graduate students. Enrollment limited to 8. May be repeated for credit. M. Chemers

250D. Playable Media. W
Focuses on media, such as computer games, that invite and structure play. Work includes building and critiquing a series of prototypes; studying major examples in the field; and discussing both theoretical and practice-oriented texts. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Computer Science

290J. Students cannot receive credit for both courses.) May be repeated for credit. N. Wardrip-Fruin, M. Mateas

254I. Empirical Approaches to Art Information. *
Reading and practice in empirical methods, as applied to the study of music, visual art, multimedia production, and performance arts. Topics include semiotics, critiques of empiricism, cultural determinants and contingents of perception, the psychophysics of information, sensory perception (visual and auditory), memory, pattern recognition, and awareness. Students apply existing knowledge in the cognitive sciences to a developing creative project, or develop and conduct new experiments. (Also offered as Music 254I. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 17. May be repeated for credit. B. Carson

254L. John Cage: Innovation, Collaboration, and Performance Technologies. *
In-depth examination of John Cage's interdisciplinary work, his pioneering activity in live electronic technology, and his influence in current multimedia creativity. Approximately one-half of the seminary is devoted to student research and creative projects and reflect Cage's legacy. (Also offered as Music 254L. Students cannot receive credit for both courses.) Enrollment restricted to juniors, seniors, and graduate students. Upper-division undergraduates may enroll with permission of instructor. Enrollment limited to 12. The Staff

267. Workshop in Computer Music and Visualization (2 credits). F,W,S
Graduate-level techniques and procedures of computer music composition and visualization. Practical experience in the UCSC electronic music studio with computer composition systems and software, including visualization and interactive performance systems. Extensive exploration of music and interactive graphic programs such as Max/MSP/Jitter. Enrollment by permission of instructor; appropriate graduate experience required. Enrollment restricted to graduate students. (Also offered as Music 267. Students cannot receive credit for both courses.) Enrollment limited to 12. May be repeated for credit. Z. Watkins

290P. Topics in Computational Cinematography.
Focuses on discussion of recent advances in visual storytelling in graphical environments. Major topics covered are: intelligent camera control, shot-compositions, lighting design, interactive storytelling, and computational techniques associated with these applications. Class consists of in-class discussions and student presentations of research papers and a final student project. (Also offered as Computer Science 290P. Students cannot receive credit for both courses.) The Staff

297. Independent Study. F,W,S
Independent digital arts and new media research project under the guidance of a digital arts and new media faculty member or other faculty with approval of adviser. Project includes readings, research, and a written report. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. Maximum 10 credits. May be repeated for credit. The Staff

297G. Independent Study (3 credits). F,W,S
Independent digital arts and new media research project under the guidance of a digital arts and new media faculty member or other faculty with approval of adviser. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for a maximum 6 credits. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students carry out a master's of fine arts thesis in digital arts and new media research, under the guidance of a thesis committee. The thesis will be an arts project with digital documentation accompanied by a written paper discussing the student's preparatory research as well as the theoretical significance of the project. Enrollment restricted to graduate students. Maximum 10 credits. May be repeated for credit. The Staff

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Earth and Planetary Sciences

2014-15 Catalog

A232 Earth and Marine Sciences Building
(831) 459-4089
http://eps.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Oceanography. W
An introduction to the physical environment of the ocean. Origin and evolution of ocean basins; sea-floor morphology; origin, distribution, historical record, and economic significance of marine sediments; ocean currents, waves, tides, and changing sea level; beaches, shorelines, and coastal processes; marine resources, pollution, and human impacts on the oceans. Students may also enroll in and receive credit for Ocean Sciences 1. (General Education Code(s): PE-E, IN.) G. Griggs

2. Earth Catastrophes. F
The role of catastrophic processes in shaping Earth and the environment in which we live. The physical processes causing earthquakes, volcanic eruptions, tsunamis, floods, windstorms, landslides, and meteorite impacts will be described, along with the role played by these rapid processes in the geological and biological evolution of the planet. Interdisciplinary approaches to understanding these phenomena will be discussed. The entire time scale from formation of the universe to the present Earth system will be considered. (Formerly course 80A.) (General Education Code(s): SI, T-2 Natural Sciences.) The Staff

3. Geology of National Parks. S
Geologic concepts and processes responsible for shaping our national parks including mountain building, volcanic and earthquake activity, sedimentation, weathering, erosion, and glaciation. An understanding of how geology impacts our lives is emphasized. Appropriate for both science and non-science majors who wish to enhance their knowledge, enjoyment, and appreciation of our national parks. (General Education Code(s): SI, IN.) S. Schwartz

5. California Geology. F
An introduction to physical geology emphasizing the minerals, rocks, volcanoes, mountains, faults, and earthquakes of California. In-class field trips to study the caves, rocks, and landforms of the campus and the Monterey Bay area. Discussion-1 hour. Concurrent enrollment in 5L required for majors and minors. (General Education Code(s): SI, IN.) E. Knittle

5L. California Geology Laboratory (1 credit). F
Laboratory sequence illustrating topics covered in course 5 with particular emphasis on

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
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- Digital Arts and New Media
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- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
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rock and mineral identification and map interpretation. Field trip. Laboratory three hours. Students are billed a materials fee. E. Knittle

7. The History of Life. *
An examination of the major events in the history of life, from the origin of life approximately four billion years ago, to the wave of extinctions that has decimated plants and animals around the globe over the past 30,000 years. (General Education Code(s): SI, IN.) The Staff

8. Planetary Discovery. *
An introductory look at modern solar system exploration, focusing on spacecraft missions presently underway. We will examine the scientific context of each mission, the instrumentation and dynamics of each voyage, and the importance of their discoveries. Open to all students. (Formerly course 80G.) (General Education Code(s): SI, T-2 Natural Sciences.) The Staff

9. Earth History and Global Change. F
Over the past 4.5 billion years, planet Earth has evolved in exciting ways. Environments, climates, and life forms have come and gone in fascinating combinations. Course examines changing physical, biological, and climatological conditions through geologic time, beginning with the evolution of the Earth through changes leading to the current state of the planet, and considers prospects for Earth's future. (Formerly course 80F). (General Education Code(s): PE-E, T2-Natural Sciences.) L. Sloan

10. Geologic Principles. W
Introduction to the scientific study of Earth, the materials composing it, and the processes shaping it. Topics include minerals and rocks, Earth's internal structure, plate tectonics, earthquakes and volcanoes, oceans and the atmosphere, the formation of landscapes and global change. A one-day, optional field trip is included. Concurrent enrollment in 10L required for majors and minors. (General Education Code(s): SI, IN.) The Staff

10L. Geologic Principles Laboratory (1 credit). W
Laboratory sequence illustrating topics covered in course 10, with particular emphasis on rock and mineral identification and map interpretation. Laboratory 3 hours. In-lab field trips. Students are billed a materials fee. A. Fisher

11. Earthquakes. W
Causes and effects of earthquakes. How do we measure, mitigate, and try to predict earthquakes? Plate motion, frictional faulting, earthquake triggering, wave propagation, earthquake damage, related hazards, and other social effects. Hazard reduction through earthquake forecasting and earthquake-resistant design. Class includes one full day weekend field trip to local faults. Advanced algebra and high school geometry recommended. Students are billed a materials fee. (Formerly course 80B.) (General Education Code(s): MF, T-2 Natural Sciences, Q.) The Staff

12. Introduction to Weather and Climate. *
Many meteorological phenomena are familiar to us: clouds, fog, rain, snow, wind, lightning, and severe storms. Climate is the sum of weather over long periods and is changing (e.g., greenhouse warming, ozone depletion, urban smog) due to mankind's activities. Conceptual understanding of how and why the present-day atmosphere behaves as it does and how this may change in the future is the primary goal of this course. Offered in alternate academic years. (General Education Code(s): SR, T2-Natural Sciences, Q.) P. Chuang

20. Environmental Geology. S
Introduction to aspects of geology which affect and are affected by humans. Addresses a broad range of topics including resource management, geologic hazards, air and water issues, population and land use, energy costs and effectiveness, and global change, all from a unique geological/environmental perspective. Lectures include strategies for mitigating these issues. Includes a one-day field trip. Concurrent enrollment in 20L required for majors and minors. (General Education Code(s): SI, IN.) S. Tulaczyk

20L. Environmental Geology Laboratory (1 credit). S
Laboratory sequence illustrating topics covered in course 20, with emphasis on rock and mineral identification, geologic hazard assessment, geologic resource management, and

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land use planning. In-lab field trip. Laboratory 3 hours. Students are billed a materials fee. S. Tulaczyk

65. Natural History of Dinosaurs. S
Explores the origin, evolution, and extinction of dinosaurs with emphasis on paleobiology and paleoecology. Covers fundamental paleontological and evolutionary principles, dinosaur anatomy and behavior, the hot-blooded/cold-blooded debate, dinosaur-bird relationships, diversity, and exploits of the great dinosaur hunters. One and a half hour of discussion each week. (General Education Code(s): SI, IN.) H. Schwartz

81B. Fundamentals of Environmental Science. W
Addresses major issues in physical and biological environmental sciences and provides tools to critically evaluate, debate, and make informed choices regarding one's own impact on the environment. Topics include: climate change, water resources, air pollution, evolution, ecology (from populations to ecosystems), and conservation. Quantitative problem solving is an integral part of this course. (Also offered as College Eight 81B. Students cannot receive credit for both courses.) (General Education Code(s): MF, IN, Q.) L. Fox, P. Chuang

98. Earth Sciences Internship. F,W,S
A supervised learning experience involving practical application of lower division Earth sciences knowledge while working with approved companies, governmental agencies, or research organizations. Students consult weekly with supervising faculty and prepare a final report of their work, to be evaluated both by the sponsoring agency and the faculty supervisor. Consult sponsoring agency for enrollment criteria; after instruction on resume preparation and interview skills, student must interview and be selected for internship by approved sponsoring organizations. May be repeated for credit. E. Silver

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100. Vertebrate Paleontology. *
Introduction to vertebrate history, with an emphasis on vertebrate relationships and the co-evolution of organisms and environments. Specific topics include vertebrate origins, systematics and classification, adaptive revolutions, mass extinctions, and the rise and fall of dinosaurs. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 5 or 10 or 20 or Biology 20C, or Anthropology 1. Concurrent enrollment in course 100L is required. H. Schwartz

100L. Vertebrate Paleontology Laboratory (2 credits). *
Comparative anatomy and functional morphology of vertebrates, and preservation of vertebrate hard parts, using modern and fossil specimens. Laboratory three hours and one 1-day field trip. Concurrent enrollment in course 100 is required. H. Schwartz

101. Invertebrate Paleobiology. F
An introduction to paleobiology; the use of fossil evidence to pose and solve evolutionary and geologic questions. Students are billed a materials fee. (Formerly The Fossil Record.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 5 or 10 or 20 or Biology 20C or Anthropology 1. Concurrent enrollment in course 101L is required. M. Clapham

101L. Invertebrate Paleobiology Laboratory (1 credit). F
Systematics, ecology, and evolutionary history of the major groups of fossil-forming animals. Laboratory 3 hours and one 1-day field trip. (Formerly The Fossil Record Laboratory.) Concurrent enrollment in course 101 is required. M. Clapham

102. Marine Geology. W
Geology of the marine environment. Topics include controls on the types, origin, and distribution of marine sediments; geology of oceanic crust; evolution of continental margins and plate boundaries; introduction to paleoceanography. Discussion: 1 hour. Students cannot receive credit for this course and Ocean Sciences 280. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements,and course 5 or 10 or 20 or Biology 20C. A. Ravelo

104. Geologic Hazards. F
The recognition, evaluation, and mitigation of geologic hazards: earthquakes and faulting, tsunamis, volcanism, landslides and mass movements, and flooding. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 10/L or 5/L or 20/L. S. Schwartz

105. Coastal Geology. S
An investigation of the evolution, morphology, and processes in the coastal zone including the terrestrial (marine terraces, dunes, estuaries, sea cliffs) and marine (beaches, continental shelves, sea level changes, shoreline erosion and protection, waves, tides) components and their interaction. Laboratory: 3 hours. Students are billed a materials fee. Prerequisite(s): course 5 or 10 or 20. G. Griggs

107. Remote Sensing of the Environment. W
Introduction to geographic information systems (GIS) and remote sensing (RS) as valuable tools in the study of geology. Covers application of GIS/RS to study of surface processes, including landslides, hydrologic basins, coastal erosion, modern floods, volcanic activity and surface deformation. Prerequisite(s): course 5 or 10 or 20. Enrollment limited to 36. E. Silver

109. Elements of Field Geology. F,S
Basic tools and techniques used in geologic fieldwork. Preparation, analysis, and interpretation of geologic maps. Nine to 10 days of weekend field trips required, including a six-day geologic mapping exercise. Laboratory: 3 hours. Recommended for courses 120, 130, 150, and required for 188A-B. May not be taken concurrently with course 120, 150, or 188. Students are billed a materials fee. (General Education Code(s): W satisfied by taking this course and courses 188A and 188B.) Enrollment restricted to majors and minors in Earth and planetary sciences and the combined majors with anthropology and environmental studies. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements, course 5 or 10 or 20, and 5L or 10L or 20L, or by permission of instructor. Concurrent enrollment in 109L is required. Enrollment limited to 25. (F) H. Schwartz, (S) J. Hourigan

109L. Field Geology Laboratory (2 credits). F,S
Laboratory exercises essential to the successful completion of fieldwork required in course 109. Topics include topographic maps, Brunton compass, rock identification and description, geologic map analysis, structure section "construction," and landslide recognition. Concurrent enrollment in course 109 required. Enrollment restricted to majors and minors in Earth and planetary sciences and the combined majors with anthropology and environmental studies or by permission of instructor. Enrollment limited to 25. (General Education Code(s): PR-E.) (F) H. Schwartz, (S) J. Hourigan

110A. Evolution of the Earth. F
Investigation of the processes and mechanisms that have produced the present Earth system, with an emphasis on the temporal evolution of the earth from the Archean to the present. Specific topics covered include cyclicity in Earth processes and the evolution of, and interplay between the planet's crust, atmosphere, hydrosphere, and biosphere. Prerequisite(s): courses 5 or 10 or 20, and 5L or 10L or 20L, and Mathematics 11A or Mathematics 19A or Applied Mathematics and Statistics 15A. (General Education Code(s): PE-E.) Q. Williams, J. Zachos

110B. Earth as a Chemical System. W
The chemical properties of Earth materials and the chemical processes by which the planet has evolved to its present state. Specific topics covered include properties of minerals; the genesis of igneous, metamorphic, and sedimentary rocks; and the linkage between the solid Earth and the hydrosphere. Enrollment is permitted by permission code with equivalent or exceptional background, or if enrolled concurrently in Chemistry 1B. Prerequisite(s): courses 5, or 10, or 20, and 5L, or 10L, or 20L, and Chemistry 1B. E. Knittle

110C. The Dynamic Earth. S
Physical processes occurring in the interior of the earth, at its surface and in the oceans and atmospheres including plate tectonics, structural deformation of rocks, and material and heat transport. Students are billed a materials fee. Prerequisite(s): course 5 or 10 or 20; and 5L or 10L or 20L; and course 111 or Mathematics 22 or 23A; and Physics 6A or 5A. The Staff

110L. Evolution of the Earth Laboratory (2 credits). F
Laboratory sequence illustrating topics covered in course 110A. Emphasis is on quantifying and evaluating different phenomena related to thermal, tectonic, climatic, and evolutionary processes. Prerequisite(s): concurrent enrollment in course 110A. (General Education Code(s): PR-E.) Q. Williams, J. Zachos

110M. Earth as a Chemical System Laboratory (2 credits). W
Laboratory sequence illustrating topics covered in course 110B. Emphasizes identification of the major rock-forming minerals and common rock types; principles of basic crystallography. Prerequisite(s): concurrent enrollment in course 110B. E. Knittle

110N. The Dynamic Earth Laboratory (2 credits). S
Laboratory sequence illustrating topics covered in course 110C. Prerequisite(s): concurrent enrollment in course 110C. The Staff

111. Mathematics in the Earth Sciences. F
Series and sequences, vectors, 3D analytic geometry, partial differentiation, matrix algebra, and differential equations with applications in the Earth sciences. Topics include matrix manipulation, systems of linear equations, least-squares, Taylor series, gradients, optimization, analytic and numerical solutions to differential equations. Prerequisite(s): courses 5 or 10 or 20, and Mathematics 11B or Mathematics 19B or Applied Mathematics and Statistics 15B. (General Education Code(s): Q.) W. Nimmo

112. Practical Geophysics. F
Hands-on practice analyzing real-life observational data including earthquake catalogs, seismograms, gravity, and GPS data. Emphasis on data collection, and access and manipulation skills. Introduction to MATLAB programming included. Prerequisite(s): course 110C. E. Brodsky

116. Hydrology. S
Introduces processes involving water on and near Earth's surface, including meteorology, water properties, surface flows in steams and runoff, flood analysis, ground water, water budgets, sediment transport, erosion, and water quality. Problem set and laboratory each week. Laboratory/field: 3 hours. Students are billed a materials fee. Alternates annually with course 146. Enrollment restricted to majors and minors in Earth and planetary sciences and the combined majors with anthropology and environmental studies. Prerequisite(s): course 5 or 10 or 20, Mathematics 11A or 19A or Applied Mathematics or Statistics 15A; and Physics 6A/L, or by permission of the instructor. Course 5L or 10L or 20L and Physics 5B/M are recommended. A. Fisher

118. Seismotectonics. *
Earthquakes and their relationship to plate tectonics. Topics include seismological analysis of earthquake faulting, types of seismic waves, seismicity distributions, thermal and rheological structure of plates, and seismic investigation of plate dynamics. Prerequisite(s): course 5 or 10 or 20; Mathematics 11B or 19B; and Physics 5A or 6A. Offered in alternate academic years. T. Lay

119. Introduction to Scientific Computing. W
Introduction to solving scientific problems using computers. A series of simple problems from Earth sciences, physics, and astronomy are solved using a user-friendly scientific programming language (Python/SciPy). (Also offered as Astronomy and Astrophysics 119. Students cannot receive credit for both courses.) Prerequisite(s): Mathematics 11A or Mathematics 19A or Applied Mathematics or Statistics 15A. (General Education Code(s): IN.) M. Krumholz

120. Sedimentology and Stratigraphy. S
Stratigraphic principles used in classifying sedimentary rocks. Fundamentals of sedimentary mechanics. Analysis and interpretation of facies and depositional systems. Introduction to seismic facies and basin analysis. Course includes four Saturday field exercises. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 110A. Course 110B is recommended as preparation. May not be taken concurrently with course 109. M. Clapham

120L. Sedimentology and Stratigraphy Laboratory (2 credits). *
Laboratory sequence illustrating topics in course 120, including sedimentary petrology,

sedimentary structures, sequence stratigraphy, and geohistory analysis. Prerequisite(s): concurrent enrollment in course 120. M. Clapham

121. The Atmosphere. W
Course focuses on understanding basic atmospheric weather and climate phenomena starting from the fundamentals of physics and chemistry. Using this approach, covers topics such as atmospheric circulation, precipitation, clouds, storms, urban and regional air quality, atmospheric aerosols, and climate and global change. Prerequisite(s): Mathematics 11B or Mathematics 19B or Applied Mathematics and Statistics 15B, and Chemistry 1A, and Physics 5B or 6B. Offered in alternate academic years. P. Chuang

125. Statistics and Data Analysis in the Geosciences. W
Project-based introduction to analytical methods, such as univariate and multivariate statistics, cluster analysis and ordination, and maximum likelihood estimation, using a conceptual approach. Introduction to analysis and programming using the R software package. (Formerly Analytical Paleobiology) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Offered in alternate academic years. (General Education Code(s): SR.) M. Clapham

128. Isotopes: Fundamentals and Applications in Earth and Marine Sciences. *
Explores the fundamentals and concepts of stable, radiogenic, and cosmogenic isotope chemistry with applications relevant to Earth, marine, and biological sciences. Prerequisite(s): course 110B or permission of instructor. J. Zachos

130. Igneous and Metamorphic Petrology. S
Introduction to the relationship between tectonic environments and the genesis of rock assemblages, primarily igneous and metamorphic. Examples from California and elsewhere are used to illustrate petrogenetic processes and characteristic petrologic features of rocks from all major tectonic settings. Prerequisite(s): course 110B. Concurrent enrollment in course 130L is required. E. Knittle

130L. Igneous and Metamorphic Petrology Laboratory (2 credits). S
An introduction to optical mineralogy and the petrography of igneous rocks. (Formerly Magmas and Volcanos Laboratory.) Prerequisite(s): course 110B. Concurrent enrollment in 130 is required. E. Knittle

134. Thermochemistry of Geologic Systems. *
Introduction to the thermodynamic and kinetic principles with a strong emphasis on applications to Earth materials. Implications for phase equilibria, geothermometry/geobarometry, element partitioning, and physical properties of minerals, magmas, and solutions. Prerequisite(s): course 110B. Offered in alternate academic years. Q. Williams

140. Geomorphology. W
An introduction to the evolution of the Earth's landscape, with emphasis on the processes responsible. Review of climatic and tectonic forcing followed by detailed discussion of weathering, glaciers, hillslopes, wind, rivers, and coastal processes with emphasis on their geographic distribution. One single day and one three-day field trip. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 110A. Concurrent enrollment in 140L is required. The Staff

140L. Geomorphology Laboratory (2 credits). W
Laboratory sequence illustrating topics covered in course 140. These extensive laboratory exercises emphasize the quantification of the geomorphic processes and forms, and on the writing of concise summaries of the science in the form of abstracts. Students are billed a materials fee. Prerequisite(s): Concurrent enrollment in course 140 is required. The Staff

142. Engineering Geology for Environmental Scientists. F
Introduction to the formation, composition, and classification of soils; the chemical interaction of soil and groundwater; and basic soil mechanics: stress-strain behavior, effective stress concept, consolidation, soil testing methods. Applications to problems including slope stability, landslides, liquefaction, subsidence, soil creep, debris flows. Laboratory: 3 hours. Students are billed a materials fee. Prerequisite(s): course 5 or 10 or 20; Mathematics 11A or Mathematics 19A or Applied Mathematics or Statistics 15A. Offered in alternate academic years. S. Tulaczyk

146. Groundwater. *
Explores saturated and unsaturated fluid flow below Earth's surface, well hydraulics, and recourse evaluation and development. Introduces modeling, field techniques, geochemistry, and contaminant transport and remediation. Problem set and laboratory each week; final paper. Laboratory: 3 hours. Students are billed a materials fee. Alternates annually with course 116. Enrollment restricted to majors and minors in Earth and planetary sciences and the combined majors with anthropology and environmental studies. Course 5L or 10L or 20L and Physics 6B/M are recommended as preparation. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and course 5 or 10 or 20; and Mathematics 11A or 19A or AMS 15A; and Physics 6A/L (Physics 6B/M recommended); and Chemistry 1A/L, or by permission of the instructor. A. Fisher

148. Glaciology. *
Introduction to the role of snow and ice in the dynamics of the earth surface system. Snow deposition and metamorphosis. Heat and mass balance at snow and ice surfaces. Flow of glaciers, ice sheets, and sea ice. Methods of climate reconstruction. Ice age theories. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and courses 5 or 10 or 20; and Mathematics 11A or Mathematics 19A or Applied Mathematics or Statistics 15A. Offered in alternate academic years. S. Tulaczyk

150. Structural Geology. F
Principles and methods of analysis of brittly and ductily deformed rocks. Includes descriptions of structures, field analysis of structures, and mechanics of deformation. Three day-long field trips on weekends. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 110A or 110B; course 109 recommended; concurrent enrollment in course 150L is required. J. Hourigan

150L. Structural Geology Laboratory (2 credits). F
Structural analysis of faults, folds, and maps. Use of stereographic projections. Cross section construction and balancing from field data. Concurrent enrollment in course 150 is required. J. Hourigan

152. Tectonics. W
The processes, techniques, and interpretations involved in the study of active crustal movements; constraints from plate tectonics; horizontal and vertical motions and rates; geodesy, including GPS; stress measurement; image interpretation; fault system analysis; paleoseismicity; fluid effects. Examples from the circum-Pacific. Laboratory-3 hours. Students cannot receive credit for this course and course 207. Students are billed a materials fee. (Formerly Active Tectonics.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 10 or 5 or 20 and 10L or 5L or 20L, and Physics 5A or 6A or equivalent per instructor permission. J. Hourigan

160. Planetary Science. F
Broad introduction to planetary science. Topics include the fundamental characteristics of solar system bodies; space exploration of these bodies; formation and evolution of surfaces, atmospheres and interiors of planets, satellites and small bodies. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and Mathematics 11B or Mathematics 19B or Applied Mathematics and Statistics 15B; and Physics 5A or 6A. I. Garrick-Bethell

162. Planetary Interiors. W
The chemical and thermal structure and evolution of silicate planet interiors. Topics include equation of state of mantle and core materials, thermal history of the mantle and core, dynamics of mantle convection, geophysical determination of interior structure. Students cannot receive credit for this course and course 262. Prerequisite(s): course 160; and course 111 or Mathematics 22 or 23A; and Physics 5C or 6C. Offered in alternate academic years. I. Garrick-Bethell

163. Planetary Surfaces. *
Comparative study of surfaces and atmospheres of planetary bodies in solar system, focusing on comparative planetology and geophysical processes at work, including differentiation, impact cratering, tectonics, volcanism, and geomorphic evolution. Explores terrestrial planets, giant planets and their moons. Students cannot receive credit for this

course and course 263. Prerequisite(s): course 160. Enrollment limited to 20. Offered in alternate academic years. The Staff

164. Planetary Atmospheres. *
A quantitative study of the origin, chemistry, dynamics, and observations of the atmospheres of terrestrial and gas-giant planets. Students cannot receive credit for this course and course 264. Prerequisite(s): course 160. Enrollment limited to 18. W. Nimmo

172. Geophysical Fluid Dynamics. *
Introduces fluid motion influenced by rotation. Topics include the Coriolis force, geostrophic flow, potential vorticity, the shallow water model, quasigeostrophic approximation, planetary waves, Ekman theory, thermal wind, models of the large-scale oceanic and atmospheric circulation, and equatorial dynamics. Taught in conjunction with course 272. Students cannot receive credit for this course and course 272. (Also offered as Ocean Sciences 172. Students cannot receive credit for both courses.) Prerequisite(s): Physics 107 or Applied Mathematics and Statistics 107; Mathematics 22 or 23B recommended. Offered in alternate academic years. The Staff

188A. Summer Field Internship. S
Three weeks of summer field study in geologically complex regions in the White-Inyo Mountains of eastern California. Activities include geologic field mapping on topographic and photographic base maps, stratigraphy, petrology, and structure analysis. A fee is required for participation. Contact sponsoring agency for details. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 109/L, 110A/L, and 110B/M. Enrollment restricted to Earth sciences majors. Concurrent enrollment in course 188B is required. (General Education Code(s): W satisfied by taking this course and courses 109 and 188B.) Interview only via application filed with department. (General Education Code(s): PR-E.) H. Schwartz

188B. Geographic Information Systems with Applications to the Earth Sciences. S
Introduction to basic principles of geographic information systems (GIS). Visualization of earthscapes with applications to problem-solving in the Earth sciences. Laboratory exercises in loading, manipulation, and interpretation of data sets. Field investigations of phenomena visualized in laboratory, including geological description, interpretation, and written report preparation. Lecture and laboratory portions of course occur during spring quarter. Field investigations and report-writing occur in the summer following spring quarter. A fee is required for participation. Contact sponsoring agency for details. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 109/L, 110A/L, and 110B/M. Enrollment restricted to Earth sciences majors. Concurrent enrollment in course 188A is required. (General Education Code(s): W satisfied by taking this course and courses 188A and 109.) Interview only via application filed with department. Enrollment limited to 25. N. Finnegan

190. Earth Sciences Mentorship (1 credit). F
Faculty research activity, analytic facilities, and career counseling in three separate Earth sciences laboratories are offered with varied formats including field trips, discussions, and equipment demonstrations. Three different faculty participate in each offering. Enrollment restricted to Earth sciences, Earth sciences/anthropology, and environmental studies/Earth sciences majors. Enrollment limited to 24. May be repeated for credit. The Staff

191. Climate Change Science and Policy. S
Explores the scientific basis of current and pending climate change, and the state of climate policy issues in California, the nation, and the world. Work includes foundational lectures on both public policy and climate science; additional guest lectures from policy makers, politicians, and scientists. Students are introduced to and become familiar with addressing climate-change issues from both policy and scientific perspectives; research papers and public presentations are required activities. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior majors in Earth sciences and the combined major with anthropology. L. Sloan

193. Planetary Capstone. *
Examines a crosscutting topic in planetary sciences (e.g., volcanism) to satisfy the senior capstone requirement. Students are assessed on the basis of an oral presentation and a written report in which a synthetic review is present. Prerequisite(s): course 160, and

course 111 or Mathematics 22. Enrollment restricted to seniors and graduate students. W. Nimmo

194F. Education Capstone (2 credits). F,W,S
Students write a paper on a lesson plan developed after their CalTeach internship courses. This independent study is supervised by Earth and planetary sciences faculty or ocean sciences faculty, as well as a member of the CalTeach staff or Education Department. Prerequisite(s): Education 185C and 185L. Enrollment restricted to Earth and planetary sciences majors with a concentration in science education. The Staff

195. Senior Thesis. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to seniors. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. (General Education Code(s): W.) The Staff

196B. Teaching Earth Sciences in the University. F,W,S
Students facilitate laboratory and field exercises in conjunction with faculty and teaching assistants in various Earth sciences courses. May not count toward upper-division major requirements. Approval of sponsoring agency; interview and selection by primary instructor of specific courses required. Participation in course 196A is expected. Enrollment restricted to Earth sciences, Earth sciences/anthropology, and environmental studies/Earth sciences majors. The Staff

196C. Teaching Earth Sciences in the University (2 credits). F,W,S
Students facilitate laboratory and field exercises in conjunction with faculty and teaching assistants in various Earth sciences courses. May not count toward upper-division major requirements. Approval of sponsoring agency; interview and selection by primary instructor of specific courses required. Participation in course 196A is expected. Enrollment restricted to Earth sciences, Earth sciences/anthropology, and environmental studies/Earth sciences majors. May be repeated for credit. The Staff

198. Earth Sciences Internship. F,W,S
A supervised learning experience involving practical application of Earth sciences through working with approved companies, governmental agencies, or research organizations. Students consult weekly with supervising faculty and prepare a final report of their work. Consult sponsoring agency for enrollment criteria. After instruction on resume preparation and interview skills, students must interview and be selected for internship by approved sponsoring organizations. Enrollment restricted to Earth sciences, Earth sciences/anthropology, and environmental studies/Earth sciences majors. May be repeated for credit. E. Silver

198F. Earth Sciences Internship (2 credits). F,W,S
A supervised learning experience involving practical application of Earth sciences through working with approved companies, governmental agencies, or research organizations. Students consult weekly with supervising faculty and prepare a final report of their work. May not be counted toward upper-division major requirements. Consult sponsoring agency for enrollment criteria. After instruction on resume preparation and interview skills, student must interview and be selected for internship by approved sponsoring organizations. Enrollment restricted to Earth sciences, Earth sciences/anthropology, and environmental studies/Earth sciences majors. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Introduction to research in laboratory, field, or theoretical subjects. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Introduction to research in laboratory, field, or theoretical subjects. May not be counted toward upper-division major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

203. Introductory Teaching Seminar (1 credit). F
Intended for new Earth sciences graduate students. Focus on preparation, assessment, and feedback. Classroom techniques, organizational and time management strategies, practice

teaching sessions specific to laboratory and/or science instruction. Required follow-up meetings to discuss practical teaching experience. Enrollment restricted to graduate students. The Staff

204. Earth and Planetary Sciences Foundations (4 credits). F
Provides a comprehensive overview of key concepts, dominant paradigms, and research frontiers in Earth and planetary sciences in plenary talks by multiple faculty. Provides a required foundation course for all incoming students pursuing graduate degrees in Earth and planetary sciences. Enrollment restricted to Earth sciences graduate students. Enrollment limited to 20. The Staff

205. Introductory Graduate Seminar (2 credits). F
Lecture and- seminar-style class intended to welcome new graduate students to the department and to introduce students to the research and interests of departmental faculty and researchers. Includes exercises to develop skills in reading scientific abstracts and papers and in writing abstracts and proposals. Two weekend field trips. Students are billed a materials fee. Enrollment restricted to Earth sciences graduate students. S. Schwartz

206. Great Papers in the Earth Sciences. W
Exposure to the most important ideas in the Earth sciences through exploration of the primary literature. Seminal papers in different subdisciplines of the Earth sciences are read and analyzed to provide breadth and improve students' ability to think critically. Enrollment restricted to Earth sciences graduate students. T. Blackburn, Q. Williams

207. Tectonics. *
An overview of tectonic theory and processes for application to the Earth sciences. The course explores the primary tools of tectonic interpretation including plate kinematics, rheology, plate boundary dynamics, and the behavior of active fault systems. Taught in conjunction with course 152. Students cannot receive credit for this course and course 152. Prerequisite(s): graduate standing or permission of instructor. E. Silver

208. Methods in Paleoclimatology. *
Addresses methods used to reconstruct aspects of paleoclimates and paleoenvironments from the geologic record, focusing primarily on terrestrial records. Topics to be covered include dendrochronology and dendroclimatology, paleopalynology, paleobotany, ice cores, and paleosol studies. Lectures, discussions, and laboratory work. Enrollment restricted to graduate students. Offered in alternate academic years. L. Sloan

210. Overview of Stellar and Planetary Formation and Evolution. *
Overview of current understanding of star and planet formation and evolution. Examines our solar system in the context of the galactic planetary census. Provides a uniform introduction to astronomy and Earth science planetary students. Enrollment restricted to graduate students. G. Laughlin

213. Biogeochemical Cycles. *
Overview of biogeochemical cycles, present and past, and geochemical models. Topics include: marine, terrestrial, and global views of the carbon, nitrogen, phosphorus, silicon, sulfur, and oxygen cycles, and the evolution of these cycles and Earth's redox balance through geologic time. (Also offered as Ocean Sciences 213. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Upper-division undergraduates may enroll with instructor approval. College-level chemistry and an upper-division course in at least one relevant discipline are recommended. M. Delaney

220. Ground Water Modeling. *
Introduction to building and using models to solve hydrogeologic problems. Modeling methods include mainly analytical and finite-difference. Emphasis on using models rather than the details of their functioning, although some coding is required. Comfort with mathematical methods and computers expected. Course designed for graduate students, but available to qualified Earth science majors. Prerequisite(s): graduate standing or permission of instructor required. One year of calculus and courses in differential equations and basic hydrologic principles are recommended as preparation. Offered in alternate academic years. A. Fisher

229. Isotopic Methods in Environmental Science. *
Explores how natural variations in stable isotope ratios answer questions in ecology,

paleobiology, and other environmental sciences. Format includes lectures by the instructor and student presentations on applications following literature-based research on each topic. Enrollment restricted to graduate students. Enrollment limited to 25. P. Koch

240. Communicating Science (3 credits). F
Introduces inquiry-based instructional strategies for communicating a passion for science. These strategies, combined with content knowledge and enthusiasm for sharing it, equips college students to introduce science to K-8 students and teachers in local schools. Enrollment restricted to graduate students. Enrollment limited to 20. A. Paytan

254. The Climate System. S
Focuses on atmospheric and oceanic processes that are important within the Earth's climate system, especially those that operate on annual to centennial time scales. Format includes lectures by the instructors, paper readings, and discussion. Enrollment restricted to graduate students. Offered in alternate academic years. P. Chuang

258. Deep Time Paleoclimates. *
Weekly lectures/readings/presentations focused on the key events in the long-term evolution of Earth's climate (i.e., before the Pliocene), including early Archean, faint, young-sun period; Proterozoic snowballs; Paleozoic glaciations and greenhouse events; the mid-Cretaceous oceanic anoxic events (OAEs); and Paleogene thermal maxima and glacial intervals. Considerable emphasis on evaluating the proxies of climate and mechanisms of climate change (e.g., greenhouse gasses, paleogeography). Enrollment restricted to graduate students. Enrollment limited to 15. Offered in alternate academic years. J. Zachos

260. Introductory Data Analysis in the Ocean and Earth Sciences. W
Introduces data analysis methods regularly encountered within the ocean and earth sciences. Topics include: error propagation; least squares analysis; data interpolation methods; empirical orthogonal functions; and Monte Carlo methods applied to problems drawn from oceanographic and earth sciences datasets. Introduces and uses a high-level computing and visualization package, MATLAB. Student project consists of analysis of the student's own dataset. (Also offered as Ocean Sciences 260. Students cannot receive credit for both courses.) Prerequisite(s): previous course in ocean or earth sciences is recommended. Enrollment restricted to graduate students; undergraduates with permission of instructor. C. Edwards

262. Planetary Interiors. W
The chemical and thermal structure and evolution of silicate planet interiors. Topics include equation of state of mantle and core materials, thermal history of the mantle and core, dynamics of mantle convention, geophysical determination of interior structure. Students cannot receive credit for this course and course 162. Enrollment restricted to graduate students. Enrollment limited to 20. Offered in alternate academic years. I. Garrick-Bethell

263. Planetary Surfaces. *
Comparative study of surfaces of planetary bodies in our solar system, focusing on comparative planetology and geophysical processes at work, including differentiation; on-impact cratering; tectonics; volcanism and geomorphic evolution; and exobiology. Explores terrestrial planets, giant planets and their moons, and trans-Neptunian objects, focusing on modern exploration. Students cannot receive credit for this course and course 163. Enrollment restricted to graduate students. Offered in alternate academic years. W. Nimmo

264. Planetary Atmospheres. *
Quantitative study of the origin, chemistry, dynamics, and observations of the atmospheres of terrestrial and gas giant planets. Students cannot receive credit for this course and course 164. Enrollment restricted to graduate students. W. Nimmo

265. Order of Magnitude Estimation. *
Practice in making rough estimates and leading-order approximations in physical and chemical processes. Enrollment restricted to graduate students. Offered in alternate academic years. W. Nimmo, P. Chuang

266. Geologic Signal Processing and Inverse Theory. *
Theoretical and practical aspects of digital signal analysis including data sampling, spectral estimation, digital filtering, statistical estimation, correlation tools, and principle-component analysis. Emphasis on practical examples of geophysical time series.

Multivariable calculus and linear algebra are required and used extensively in the course. (Formerly Geological Signal Processing.) Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. E. Brodsky

270. Global Seismology. *
Introduction to quantitative earthquake and global Earth structure seismology. Topics include basic elasticity, wave characteristics, seismic ray theory, wave reflection, surface waves, normal modes, seismic instrumentation, application of seismic waves to reveal Earth structure and resulting models, representation of earthquake sources such as explosions and faulting, earthquake rupture scaling, modern methods of modeling seismic recordings to study source complexity, and an introduction to seismotectonics. Laboratory: 3 hours. Enrollment restricted to graduate students. Offered in alternate academic years. T. Lay

271. Current Research Topics in Deep Earth Processes. **
Students and instructor lead discussions of recent and significant publications in geophysics and chemistry of deep Earth. Articles structured around current theme of interest are selected by participants and approved by instructor. Emphasis on defining multidisciplinary significance of each article and its relationship to fundamental processes in deep Earth, including core and mantle. Designed for graduate students but available to qualified Earth sciences majors. May be repeated for credit. T. Lay

272. Geophysical Fluid Dynamics. *
Introduces fluid motion influenced by rotation. Topics include the Coriolis force, geostrophic flow, potential vorticity, the shallow water model, quasigeostrophic approximation, planetary waves, Ekman theory, thermal wind, models of the large-scale oceanic and atmospheric circulation, and equatorial dynamics. Students cannot receive credit for this course and course 172. (Also offered as Ocean Sciences 272. Students cannot receive credit for both courses.) Physics 227 is recommended as preparation. Enrollment restricted to graduate students. Offered in alternate academic years. C. Edwards

275. Magnetohydrodynamics. *
Study of fluid dynamics and magnetic fields with a focus on convection and magnetic field generation in planets and stars. Students develop a computer program for modeling magneto-convection. Computer programming experience required. Enrollment restricted to graduate students. Offered in alternate academic years. The Staff

278A. Advanced Seismology. *
Elastic wave propagation. Advanced topics in ray theory, WKBJ solutions in seismology, singularities and nonlinearities, surface wave theory, propagating matrices, normal modes, and inversion theory. Selected topics in time series analysis and seismic signal processing, seismic wave dispersion. Course designed for graduate students but available to qualified Earth sciences majors. Physics 110B and 114B are recommended as preparation. Enrollment restricted to graduate students. May be repeated for credit. T. Lay

280D. Short Course in Atmospheric/Climate Science (3 credits). **
Addresses specialized topics in atmospheric and/or climate science that are too narrow for a full (5-credit) format. Examples include: cloud physics; atmospheric boundary layer; aerosol physics and chemistry; atmospheric radiation; atmospheric thermodynamics. Enrollment restricted to graduate students. May be repeated for credit. P. Chuang

290. Proseminar.
Special topics offered from time to time by visiting professors or staff members. May be repeated for credit. The Staff

290B. Topics in Glaciology. F
Advanced review of the physics and chemistry of ice and snow. Mass and heat balance of ice masses. Motion of glaciers and ice sheets. Subglacial and englacial hydrology. Thermodynamics of ice masses and the linkage to climate. Enrollment restricted to graduate students. May be repeated for credit. S. Tulaczyk

290C. Topics in Geophysics. F
Different problems and approaches will be stressed from year to year such as geotectonics, paleomagnetism, or properties and processes in the mantle and core. Enrollment restricted to graduate students; qualified Earth sciences majors by permission of instructor. I. Garrick-Bethell

290D. Petrology and Plate Tectonics. *
Selected topics illustrating relationships between igneous and metamorphic rocks and plate tectonics are explored in detail. Designed for graduate students but available to qualified Earth sciences majors. May be repeated for credit. The Staff

290E. Topics in Planetary Science. *
We examine one well-defined topic in planetary science, beginning with a summary of current knowledge and concluding with the latest research literature. Topics will vary from year to year and may include planetary collisions, terrestrial planets, origin of planetary systems, small bodies, the New Mars, and satellites of Jupiter. Achievement will be evaluated based on class participation, exams, and a research project. Open to undergraduate majors with permission of instructor. Enrollment restricted to graduate students. May be repeated for credit. The Staff

290F. Topics in Coastal Processes (2 credits). F,W,S
Instructor and students lead discussions and make presentations on current research, problems, and publications in coastal processes. These topics include littoral drift, sediment transport and storage on the inner shelf, shoreline erosion/change and its documentation, and related issues. Enrollment restricted to graduate students. May be repeated for credit. G. Griggs

290G. Topics in Global Tectonics. *
Explores different problems of special interest in global tectonics with the approach of integrating marine and terrestrial geologic and geophysical information. Course designed for graduate students but available to qualified Earth sciences majors. May be repeated for credit. E. Silver

290H. Topics in Hydrogeology. *
Selected topics in groundwater, hydrothermal systems, and related subjects. Discussion of theoretical models, field and laboratory approaches, and recent research. Topics vary from year to year. Course designed for graduate students but available to qualified Earth sciences majors. Offered in alternate academic years. May be repeated for credit. A. Fisher

290I. Topics in Geomorphology. S
Discussion of journal articles focused on a theme in contemporary geomorphology. Topics include: coupling of climate; tectonics and landscape evolution; mechanics of bedrock river channels; fundamentals of fluvial gravel transport; and inference of tectonic rates and processes from analysis of topography. Enrollment restricted to graduate students; qualified undergraduates may enroll by permission of instructor. May be repeated for credit. N. Finnegan

290J. Topics in Earthquake Physics. *
Why do earthquakes happen? Topics include friction, fracture, earthquake triggering, stress in the crust, observed source scalings, and seismicity statistics. Emphasis on observations and current research topics. Enrollment restricted to graduate students and advanced undergraduates. E. Brodsky

290K. Paleontology Seminar (3 credits). *
Seminar discussion based on current readings in the literature around some topic in the history and evolution of life. Course designed for graduate students but available to qualified upper-division science students. Offered in alternate academic years. May be repeated for credit. M. Clapham, P. Koch

290L. Topics in Climate Change. *
Explores current issues and recent developments in the field of past, present, and future climate change. Topic is different each year, but focuses on the interaction between different components of Earth's environment and the effect of that interaction on climate change. Designed for graduate students but open to qualified undergraduates. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. L. Sloan

290M. Topics in Atmospheric Science. *
Selected topics encompassing atmospheric physics and chemistry. Topics vary from year to year. Sample topics include: atmospheric physics, atmospheric chemistry, boundary layer meteorology, aerosol science, and atmospheric thermodynamics. (Formerly Topics in

Atmospheric Chemistry.) Designed for graduate students, but qualified undergraduates may enroll with permission of instructor. May be repeated for credit. P. Chuang

290N. Topics in Mineral Physics. *
Selected topics encompassing the physics and chemistry of Earth's interior, planetary physics, high-pressure experimental geophysics and material properties at high pressure and temperature. Topics vary from year to year. Enrollment restricted to graduate students and qualified Earth sciences majors by permission of instructor.. May be repeated for credit. E. Knittle

290P. Interdisciplinary Topics in the Earth Sciences. *
An understanding of the chemical and physical properties and processes in the earth is sought by integrating information from several subdisciplines in the Earth sciences. Topics vary from year to year, focusing on areas of active research. Course designed for graduate student but available to qualified Earth sciences majors. Prerequisite(s): graduate standing or permission of instructor. Course designed for graduate student but available to qualified Earth sciences majors. May be repeated for credit. S. Schwartz

290Q. Topics in Outer Solar System. *
Exploration of the planets and satellites beyond the asteroid belt, with an emphasis on the underlying physical processes at work. Course includes lectures, computer practicals, and student presentations. Enrollment restricted to graduate students. May be repeated for credit. W. Nimmo

290R. Topics in the Chemistry and Physics of the Earth. *
Explores problems and current research developments in the application of physics and chemistry to planetary interiors. Topics differ from year to year and include, but are not limited to, research related to the accretion, differentiation, evolution, and structure of the terrestrial planets. Course designed for graduate students but available to qualified Earth sciences majors. May be repeated for credit. Q. Williams

290T. Current Research Topics in Paleoceanography and Paleoclimatology. *
Students and instructor lead discussions of recent and significant problems in paleoceanography and paleoclimatology. Articles structured around current themes of interest are selected by the instructor. Emphasis on major climatic transitions or events which noticeably influenced evolution of biota. Course designed for graduate students but available to qualified Earth sciences majors. J. Zachos

290U. Topics in Thermochronology. *
Surveys the use of thermochronometry to quantify the rates of tectonic processes. Topics include heat conduction and diffusion; radioactive decay; analytical methods; and modeling of thermochronologic data. Seminars review seminal papers from the literature. Enrollment restricted to graduate students. Enrollment limited to 20. J. Hourigan

290X. Topics in Modeling Planetary Interiors. *
Introduces computer modeling of thermal convection in planetary interiors. Students learn to write and run a basic computer code using spectral and finite-difference methods, then are shown how to improve the numerical method and physics. Basic computer programming experience is required (for example, in Fortran, C, IDL, or MATLAB). Course designed for and enrollment restricted to graduate students, but available to qualified science majors. May be repeated for credit. G. Glatzmaier

292. Seminar (no credit). F,W,S
Weekly seminar attended by faculty, graduate students, and upper-division undergraduate students. The Staff

293. Graduate Research Seminar (1 credit). S
Weekly seminar series covering a broad spectrum of topics in the Earth sciences. Graduate students give 15- to 20-minute oral presentations on current or anticipated research. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Permission of instructor required. The Staff

297. Independent Study. F,W,S
Permission of instructor required. The Staff

298. Earth Sciences Internship. F,W,S
A supervised learning experience involving practical, graduate-level application of Earth sciences through working with approved companies, governmental agencies, or research organizations. Students consult weekly with supervising faculty and prepare a final report of their work. Consult sponsoring agency for enrollment criteria. After instruction on resume preparation and interview skills, students must interview and be selected for internship by approved sponsoring organizations. The Staff

299. Thesis Research. F,W,S
Permission of instructor required. The Staff

* Not offered in 2014-15

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Ecology and Evolutionary Biology

Ecology and Evolutionary Biology Department
A308 Earth and Marine Sciences
(831) 459-5358
http://www.eeb.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

EEB Faculty | EEB Program Statement

Lower-Division Courses

20B. Development and Physiology. F,W,S
Topics in morphology, physiology, development, genetics, and endocrinology selected to exemplify current issues and perspectives in organismic biology. Prerequisite(s): BIOL 20A. (F) M. Peterson, (WS) R. Dunkin

20C. Ecology and Evolution. F,W,S
Introduction to ecology and evolution covering principles of evolution at the molecular, organismal, and population levels. Evolutionary topics include genetic and phenotypic variation, natural selection, adaptation, speciation, and macroevolution. Also covers behavioral, population, and community ecology including applied ecological issues. B. Marinovic

75. Scientific Diving Certification (2 credits). F,S
Prerequisite for course 161/L, Kelp Forest Ecology, and all research diving performed under the auspices of UCSC or other academic institutions. Course work includes lectures and scuba diving. Topics include subtidal sampling techniques, navigation, low visibility diving, search and recovery, rescues, small boat use, oxygen administration for divers, technical blue water deep diving, physics, and physiology. Apply online at http://www2.ucsc.edu/sci-diving. Students are billed a course materials fee that covers costs for equipment use, materials, and transportation. Prerequisite(s): skill level equal to Advanced Scuba Diver Certification, pass scuba physical, provide own scuba gear, be certified in CPR and First Aid; and interview: pass swim test and scuba skills test. Enrollment limited to 16. S. Clabuesch

80S. Lies, Damn Lies, and Statistics. *
Probability and statistics underlie much of our everyday experience and, as such, there is a fundamental need for an understanding of the use, and misuse, of statistics. This course is taught through case studies based in biology, politics, economics, crime, education, disease, conservation, and other fields of interest. For example, does a change in crime rate really affect your probability of being a victim of a crime? The goal is to provide all students with sufficient understanding probability and statistics to determine if everyday and often sensationalistic reporting of "statistical" results is meaningful. (General Education Code(s): SR.) P. Raimondi

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

85. Natural History of the UCSC Natural Reserves. *
Lectures and field trips familiarize students with the flora and fauna of the UCSC Natural Reserves. Field trips focus on surveying and identifying vertebrates and plants at each UCSC Natural Reserve (Fort Ord, Campus Reserve, Big Creek, Younger Lagoon, and Ano Nuevo). (General Education Code(s): PE-E.) The Staff

95. Seymour Center Docent Training (2 credits). W
Taught as a series of seminars, course provides a survey of marine sciences and the role of scientific research in understanding and conserving the world's oceans. Topics include: marine biology, ecology, conservation, coastal geology, and climate change. This series is intended to prepare students to interpret research and inform the public by leading tours at the Seymour Marine Discovery Center at the Long Marine Lab. Enrollment by application and interview. (General Education Code(s): PR-S.) M. Carr

99. Tutorial. F,W,S
Individual, directed study for undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

107. Ecology. W,S
Focuses on physiological, behavioral, and population ecology, and on linking ecological processes to evolution. It includes basic principles, experimental approaches, concepts of modeling, and applications to ecological problems. Prerequisite(s):satisfaction of the Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, and BIOE 20C. (W) B. Lyon, (S) J. Estes

108. Marine Ecology. W
Paradigms and designs in marine ecology. A review of the paradigms that have shaped our understanding of marine ecology; analysis and discussion of experiments with these paradigms. Students cannot receive credit for this course and course 208. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, and BIOE 20C; BIOE 107 or 140 recommended. Enrollment restricted to juniors and seniors. M. Carr, P. Raimondi

109. Evolution. F,W
An examination of the history and mechanisms of evolutionary change. Topics include molecular evolution, natural and sexual selection, adaptation, speciation, biogeography, and macroevolution. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, BIOE 20C, and BIOL 105. (F) K. Kay, (W) G. Pogson

112. Ornithology. *
Introduction to the evolution, ecology, behavior, and natural history of birds, using exemplary case histories to illustrate key concepts in evolution, ecology, and behavior. Prerequisite(s): BIOE 107, BIOE 109, or BIOE 140. Concurrent enrollment in BIOE 112L is required. B. Lyon

112L. Ornithology Field Studies (2 credits). *
Field trips introduce students to field identification skills and field investigation of census, foraging behavior, migration, social behavior, and communication. Examination of specimens in the laboratory will be used to highlight the diversity and taxonomy of birds. Students are billed a materials fee. Some field trips may require students to provide their own transportation. Prerequisite(s): BIOE 107, BIOE 109, or BIOE 140. Concurrent enrollment in BIOE 112 is required. Offered in alternate academic years. B. Lyon

114. Herpetology. *
Lectures introduce students to evolution, development, physiology, behavior, ecology, and life history of reptiles and amphibians. The materials integrate with conceptual and theoretical issues of ecology, evolution, physiology, and behavior. Prerequisite(s): BIOE 107, BIOE 109, BIOE 110, or BIOE 140. Concurrent enrollment in BIOE 114L required. Offered in alternate academic years. B. Sinervo

114L. Field Methods in Herpetological Research (2 credits). *
Field trips introduce students to natural history, censusing techniques, physiological ecology, and behavioral analysis of reptiles and amphibians. Laboratories introduce

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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students to techniques for analyzing behavior and physiology. Field studies culminate with a group project in a natural setting. Some field trips may be held on weekends due to weather considerations. Some field trips may require students to provide their own transportation, some transportation will be provided by UCSC. Students are billed a materials fee. Prerequisite(s): BIOE 107, 109, 110, or 140. Concurrent enrollment in BIOE 114 is required. Offered in alternate academic years. B. Sinervo

117. Systematic Botany of Flowering Plants. W
An examination of the taxonomy and evolution of flowering plants. Special topics include phylogenetics and cladistics, plant species concepts, and modern methods of systematic research. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Must be taken concurrently with BIOE 117L. K. Kay

117L. Systematic Botany of Flowering Plants Laboratory (2 credits). W
Weekly laboratory concerned primarily with California flora and plant families. Several field trips. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Must be taken concurrently with BIOE 117. K. Kay

118. Plants and Society: the Biology of Food, Shelter, and Medicine. S
Introduces plant biology as it affects human society. Topics include the origins of agriculture, the morphology and chemistry of food plants, the material uses of plant products, the biology of medicinal plants, and plant diversity and bioprospecting. Prerequisite(s): BIOL 20A and BIOE 20B; and BIOE 20C or ENVS 23 and ENVS 24 J. Pittermann, I. Parker

120. Marine Botany. S
An introduction to the biology of marine algae, fungi, and angiosperms with regard to form and function. Major boreal, temperate, and tropical marine plant communities. Lecture format. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Must be taken concurrently with BIOE 120L. The Staff

120L. Marine Botany Laboratory (2 credits). S
One laboratory weekly and several field trips. Focuses on marine algae, fungi, and angiosperms. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Must be taken concurrently with BIOE 120. The Staff

122. Invertebrate Zoology. W
An examination of invertebrates and their habitats. Lecture format. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. BIOE 122L must be taken concurrently. B. Marinovic

122L. Invertebrate Zoology Laboratory (2 credits). W
An examination of invertebrates and their habitats. Weekly laboratories or field trips. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. BIOE 122 must be taken concurrently. B. Marinovic

124. Mammalogy. F
Introduces the biology of mammals, including their classification, evolution, behavior, reproductive strategies, and general ecology. Examines the diagnostic traits of mammals; provides a survey of the living orders along with their diagnostic features, physiological and behavioral specializations, and adaptations. Prerequisite(s): BIOL 20A; and BIOE 20B and 20C. Concurrent enrollment in course 124L is required. The Staff

124L. Mammalogy Laboratory (2 credits). F
Focuses on the identification of mammals and their specific traits. Exercises provide hands-on experience at identifying mammal orders, families, and species. Field trip provides students with field techniques in mammalogy. Prerequisite(s): BIOL 20A; and BIOE 20B and 20C. Concurrent enrollment in course 124 is required. The Staff

127. Ichthyology. *
An introduction to the biology of jawless, cartilaginous, and bony fishes—their classification, evolution, form, physiology, and ecology. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. BIOE 127L must be taken concurrently. Offered in alternate academic years. G. Bernardi

127L. Ichthyology Laboratory (2 credits). *
One laboratory session a week and several field trips to study the biology of fish. Students

are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. BIOE 127 must be taken concurrently. Offered in alternate academic years. G. Bernardi

128. Ecology and Physiology of Large Marine Vertebrates. S
Lectures and laboratory computer exercises familiarize students with research methods, study design, statistics, and research tools for large marine vertebrates (seals, birds, fish, and sharks). Research topics include: animal tracking; diving physiology; behavior; foraging ecology; and energetics. Prerequisite(s): BIOL 20A; and BIOE 20B and 20C. P. Robinson

128L. Large Marine Vertebrates Field Course. S
Lectures combined on fieldwork with large marine vertebrates in the laboratory and lectures with large marine vertebrates in the field (Monterey Bay, Ano Nuevo). Fieldwork familiarizes students with research methods, study design, and statistical approaches for research on large marine vertebrates (seals, birds, fish, and sharks). Research includes: animal tracking; physiology; behavior; foraging ecology; and energetics. Students are billed a materials fee. Prerequisite(s): BIOL 20A; and BIOE 20B, 20C, and 128. Enrollment limited to 24. P. Robinson

129. Biology of Marine Mammals. S
A survey of cetaceans, pinnipeds, sirenians, and sea otters, including natural history, systematics, physiology, behavior, anatomy, and conservation. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C; BIOL 110 is recommended. D. Costa

129L. Biology of Marine Mammals Laboratory (2 credits). S
Covers the basics of marine mammal taxonomy, anatomy, and field methods with an emphasis on local field identification and understanding of local species. Will include field trips to Long Marine Lab, Ano Nuevo, and Monterey Bay. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Must be taken concurrently with BIOE 129. D. Costa

131. Animal Physiology. W
Principles and concepts underlying the function of tissues and organ systems in animals with emphasis on vertebrate systems. Students cannot receive credit for this course and BIOL 130. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. R. Mehta, T. Williams

131L. Animal Physiology Laboratory (2 credits). W
Experiments conducted with primary focus on quantitative physiological principles of organ systems and intact organisms. Students cannot receive credit for this course and course 130L. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Concurrent enrollment in BIOE 131 is required. R. Mehta, T. Williams

133. Exercise Physiology. S
An advanced-level course concerning physiological and biochemical processes associated with human performance. Emphasis is on the integration of organ systems for exercise. Topics include metabolism and fuel utilization, cardiovascular and respiratory dynamics during activity, and the effects of training. Requires a good understanding of basic physiological function and anatomy. Prerequisite(s): BIOL 20A, BIOE 20B and 20C. BIOE 131 recommended. Concurrent enrollment in BIOE 133L required. Offered in alternate academic years. T. Williams

133L. Exercise Physiology Laboratory (2 credits). S
An introduction to basic measurement techniques used in assessing the physiological response of humans to exercise. Sessions cover oxygen consumption, respiratory rate, and heart rate monitoring during aerobic and anaerobic activity. Students are billed a materials fee. Prerequisite(s): BIOL 20A, and BIOE 20B and 20C. BIOE 131 recommended. Concurrent enrollment in BIOE 133 is required. Offered in alternate academic years. T. Williams

134. Comparative Vertebrate Anatomy. F
Course focuses on vertebrate form and function: an integration of physiology and biomechanics. Topics include: the physiology and biomechanics underlying vertebrate locomotion; vertebrate feeding; and the morphological changes associated with different locomotion and feeding strategies through evolutionary time. Prerequisite(s): BIOL 20A, BIOE 20B and BIOE 20C; Physics 6A. Concurrent enrollment in BIOE 134L is required. R. Mehta

134L. Comparative Vertebrate Anatomy Laboratory (2 credits). F

Course focuses on the gross dissections all major clades of vertebrates: development, form, and diversity of organ systems and basic principles of evolution; vertebrate classification; and functional morphology, with emphasis on feeding and locomotion. Anatomical dissections integrated with the associated lecture material focusing on biomechanics, form, and function. Students are billed for a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B and BIOE 20C; Physics 6A. Concurrent enrollment in BIOE 134 is required. R. Mehta

135. Plant Physiology. W
Cellular and organismal functions important in the life of green plants. Prerequisite(s): BIOL 20A and BIOE 20B and 20C; concurrent enrollment in course 135L is required. J. Pittermann

135L. Plant Physiology Laboratory (2 credits). W
Weekly laboratory concerning the cellular and organismal functions of green plants. Students are billed a materials fee. Prerequisite(s): BIOL 20A and BIOE 20B and BIOE 20C; concurrent enrollment in course 135. J. Pittermann

137. Molecular Ecology. W
This combination lecture/laboratory course explores the use of molecular (DNA and/or protein) data in ecological and conservation research. Topics covered include data collection; marker choice; estimating genetic diversity and population structure; the inference of mating systems; and environmental genomics. Prerequisite(s): courses 20B and 20C and BIOL 20A and BIOL105 Concurrent enrollment in course 137L is required. Enrollment limited to 24. B. Shapiro

137L. Molecular Ecology Laboratory (2 credits). W
This combination lecture/laboratory course explores the use of molecular (DNA and/or protein) data in ecological and conservation research. Topics covered include data collection; marker choice; estimating genetic diversity and population structure; the inference of mating systems; and environmental genomics. Prerequisite(s): courses 20B and 20C and BIOL 20A and BIOL105. Concurrent enrollment in course 137 is required. Enrollment limited to 24. B. Shapiro

140. Behavioral Ecology. F
An introduction to social and reproductive behavior. Emphasis on studies of vertebrates in their natural habitat. Ideas concerning the evolution of social behavior, mating systems, and individual reproductive strategies. Case histories of well-studied animals that illustrate key principles in courtship and mating, parental behavior, and food-getting behavior. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. B. Sinervo

141L. Behavioral Ecology Field Course. W
A field-based course introducing students to concepts and methods for studying behavioral ecology in nature. Students will conduct observations and field experiments on various local model organisms including elephant seals, hummingbirds, sparrows, lizards, ants, bees, frogs, and salamanders. Students are billed a materials fee. Prerequisite(s): BIOE 107 or BIOE 140 or BIOE 110; satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 25. Offered in alternate academic years. (General Education Code(s): W.) B. Sinervo, B. Lyon

145. Plant Ecology. F
An exploration of the ecology of plant form, function, distribution, abundance, and diversity. Topics include plant adaptations to environmental conditions, life history variation, competition, reproductive ecology, herbivory, and patterns of diversity. Lecture with discussions of original papers and independent field project. Students cannot receive credit for this course and course 245. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. BIOE 107 is recommended. I. Parker

145L. Field Methods in Plant Ecology. F
Hands-on exploration of the concepts and techniques of plant ecology. A combination of lab, greenhouse, and field-based exercises (irrespective of weather conditions). Statistical analysis and scientific writing. One required weekend field trip. Students cannot receive credit for this course and course 245L. Students are billed a materials fee. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, and BIOE 20C. Concurrent enrollment in BIOE 145 is required. BIOE 107 is recommended. (General Education Code(s): W.) I. Parker

147. Community Ecology. S
Develops the major themes of community biology: structure, trophic dynamics, succession, complex interactions among species, herbivory, evolution and coevolution. Uses case histories of well-studied marine and terrestrial systems. Students cannot receive credit for this course and course 247. Prerequisite(s): BIOE 107, 108, 145, 155 or 159A; or Environmental Studies 24 by permission of instructor. L. Fox

148. Quantitative Ecology. *
Quantitative treatment of the central concepts and applications of theoretical ecology. Emphasis on the mathematical modeling of single populations and species interactions, and the integration of models with data. Topics include stochastic and deterministic processes of extinction; discrete- and continuous-time models of growth and population viability analysis relevant to small and harvested populations; numeric and analytical investigations of dynamics and stability; introduction to model-fitting in information theoretic framework using R and/or MATLAB. Prerequisite(s): BIOE 107. M. Tinker

149. Disease Ecology. S
Focuses on the ecological and evolutionary processes that drive the transmission of pathogens between hosts; the impact of disease on host populations; and what causes the emergence of an infectious disease. Includes theoretical framework, description of field techniques, and discussion of wildlife and human diseases including malaria, West Nile virus, Lyme disease, HIV, avian influenza (bird flu), Chikungunya, tuberculosis, chytridiomycosis, and Ebola. Prerequisite(s): BIOL 20A, and BIOE 20B and 20C and 107. A. Kilpatrick

150. Ecological Field Methods. S
Lectures and laboratory computer exercises designed to familiarize students with research methods, study design, statistical approaches, and analysis tools for ecological research. Students cannot receive credit for this course and Environmental Studies 104A. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C; concurrent enrollment in BIOE 150L is required. BIOE 107, 108, 140, or 147 recommended. Enrollment limited to 25. D. Croll

150L. Ecological Field Methods Laboratory. S
Field-oriented course in the study of animal ecology and behavior. Combines overview of methodologies and approaches to field research with practical field studies. Students are billed a materials fee. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C; concurrent enrollment in BIOE 150 is required. BIOE 107, 108, 140, or 147 recommended. Enrollment limited to 25. (General Education Code(s): W.) D. Croll

151A. Ecology and Conservation in Practice Supercourse: Ecological Field Methods. *
An intensive, on-site learning experience in terrestrial field ecology and conservation, using the University of California Natural Reserves. Students study advance concepts in ecology, conservation, and field methods for four weeks, then experience total immersion in field research at the UC Natural Reserves. Lectures, field experiments, and computer exercises familiarize students with research methods, study design, statistical approaches, and analytical tools for ecological research. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151B-C-D or ENVS 109B-C-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Environmental Studies 109A. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

151B. Ecology and Conservation in Practice Supercourse: Ecological Field Methods Laboratory. *
Field-oriented course in ecological research. Combines overview of methodologies and approaches to field research with practical field studies. Students complete field projects in ecology and also learn the natural history of the flora and fauna of California. Students are billed a materials fee. Enrollment by application. Prerequisite(s): Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-C-D or ENVS 109A-C-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as

Environmental Studies 109B. Students cannot receive credit for both courses.) (General Education Code(s): W.) D. Croll, E. Zavaleta

151C. Ecology and Conservation in Practice Supercourse: Functions and Processes of Terrestrial Ecosystems. *
From lectures and discussion of terrestrial community and ecosystem ecology, students work individually or in small groups to present an idea for a project, review relevant literature, develop a research question/hypothesis, design and perform an experiment, collect and analyze data, and write a report. The instructor evaluates the feasibility of each student's project before it begins. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-B-D or ENVS 109A-B-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Environmental Studies 109C. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

151D. Ecology and Conservation in Practice Supercourse: Conservation in Practice. *
Focuses on current issues in environmental and conservation biology and the emerging field methods used to address them. From field-oriented lectures about current issues in environmental and conservation biology, students pursue research project as individuals and small groups to develop hands-on experience with field skills in conservation research and resource management. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-B-C or ENVS 109A-B-C is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Environmental Studies 109D. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

155. Freshwater Ecology. F
Provides an overview of the physical, chemical, and biological processes that characterize inland waters such as lakes, streams, rivers, and wetlands. Also addresses relationships between humans and freshwater, and discusses these challenges in conservation. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. E. Palkovacs

155L. Freshwater Ecology Laboratory. S
Field and laboratory study of the ecology of freshwater systems including lakes, streams, and estuaries. Students gain experience sampling and identifying freshwater organisms, designing and analyzing ecological experiments, and writing scientific reports. Enrollment limited to 24. E. Palkovacs

158L. Marine Ecology Laboratory. *
Supervised individual research projects in experimental marine biology. Students carry out a complete research project, including (1) the formation of hypotheses; (2) the design and implementation of experiments; (3) collection, analysis, and interpretation of data; and (4) write-up of an oral presentation. Students are billed a materials fee. Prerequisite(s): BIOE 108; satisfaction of the Entry Level Writing and Composition requirements. Offered in alternate academic years. (General Education Code(s): W.) M. Carr, P. Raimondi

159A. Marine Ecology Field Quarter: Marine Ecology with Laboratory. F
Total immersion in marine ecology for very motivated students. Students develop a research project during first five weeks on campus and then spend five weeks of immersion in directed research without distraction in isolated locations off campus (past locations include the Gulf of California in Mexico and Moorea in French Polynesia). Not available through University Extension. No other courses may be taken during this quarter. Students must sign a contract agreeing to standards of behavior outlined in the UCSC Rule Book and by the instructors. Students are billed a materials, transportation (not airfare), and room and board fee. Paradigms and designs in marine ecology. A review of the paradigms that have shaped our understanding of marine ecology and analysis and discussion of experiments with these paradigms. Students carry out a complete research project, including the formation of hypotheses; the design and implementation of experiments; the collection, analysis, and interpretation of data; and the write-up and oral presentation of results. Admission by interview during previous winter quarter. BIOE 159A, 159B, 159C,

and 159D are equivalent to BIOE 127, 127L, 108, and 158L for major requirements. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; BIOE 159A, 159B, 159C, and 159D must be taken concurrently. Enrollment limited to 26. Offered in alternate academic years. (General Education Code(s): W.) P. Raimondi, G. Bernardi

159B. Marine Ecology Field Quarter: Ichthyology with Laboratory. F
An introduction to the biology of jawless, cartilaginous, and bony fishes—their classification, evolution, form, physiology, and ecology. Admission by interview during previous winter quarter. BIOE 159A, 159B, 159C, and 159D are equivalent to BIOE 127, 127L, 108, and 158L for major requirements. BIOE 159A, 159B, 159C, and 159D must be taken concurrently. Enrollment limited to 26. Offered in alternate academic years. P. Raimondi, G. Bernardi

159C. Marine Ecology Field Quarter: Methods in Field Ecology. F
Students learn quantitative methods for field experiments and surveys. Emphasis will be on marine environments, but there will also be exposure to terrestrial systems. This is the lecture component to course 159D. No text is required for this course; instead, readings from the current literature will be assigned. Students are evaluated on written independent field project proposals and class participation. Admission by interview during previous winter quarter. BIOE 159A, 159B, 159C, and 159D are equivalent to BIOE 127, 127L, 108, and 158L for major requirements. BIOE 159A, 159B, 159C, and 159D must be taken concurrently. Enrollment limited to 26. Offered in alternate academic years. P. Raimondi, G. Bernardi

159D. Marine Ecology Field Quarter: Methods in Field Ecology Laboratory. F
This is laboratory portion of course 159C. Students carry out independent field projects under the supervision of course instructors. All work is done during the 5–6 week off-campus portion of course 159. Students are evaluated on field techniques, the final write-up of their independent field projects, and class participation. Admission by interview during previous winter quarter. BIOE 159A, 159B, 159C, and 159D are equivalent to BIOE 127, 127L, 108, and 158L for major requirements. BIOE 159A, 159B, 159C, and 159D must be taken concurrently. Enrollment limited to 26. Offered in alternate academic years. P. Raimondi, G. Bernardi

161. Kelp Forest Ecology. *
Study of organization of kelp forests as models for examining biological communities. The physical and biotic factors responsible for community organization of kelp forests are explored using original literature and data collected in BIOE 161L. Class meets one full morning each week. Prerequisite(s): by interview only; BIOL 20A, BIOE 20B, and BIOE 20C are required. Students must pass the University Research Diving Certification (contact the diving safety officer, Institute of Marine Sciences, for further information). Enrollment restricted to seniors. BIOE 161L must be taken concurrently; BIOE 107, 120/L, 122/L are recommended. Enrollment limited to 24. Offered in alternate academic years. M. Carr, P. Raimondi

161L. Kelp Forest Ecology Laboratory. *
Fieldwork using SCUBA to quantitatively and qualitatively examine the abundance and distribution of organisms in kelp forests, with additional laboratory work. Culminates with a directed individual research project. Class meets one full morning each week. Students are billed a materials fee. Admission by interview. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C; satisfaction of the Entry Level Writing and Composition requirements; BIOE 161 must be taken concurrently; BIOE 107, 120/L, 122/L are recommended. Students must pass the University Research Diving Certification (contact the Diving Safety Officer, Institute of Marine Sciences, for further information). Enrollment limited to 24. Offered in alternate academic years. (General Education Code(s): W.) M. Carr, P. Raimondi

163. Ecology of Reefs, Mangroves, and Seagrasses. W
Integrated treatment of coral reefs, sea grasses, and mangroves emphasizing interactions and processes through time. Major topics: biological and geological history, biogeography, evolution and ecology of dominant organisms, biodiversity, community and ecosystem ecology, geology, biogeochemistry, global change, human impacts. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Concurrent enrollment in BIOE 163L is required. D. Potts

163L. Ecology of Reefs, Mangroves, and Seagrasses Laboratory (2 credits). W

An interdisciplinary laboratory exploration of the anatomy, morphology, adaptations, diversity, evolution, and ecology of corals, mangroves, and seagrasses and of their physical, chemical, and geological environments. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C. Concurrent enrollment in BIOE 163 is required. D. Potts

165. Marine Conservation Biology. F
Initially undertakes an in-depth comparison of the biology and conservation of marine versus terrestrial ecosystems. With this foundation, course examines marine biodiversity loss resulting from overexploitation, habitat loss, species introduction, and pollution, with particular emphasis on the resulting trophic cascades, biodiversity losses, and climate change. Students cannot receive credit for this course and Environmental Studies 120. Prerequisite(s): BIOL 20A, BIOE 20B, and BIOE 20C; OCEA 101 recommended. D. Croll

172. Population Genetics. F
Basic population genetics and selected topics will be covered, including genetics of speciation, tempo and mode of evolution, genetics of social behavior, natural selection in human populations, and the impact of molecular studies on evolutionary theory. Students cannot receive credit for this course and BIOE 272. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C, and BIOL 105. Concurrent enrollment in BIOE 172L is required. Offered in alternate academic years. G. Pogson

172L. Population Genetics Laboratory (2 credits). F
A companion course to 172, Population Genetics, that applies the theory developed in that course to related disciplines including conservation biology, ecology, agriculture, and population biology. Original scientific literature relating to the theory developed in BIOE 172 is read, and applied problem sets are solved by the students. Students cannot receive credit for this course and BIOE 272L. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C, and BIOL 105. Concurrent enrollment in BIOE 172 is required. Offered in alternate academic years. G. Pogson

182F. Exploring Research in EEB (2 credits). *
Provides undergraduate students with exposure to research in the laboratory of an Ecology and Evolutionary Biology (EEB) faculty member, affiliate, or adjunct. Students are not expected to do independent research but rather to assist in laboratory or field research projects under the supervision of the faculty mentor or appointed researcher. Prerequisite(s): Undergraduate research contract on file with the department. M. Carr

183L. Undergraduate Research in EEB (3 credits). *
Designed to ensure that students are intellectually engaged in the planning or implementation of a supervised or independent research project, achieve a fundamental understanding of implementing the scientific method, and develop their scientific writing and and presentation skills. Prerequisite(s): concurrent enrollment in course 183W and an Undergraduate Research Contract on file with the department. (General Education Code(s): W satisfied by taking this course and course 183W.) The Staff

183W. Undergraduate Research in EEB--Writing (2 credits). F,W,S
Ensures that students are intellectually engaged in the planning or implementation of a supervised or independent research project, achieve a fundamental understanding of implementing the scientific method, and develop their scientific writing and presentation skills. (General Education Code(s): W satisfied by taking this course and course 183L.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and course 107, 108, or 109; and an undergraduate research contract on file with the department. Concurrent enrollment in course 183L required. D. Potts, B. Sinervo, M. Carr

188. Introduction to Science Writing. S
A rigorous examination and practice of the skills involved in writing articles about science, health, technology, and the environment for the general public. Covers the essential elements of news writing and explanatory journalism, including developing a story idea, interviewing scientists, fact checking, composition, and editing of multiple drafts about scientific research. (Also offered as Science Communication 160. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and C1, C2 requirements. Enrollment restricted to junior and senior biological sciences majors. Enrollment limited to 18. (General Education Code(s): W.) R. Irion

190. Senior Seminar (2 credits). S

Satisfies the senior exit requirement for all biological sciences majors. (Also offered as Biology: Molecular Cell & Dev 190. Students cannot receive credit for both courses.) J. Lee

193. Independent Research in EEB. F,W,S
Supervised undergraduate research on a project with an Ecology and Evolutionary Biology (EEB) faculty member, adjunct, or affiliate mentor. Prerequisites: course 183W and an undergraduate research contract on file with the department. M. Carr

193F. Independent Research in EEB (2 credits). *
Supervised undergraduate research on a project with an Ecology and Evolutionary Biology (EEB) faculty member, adjunct, or affiliate mentor. Prerequisites: course 183W and an undergraduate research contract on file with the department. M. Carr

195. Senior Thesis. F,W,S
An individually supervised course, with emphasis on independent research. Students required to submit a senior thesis. Enrollment restricted to majors in biology, ecology and evolution, marine biology, plant sciences, and the combined major with environmental studies. Students submit petition to sponsoring agency. The Staff

198. Independent Field Study. F,W,S
Provides for individual programs of study (a) by means other than the usual supervision in person, or (b) when the student is doing all or most of the course work off campus. With permission of the department, may be repeated for credit, or two or three courses taken concurrently. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for two units of independent field study (a) by means other than the usual supervision in person, or (b) when the student is doing all or most of the course work off campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Reading, discussion, written reports, and laboratory research on selected biological topics, using facilities normally available on campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Two-unit Tutorial. Reading, discussion, written reports, and laboratory research on selected biological topics, using facilities normally available on campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200A. Scientific Skills. F
Exposes graduate students to teaching skills, understanding the scientific method, searching and organizing literature, grant proposal and scientific writing, data management and presentation, and scientific speaking. Students are evaluated on their participation and the quality of a written research proposal. Enrollment restricted to graduate students. M. Carr

200B. Advanced Organismal Biology. F
Consists of lectures focusing on pivotal topics in ecology and evolution. Relevant background material is developed followed by a critical analysis of readings from the primary literature. Designed to give graduate (and advanced undergraduate) students direct contact with the major areas of research that are currently at the forefront of organismal biology. Enrollment restricted to graduate students. B. Lyon, J. Estes, D. Costa

208. Marine Ecology. W
Paradigms and designs in marine ecology. A review of the paradigms that have shaped our understanding of marine ecology; analysis and discussion of experiments with these paradigms. Students cannot receive credit for this course and course 108. Enrollment restricted to graduate students. M. Carr

245. Plant Ecology. F
An exploration of the ecology of plant form, function, distribution, abundance, and

diversity. Topics include plant adaptations to environmental conditions, life history variation, competition, reproductive ecology, herbivory, and patterns of diversity. Lecture with discussions of original papers and independent field project. Students cannot receive credit for this course and course 145. Prerequisite(s): BIOE 107 or ENVS 24 or permission of instructor. Concurrent enrollment in BIOE 245L is required except by permission of instructor. Enrollment restricted to graduate students. I. Parker

245L. Field Methods in Plant Ecology Laboratory. F
Hands-on exploration of the concepts and techniques of plant ecology. A combination of lab, greenhouse, and field-based exercises (irrespective of weather conditions), statistical analysis, and scientific writing. One required weekend field trip. Students cannot receive credit for this course and course 145L. Concurrent enrollment in BIOE 245 is required. Enrollment restricted to graduate students. Enrollment limited to 2. I. Parker

247. Community Ecology. S
Develops the major themes of community ecology: structure, trophic dynamics, succession, complex interactions among species, herbivory, evolution, and coevolution. Uses case histories of well-studied marine and terrestrial systems. Students cannot receive credit for this course and course 147. Enrollment restricted to graduate students. L. Fox

258L. Experimental Marine Ecology. *
Supervised individual research projects in experimental marine biology. Students carry out a complete research project, including (1) the formation of hypotheses, (2) the design and implementation of experiments, (3) collection, analysis, and interpretation of data, and (4) the write-up of an oral presentation. Prerequisite(s): BIOE 208; and interview to assess ability to carry out field project. Enrollment limited to 20. Offered in alternate academic years. M. Carr, P. Raimondi

272. Population Genetics. F
Basic population genetics and selected topics are covered including genetics of speciation, tempo and mode of evolution, genetics of social behavior, natural selection in human populations, and the impact of molecular studies on evolutionary theory. Students cannot receive credit for this course and Biology 172. Concurrent enrollment in BIOE 272L is required. Enrollment restricted to graduate students. Offered in alternate academic years. G. Pogson

272L. Population Genetics Laboratory (2 credits). F
A companion course to 272, Population Genetics, that applies the theory developed in that course to related disciplines including conservation biology, ecology, agriculture, and population biology. Original scientific literature relating to the theory developed in course 272 is read, and applied problem sets are solved by the students. Students cannot receive credit for this course and course 172L. Must be taken concurrently with BIOE 272. Enrollment restricted to graduate students. Offered in alternate academic years. G. Pogson

274. Evolutionary Game Theory. W
Reviews static equilibrium concepts, games of incomplete information, and the traditional theory of dynamic games in discrete time. Develops recent evolutionary game models, including replicator and best reply dynamics, and applications to economics, computer science, and biology. Prerequisite(s): upper-division math courses in probability theory are strongly recommended. Cannot receive credit for this course and Economics 166B or Computer Science 166B. (Also offered as Computer Science 272. Students cannot receive credit for both courses.) B. Sinervo, The Staff

279. Evolutionary Ecology. W
Analysis of the ways in which ongoing evolution and coevolution shape the ecological structure and dynamics of populations, species, and species interactions across geographic landscapes. Enrollment restricted to graduate students. The Staff

281A. Topics in Basic and Applied Marine Ecology. F,W,S
Seminar focusing on concepts in basic and applied ecology. Structure rotates quarterly between graduate student research and readings of journal articles and textbooks. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. M. Carr

281B. Topics in Molecular Evolution (2 credits). F,W,S

A discussion of current research and literature review on the subject of molecular evolution. Primary focus on recent results on molecular phylogenetics and molecular population genetics. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. G. Bernardi

281C. Topics in Physiological Ecology. F,W,S
An intensive seminar focusing on the interaction between physiological constraint and life history options and solutions employed by animals. Topics vary from comparative physiology to ecological theory. Participants are required to present results of their own research or review papers of interest. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. D. Costa

281E. Topics in Freshwater Ecology. F,W,S
Current topics in freshwater ecology, eco-evolutionary dynamics, fisheries, and fish ecology. Enrollment restricted to graduate students. Qualified undergraduates may enroll with permission from instructor. Enrollment limited to 18. May be repeated for credit. E. Palkovacs

281F. Ecological Research Topics. F,W,S
Intensive research and discussions on plant-animal interactions. All students undertake a research project and meet weekly with the faculty sponsor to monitor progress. The group meets weekly to discuss experimental design and analysis, specific problems related to the students' research, relevant research papers, or manuscripts that the group members are writing. Each student gives a formal presentation of research plans or progress each quarter. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. L. Fox

281H. Topics in Comparative Marine Physiology. F,W,S
Intensive seminar on selected topics in marine physiology. Students present results from their own research and discuss recent advances from the literature. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. R. Mehta

281I. Topics in Disease Ecology, Population Biology, and Conservation. F,W,S
Selected topics in population biology and disease ecology. Students present results from their own research and discuss recent advances from the literature. (Formerly "Topics in Plant Population and Disease Ecology") Enrollment restricted to graduate students; qualified undergraduates may enroll by permission of instructor. Enrollment limited to 18. May be repeated for credit. A. Kilpatrick

281J. Topics in Research on Biochemical Ecology. *
Seminar in which students give critically evaluated presentations regarding current research on selected topics in plant ecology with an emphasis on biochemical ecology. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 12. May be repeated for credit. J. Langenheim

281K. Topics in Plant Evolution. F,W,S
Intensive seminar on selected topics in plant evolution. Students present results from their own research and discuss recent advances from the literature. Enrollment restricted to graduate students; qualified undergraduates may enroll by permission of instructor. Enrollment limited to 18. May be repeated for credit. K. Kay

281L. Topics in Behavioral and Evolutionary Ecology. F,W,S
An intensive seminar on selected topics in behavioral and evolutionary ecology. Students are expected to discuss the current literature and present literature reviews, research proposals, and preliminary results from their ongoing research. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. B. Lyon

281N. Topics in Marine Vertebrate Ecology. F,W,S
Seminar on the ecology of marine vertebrates. Topics vary from the factors that explain the distribution of marine predators to island biogeography and the ecosystem effects of introduced vertebrates on islands. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. D. Croll

281O. Topics in Plant-Water Relations. F,W,S
Intensive seminar focusing on fundamental and evolutionary concepts in plant-water relations. Students present results from their own research and discuss recent advances from the literature. Enrollment restricted to graduate students; qualified undergraduates may enroll by permission of instructor. Enrollment limited to 18. May be repeated for credit. J. Pittermann

281P. Topics in Plant Population Ecology. F,W,S
An intensive seminar on selected topics in plant ecology and population biology. Students present results from their own research and discuss recent advances from the literature. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission from instructor. Enrollment limited to 12. May be repeated for credit. I. Parker

281Q. Topics in Molecular Evolutionary Genetics. F,W,S
An intensive seminar on selected topics in molecular evolutionary genetics. Students are required to present results from their own research projects, present a critical review paper at least once during the quarter, and submit a written research proposal. Enrollment restricted to graduate students; qualified undergraduate students may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. G. Pogson

281R. Topics in Marine Ecology and Evolutionary Biology. F,W,S
An intensive seminar series focusing on fundamental concepts in marine ecology. Emphasis changes quarter to quarter. At least one quarter per year is devoted to discussion of graduate student research. Other quarters involve reading and evaluating current and classic literature on marine ecology and evolutionary biology. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. P. Raimondi

281S. Topics in Ancient DNA and Paleogenomics. F,W,S
Topics in population genetics and genomics, focusing on work involving paleontological and archaeological material. Students present weekly written and oral reports of their research projects. Once each term, students critique a recent publication. Enrollment restricted to graduate students. Qualified undergraduates may enroll with permission from instructor. May be repeated for credit. B. Shapiro

281T. Species Interactions and Coevolution. F,W,S
The genetics and ecological structure of species interactions, and the role of coevolution between species in shaping biodiversity. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. J. Thompson

281U. Topics in Invertebrate Biology. F,W,S
An intensive study about concepts, theory, and techniques for graduate students conducting research on the ecology, genetics, evolution, systematics, or biodiversity of marine invertebrates. Enrollment restricted to graduate students; advanced undergraduates may enroll with permission of instructor. Enrollment limited to 15. May be repeated for credit. D. Potts

281V. Topics in Behavioral Ecology. F,W,S
A discussion of current topics and methods in behavioral ecology and life history evolution. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. B. Sinervo

281W. Topics in Exercise and Environmental Physiology. F,W,S
A weekly seminar discussion on current research and techniques in mammalian exercise and environmental physiology. Areas covered include locomotor physiology, exercise testing and cardiovascular monitoring, and biomechanics. Oral presentation of ongoing research or current literature required from each student. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. T. Williams

286. Experimental Design and Data Analysis. W
Focuses on problems and designs in ecology and population biology. Topics include basic experimental design; exploratory data analysis—from a graphical perspective; hands-on statistics; and graphical theory. Structured around a statistical analysis and graphics computer program to teach students to design their own surveys and experiments and

analyze their data correctly. Students cannot receive credit for this course and course 186. Prerequisite(s): one course in statistics or by permission of instructor. Enrollment restricted to graduate students. P. Raimondi

286L. Experimental Design and Data Analysis Lab (2 credits). W
Required lab that accompanies Biology 286. Lab will focus on hands-on statistical problem solving, graphical presentations and experimental design issues. Concurrent enrollment in course 286 is required. Enrollment restricted to graduate students. P. Raimondi

293. Readings in Ecology and Evolution (2 credits). W,S
Weekly readings and discussions of recent research papers in ecology, evolution, and related topics from organismal biology. Enrollment restricted to graduate students. May be repeated for credit. A. Kilpatrick, L. Fox

294. Ecology, Evolutionary Biology Seminar (no credit). F,W,S
Selected topics of current interest to ecologists and evolutionary biologists presented by weekly guest speakers. Enrollment restricted to graduate students. T. Williams, B. Shapiro, D. Croll

295. Advanced Ecology and Evolutionary Biology Seminar (no credit). F,W,S
Course consists of extended weekly meetings organized around an advanced theme in theoretical or applied evolutionary biology, ecology, physiology, behavior, or other aspect of oranismal biology. Course is targeted at students who already have reached a professional level of expertise in their field and advanced master students. Enrollment restricted to graduate students. Enrollment limited to 24. The Staff

297. Independent Study. F,W,S
Independent study for graduate students who have not yet settled on a research area for their thesis. Students submit petition to sponsoring agency. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. The Staff

* Not offered in 2014-15

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Economics

2014-15 General Catalog

401 Engineering 2
(831) 459-2743
http://economics.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Introductory Microeconomics: Resource Allocation and Market Structure. F,W,S
For all interested students as well as prospective economics majors. Examines how markets allocate resources in different kinds of economies. Topics include competitive markets, monopoly, financial markets, income distribution, market failures, the environment, and the role of government. (General Education Code(s): PE-H, IS.) The Staff

2. Introductory Macroeconomics: Aggregate Economic Activity. F,W,S
For all interested students and prospective economics majors. Examines how the overall level of national economic activity is determined, including output, employment, and inflation. Explores the roles of monetary and fiscal policies in stabilizing the economy and promoting growth, with a focus on contemporary policy debates. (General Education Code(s): PE-H, IS.) The Staff

10A. Economics of Accounting. F,W
Introduction to accounting principles and practice; preparation and analysis of financial statements; study of internal control procedures. Courses 10A and 10B satisfy the Accounting 1A-B requirement at UC Berkeley. The Staff

10B. Economics of Accounting. W,S
Managerial accounting emphasizing analysis and control; accounting for corporations; introduction to taxation, budgeting, and equity/debt financing; management decision making. Courses 10A and 10B satisfy the Accounting 1A-B requirement at UC Berkeley. Prerequisite(s): course 10A. The Staff

11A. Mathematical Methods for Economists I. F,W,S
Introduction to mathematical tools and reasoning, with applications to economics. Topics are drawn from differential calculus in one variable and include limits, continuity, differentiation, elasticity, Taylor polynomials, and optimization. Students cannot receive credit for both this course and Mathematics 11A or 19A or Applied Mathematics and Statistics 15A. (Also offered as Applied Mathematics and Statistics 11A. Students cannot receive credit for both courses.) (Also offered as Applied Math and Statistics 11A. Students cannot receive credit for both courses.) Students who have already taken Mathematics 11A or 19A should not take this course. Prerequisite(s): score of 300 or higher on the mathematics placement examination (MPE), Applied Math and Statistics 2, 3, or 6, or Mathematics 3. (General Education Code(s): MF, IN, Q.) The Staff

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

11B. Mathematical Methods for Economists II. F,W,S
Mathematical tools and reasoning, with applications to economics. Topics are drawn from multivariable differential calculus and single variable integral calculus, and include partial derivatives, linear and quadratic approximation, optimization with and without constraints, Lagrange multipliers, definite and indefinite integrals, and elementary differential equations. Students cannot receive credit for both this course and Mathematics 11B or 19B or Applied Math and Statistics 15B. (Also offered as Applied Math and Statistics 11B. Students cannot receive credit for both courses.) Prerequisite(s): course 11A, or Applied Mathematics and Statistics 11A, or Mathematics 11A, or Mathematics 19A. (General Education Code(s): MF, IN, Q.) The Staff

30. Introduction to Entrepreneurship. S
Provides an overview of the role and importance of entrepreneurship in the economy and society; a framework for approaching entrepreneurship and innovation; and exposure to the core competencies required of all entrepreneurs. The course incorporates case studies and speakers (often actual entrepreneurs) to provide context for the entrepreneurial topics covered in the course. The Staff

42. Student-Directed Seminar. *
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

80A. The Theory, Hope, and Crisis of Capitalism. W
Assessment of modern-day capitalism from the three major economic paradigms-liberal, conservative, radical. Theories of Smith, Marx, and Keynes are explored in contemporary writing, with focus on the U.S. from WW II to present. Students cannot receive credit for this course and course 189. (General Education Code(s): T3-Social Sciences.) D. Kaun

80G. Money and the Arts: Two All-Consuming Passions. F
Analysis of the performing arts: a commodity providing a rich and varied source of satisfaction, an occupation for thousands of talented and creative individuals, and an activity whose funding (public versus private) is the source of significant controversy. Students cannot receive credit for this course and course 137. (General Education Code(s): T3-Social Sciences.) D. Kaun

80H. Wall Street and the Money Game. *
Provides a demystifying introduction to financial markets. Examines the theory of stock market investment, the workings of the international money market, the implications of corporate takeovers, and the regulation of the economy by the Federal Reserve Board. (General Education Code(s): T3-Social Sciences.) The Staff

93. Field Study. F,W,S
Supervised fieldwork experience, off campus, in an area connected with economics or business. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

93F. Field Study (2 credits). F,W,S
Supervised off-campus fieldwork experience in an area connected with economics or business. Prerequisite(s): permission of instructor; students submit petition to sponsoring agency. The Staff

99. Tutorial. F,W,S
May be repeated for credit. The Staff

Upper-Division Courses

100A. Intermediate Microeconomics. F,W,S
Covers major theoretical issues arising in the study of resource allocation, the function of markets, consumer behavior, and the determination of price, output, and profits in competitive, monopolistic, and oligopolistic market structures. Also considers issues of welfare and public policy. Students cannot receive credit for this course and course 100M. Prerequisite(s): courses 1; 2; and 11B or Applied Mathematics and Statistics 11B or Mathematics 22 or 23A. The Staff

100B. Intermediate Macroeconomics. F,W,S

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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Covers major theoretical issues arising in the study of income, employment, interest rates, and the price level. Examines the role of monetary and fiscal policy in economic stabilization. Also considers these issues as they relate to the global economy. Students cannot receive credit for this course and course 100N. Prerequisite(s): courses 1; 2; and 11B or Applied Mathematics and Statistics 11B or Mathematics 22 or 23A. The Staff

100M. Intermediate Microeconomics, Math Intensive. *
Mathematically sophisticated version of course 100A. Provides analytically rigorous treatment of the subject using a calculus-intensive presentation of microeconomic theory. For specific topics, see course 100A. Students cannot receive credit for this course and course 100A. Prerequisite(s): courses 1; 2; and 11B or Applied Mathematics and Statistics 11B, or Mathematics 22 or 23A. The Staff

100N. Intermediate Macroeconomics, Math Intensive. *
Provides rigorous, mathematical-intensive treatment of topics covered in course 100B. Core is devoted to model-based analysis of questions in macroeconomics. Use of mathematical tools allows study of advanced topics and data-intensive applications. See course 100B for specific topics. Students cannot receive credit for this course and course 100B. Prerequisite(s): courses 1; 2; and 11B or Applied Mathematics and Statistics 11B, or Mathematics 22 or 23A. The Staff

101. Managerial Economics. F
Analysis of the theory and practice of decision making in business firms, applying the concepts and techniques of microeconomics. Topics may include pricing schemes, non-price competition, internal organization of firms, incentive contracts, asymmetric information, and game theory. Case studies are used to illustrate some topics. Prerequisite(s): courses 100A or 100M, and 113. The Staff

104. Is There Truth in Numbers: The Role of Statistics in Economics. W,S
Applies the techniques of econometrics and experimental economics to the understanding of economics. A "hands-on" course where real economic data is used in an interactive way so that students develop the art of empirical analysis. Prerequisite(s): courses 100A or 100M, and 113, and Entry Level Writing and Composition requirements. The Staff

105. Topics in Macroeconomic Theory. S
A seminar in advanced macroeconomics focusing on a selection of theoretical issues. Emphasis is on detailed modeling and analysis of macroeconomic processes. Prerequisite(s): course 100B or 100N, and 113. The Staff

110. Managerial Cost Accounting and Control. S
Focuses on how cost data are used by managers in the planning and control of both private- and public-sector organizations. Specific topics include organization of the management and control function, use of cost data for the pricing of goods and services, the effect of cost systems on management performance, and capital budgeting. Prerequisite(s): course 10B. The Staff

111A. Intermediate Accounting I. F
Principles, control, and theory of accounting for assets; accounting as an information system; measurement and determination of income. Projects involving spreadsheet software required. Students cannot receive credit for this course and course 209A. Prerequisite(s): course 10B. R. Shepherd

111B. Intermediate Accounting II. W
Principles, control, and theory of accounting for liabilities and equities; preparation and analysis of cash flow statements and earnings per share computation. Projects involving spreadsheet software required. Students cannot receive credit for this course and course 209B. Prerequisite(s): course 10B. R. Shepherd

112. Auditing and Attestation. W
For business management economics majors interested in careers that emphasize accounting, finance, or technology management. Also for students who intend to take the CPA exam. Covers audit techniques, risk analysis, and development of control structures for major financial processes including cash, investments, accounts receivable, inventories, accounts payable, debt, equity capital, and related information systems security. Prerequisite(s): course 10B. The Staff

113. Introduction to Econometrics. F,W,S
Practical methods for organizing and analyzing economic data, testing economic hypotheses, and measuring economic relationships. Regression analysis is the main empirical method, and basic statistical and probability theory is included. Students gain hands-on computer experience with an econometric software package. Students cannot receive credit for this course and Applied Mathematics and Statistics 113. Prerequisite(s): courses 1 and 2; Applied Mathematics and Statistics 5 or 7; and one of the following: course 11B, Applied Mathematics and Statistics 11B, Mathematics 22, or Mathematics 23A. Courses 100A or 100B strongly recommended as preparation. (General Education Code(s): SR, Q.) The Staff

114. Advanced Quantitative Methods. W
Application of statistical methods to estimating and testing economic relationships, i.e., econometric techniques. Topics include the effects of misspecification, choice of functional form, serial correlation, heteroscedasticity, limited dependent variables, and simultaneous equations. Includes discussion of existing empirical work and econometric projects by students. Prerequisite(s): courses 100A or 100M, and 113. The Staff

115. Introduction to Management Sciences. W
The scientific study of management decision making. Topics include linear, integer, and non-linear programming. Special emphasis on a wide variety of practical applications, including production scheduling, optimal transportation assignments, and optimal inventory policy. Prerequisite(s): course 100A or 100M. The Staff

117A. Income Tax Factors for Individuals. W
Introduces federal taxation for individuals. Topics for study include taxable income, gross income exclusions and inclusions, capital gains, depreciation, business and itemized deductions, personal and dependency exemptions, passive activity losses, tax credits, and methods of accounting. Prerequisite(s): course 10B. The Staff

117B. Tax Factors of Business and Investment. F
Focuses on various tax subjects providing a strong foundation in tax concepts and preparation for work in either public or corporate accounting. Topics include historical perspective of the U.S. tax system, introduction to estate and gift taxes, employment and self-employment taxes, tax concepts and laws, business expenses, capital recovery, tax credits, capital gains and losses, capital investments, and corporate operations. (Formerly course 117.) Prerequisite(s): course 10B. The Staff

119. Advanced Accounting. S
Accounting for business organizations; partnerships; government and non-profit organization funds; branches, consolidations, and installment sales. Projects involving spreadsheet software required. Prerequisite(s): courses 111A and 111B. The Staff

120. Economic Development. S
A comparative approach to the study of the economic development of low-income countries. Various obstacles to growth are identified, and different types of solutions are analyzed. Prerequisite(s): courses 1, 2, and 113. (General Education Code(s): E.) The Staff

121. Economic Growth. W
Studies economic growth from theoretical, empirical, and historical perspectives. Topics include: theories of economic growth and their empirical importance, technology and innovation, social institutions and growth, and competing explanations of the global distribution of wealth. Prerequisite(s): courses 1, 2, 11A, and 11B (or the equivalent); course 100B is strongly recommended. The Staff

125. Economic History of the U.S. S
The development of the American economy from colonial times to the present, with emphasis on the interaction between institutional structure and economic development. Topics include the economics of slavery, the rise of big business, and the causes of the Great Depression. Prerequisite(s): courses 1 and 2. Related course work in history also helpful. Enrollment restricted to juniors and seniors. The Staff

126. Why Economies Succeed or Fail: Lessons from Western and Japanese History. F
Examines the emergence of capitalism and the world's first industrial revolution in Britain, continental Europe industrialization, Soviet economic growth and collapse, and the

Japanese economic miracle. Asks about the historical sources of long-run economic development, stagnation, and decline. Draws lessons for current debates over free market versus more interventionist policies, economic reform in the former Communist nations, and economic rivalry between the U.S. and Japan. Prerequisite(s): courses 1 and 2. Related course work in history also helpful. Enrollment restricted to juniors and seniors. The Staff

128. Poverty and Public Policy. S
Studies the causes, consequences, and governmental response to urban poverty in the U.S. Topics include how public policy, the macroeconomy, race, gender, discrimination, marriage, fertility, child support, and crime affect and are affected by urban poverty. Emphasizes class discussion and research. (Also offered as Legal Studies 128. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of Entry Level Writing & Composition requirement; courses 100A or 100M; and course 113. Enrollment restricted to economics, business management economics, global economics, legal studies, or economics combined majors. Enrollment limited to 35. (General Education Code(s): W, E.) The Staff

130. Money and Banking. W
The institutional structure of central banking and of bank and nonbank financial intermediation in the U.S.; theoretical and empirical investigations of the role of monetary policy in macroeconomic stabilization and economic growth. Prerequisite(s): courses 100B or 100N, and 113. The Staff

131. International Financial Markets. F
International financial management analyzes the key financial markets and instruments that facilitate trade and investment activity on a global scale. Inquiry spans two areas: (1) economic determinants of prices in international financial markets; and (2) decisions facing private individuals and enterprises, with topics including capital financing, investment, and risk management. Prerequisite(s): courses 100A or 100M, and 100B or 100N. The Staff

133. Security Markets and Financial Institutions. S
An examination of all major financial markets: equities, bonds, options, forwards, and futures. Uses modern financial theory, including asset pricing models such as CAPM and APT. Prerequisite(s): courses 100A or 100M, and 113. The Staff

135. Corporate Finance. W
An analysis of financial policies of business enterprises. Topics include cash flow analysis, stock and bond valuation, asset pricing models, capital budgeting, financial market institutions, and financial planning. Prerequisite(s): courses 10A, 100A or 100M, and 113. The Staff

136. Business Strategy. W
The strategic management process, techniques for analyzing single-business and diversified companies, implementing strategy, organization, business planning, financial strategy, competitive analysis, entrepreneurial skills. Prerequisite(s): courses 10A and either 100A or 100M. Concurrent enrollment in course 136L is not required. The Staff

137. Performing Arts in the Public and Private Economy. F
Analysis of the performing arts: a commodity satisfying a rich and varied source of satisfaction, an occupation for thousands of talented and creative individuals, and an activity whose funding (public versus private) is the source of significant controversy. Economics 1 is strongly recommended as a preparation. Students cannot receive credit for this course and course 80G. D. Kaun

138. The Economics and Management of Technology and Innovation. F
Examines the analytics of issues in technology and innovation, including cooperation in research and development (R&D), standardization and compatibility, patents and intellectual property rights, and strategic management, using economic models and firm case studies. Prerequisite(s): course 100A or 100M, or permission of instructor. The Staff

139A. The Economics of Electronic Commerce. S
An analysis of the broad spectrum of issues affecting commercial uses of the Internet and the next-generation information infrastructure. Uses economics to examine market structure, pricing quality, intellectual property rights, security, electronic payments and currencies, and public policy implications. Prerequisite(s): course 100A or 100M, or

permission of instructor. The Staff

139B. E-Commerce Strategy. *
Introduction and review of economic principles for e-commerce. Overview of trends in e-commerce. Online retailing of physical products; digital products; financial services; housing and related markets. Online business-to-business transactions. Internet infrastructure industry. Government regulation of e-commerce and business strategy responses. Prerequisite(s): course 139A. The Staff

140. International Trade. S
The theory of international production and trade. The effects of tariffs and quantitative trade restrictions; the nature of economic integration; multinational firms; effects of trade and protection on economic stability and welfare. Prerequisite(s): course 100A or 100M. The Staff

141. International Finance. W
Topics include national accounting, balance of payments theories, parity conditions in international finance, exchange rate determination models, forward-looking financial instruments, international monetary systems, country interdependence and exchange rate regimes, international monetary integration, and Eurocurrency market. Prerequisite(s): course 100B or 100N. The Staff

142. Advanced Topics in International Economics. *
Selected issues in contemporary international economics: theory, empirical evidence, and public policy. Seminar emphasizing discussion and individual research. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, courses 100A or 100M, and 100B or 100N, and 140 or 141. (General Education Code(s): W.) The Staff

143. Policy Issues in the International Economy. S
Covers selected issues concerning the international economy. Topics include: U.S. competitiveness; U.S. trade policy; immigration; trade and the environment; developing countries; foreign investment; foreign exchange markets; and international economic institutions. Prerequisite(s): courses 1, 2, and 100A or 100M. The Staff

148. Latin American Economies. W
This course is designed to familiarize students with the economic and business environment in Latin America. Prerequisite(s): courses 1 and 2. The Staff

149. The Economies of East and Southeast Asia. *
Examines the pattern of international trade, investment, and industrial structure in Asia. Examines competing explanations of rapid growth of Japan, Korea, and Taiwan; presents an overview of economic developments in China, Hong Kong, and Taiwan. Concludes with an analysis of high technology trade and multinationals in Asia in 2000 and beyond. Prerequisite(s): courses 1 and 2. The Staff

150. Public Finance. F
Economics of taxation, including incidence, equity issues, efficiency, and supply side effects. Close attention to taxes in the U.S. system and tax-reform issues. Students cannot receive credit for this course and course 250. Prerequisite(s): course 100A or 100M, and course 100B or 100N. The Staff

156. Health Care and Medical Economics. *
Health economics theory and review of studies of the health industry, including current topics. Focuses on the structure of the U.S. health care system, including analysis of health policy issues. Relationship to models of perfect competition and efforts at reform. Prerequisite(s): courses 100A or 100M and 113. The Staff

159. The Economics of Organizations. *
Uses an economic approach to shed light on questions such as why and how organizations are formed, and what consequences they may have on the adoption of different types of organizations for economic performance. Also emphasizes differences between the "internal markets" within organizations and market transactions. Prerequisite(s): course 100A or 100M. The Staff

160A. Industrial Organization. W
The structure and conduct of American industry with strong emphasis on the role of

government, regulation, anti-trust, etc. The evolution of present-day industrial structure. The problems of overall concentration of industry and of monopoly power of firms. Pricing, output decisions, profits, and waste. Approaches include case study, theory, and statistics. (Also offered as Legal Studies 160A. Students cannot receive credit for both courses.) Prerequisite(s): course 100A or 100M. The Staff

160B. Government and Industry. *
The influence of government regulation on industry and the allocation of resources is rigorously examined using theory and statistics. Areas of regulation include transportation and power, pollution and congestion, rent control, and liability insurance regulation. Both optimal and actual regulation are examined from the point of view of effectiveness, efficiency, social welfare, and re-distribution. Prerequisite(s): course 100A or 100M. The Staff

161A. Marketing. F,S
The evolution of markets and marketing; market structure; marketing cost and efficiency; public and private regulation; the development of marketing programs including decisions involving products, price, promotional distribution. (Formerly course 161.) Prerequisite(s): course 100A or 100M. The Staff

161B. Marketing Research. W
Prepares students to conduct market research and use it in solving real management problems. Students work with a company to solve marketing-based problems. Students conduct research, process data, and make a presentation to the company's management. Course work involves marketing, statistics, and communications; material is both qualitative and quantitative. Prerequisite(s): courses 113 and 161A. The Staff

162. Legal Environment of Business. *
A study of law and the legal process, emphasizing the nature and function of law within the U.S. federal system. Attention is given to the legal problems pertaining to contracts and related topics, business association, and the impact of law on business enterprise. (Also offered as Legal Studies 162. Students cannot receive credit for both courses.) Prerequisite(s): course 100A or 100M. The Staff

164. Economics and the Telecommunications Industry. *
Covers the economics of the telecommunications industry including telephone, cellular telephone, and data communications. Particular emphasis on the Internet, satellite, paging, cable television, radio and television broadcasting. Examines the industry structure and implications of moving from a regulated environment to competition. Topics examined from a competitive strategic standpoint as well as public policy perspective. Prerequisite(s): courses 100A or 100M, and 113. The Staff

165. Economics as an Experimental Science. F
The design, execution, and analysis of laboratory experiments in economics. Students study experimental methodology, critically survey the published literature, and design an experiment. Literature includes lab studies of investigations in auctions, markets, social choice theory, and game theory. Prerequisite(s): course 100A or 100M, and course 113. Enrollment limited to 40. (General Education Code(s): W.) The Staff

166A. Game Theory and Applications I.
Introduces modern game theory, including applications in social science, biology, and engineering. Topics include extensive form, strategic form, mixed strategies, incomplete information, repeated games, evolutionary games, and simulation techniques. (Also offered as Computer Science 166A and Technology & Info Management 166A. Students cannot receive credit for more than one course.) Prerequisite(s): Applied Math and Statistics 5 or 7 or Economics 113; and Economics 11B, Applied Math and Statistics 11B, or Mathematics 11B or 19B. Enrollment restricted to juniors and seniors. Enrollment limited to 100. J. Musacchio

166B. Game Theory and Applications II. W
Explores research frontiers in game theory, emphasizing applications in social science, biology, and engineering. Each interdisciplinary team develops a topic, and presents it to the class in oral and written reports and demonstrations. Students must have shown a strong performance in course 166A or equivalent. Students cannot receive credit for this course and Economics 272, Computer Science 272, or Biology: Ecology and Evolutionary

274. (Also offered as Computer Science 166B. Students cannot receive credit for both courses.) Prerequisite(s): course 166A or Computer Science 166A; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors. Enrollment limited to 40. (General Education Code(s): W.) The Staff

169. Economic Analysis of the Law. S
The application of the theories and methods of neoclassical economics to the central institutions of the legal system, including the common law doctrines of negligence, contract, and property; bankruptcy and corporate law; and civil, criminal, and administrative procedure. (Also offered as Legal Studies 169. Students cannot receive credit for both courses.) Prerequisite(s): course 100A or 100M or permission of instructor. The Staff

170. Environmental Economics. F
Economic analysis of environmental issues. Environmental pollution and deterioration as social costs. Economic policy and institutions for environmental control. Influences of technology, economic growth, and population growth on environmental quality. Prerequisite(s): course 100A or 100M. The Staff

171. Natural Resource Economics. *
The application of economic analysis to the use of renewable and nonrenewable natural resources. Efficiency and distributional aspects of natural resource scarcity. Measurement of the benefits and costs. Optimal extraction or use policies. Common property and externalities. Government policies. Prerequisite(s): course 100A or 100M. The Staff

175. Energy Economics. S
Applications of micro, welfare, and international economic theory and methodology to the energy field. Questions considered include optimal allocation of natural resources; pricing and investment; regulations and taxes; import and export control; redistributional policies. Prerequisite(s): course 100A or 100M. The Staff

180. Labor Economics. *
A study of the changing nature and composition of the U.S. labor force. Topics include the demand for and supply of labor; wage determination; the role and impact of unions in the labor market; racial, ethnic, and gender differences in job and income opportunities and the role of discrimination in explaining these differences; and the theory of human capital, all considered from the traditional neoclassical as well as institutional and radical perspectives. Prerequisite(s): course 100A or 100M. Course 113 is strongly recommended as preparation. The Staff

183. Women in the Economy. *
Study of gender roles in economic life, past and present. Topics include occupational structure, human capital acquisition, income distribution, poverty, and wage differentials. The role of government in addressing economic gender differentials is examined. (Also offered as Legal Studies 183. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; courses 1, 2, and 100A or 100M; course 113 strongly recommended. (General Education Code(s): W.) The Staff

184. Labor Wars in Theory and Film. *
This seminar focuses on the impact of trade unions and labor-market discrimination on the U.S. work force. The neo-classical, institutional, and radical/Marxist approaches to these questions are employed in the analysis. Films, both fictional and documentary, are utilized as primary source material. Prerequisite(s): permission of instructor based on quality of work in economics; courses 100A or 100M, 100B or 100N, and 113; satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. (General Education Code(s): W.) D. Kaun

186. Mathematical Methods for Economic Analysis. F
Presents mathematical methods commonly used in graduate-level economic analysis: basic matrix algebra, real analysis, functions, continuity concepts, differentiation, Taylor expansions, and implicit function theorem and optimization. Prerequisite(s): interview only: enrollment restricted to students admitted to the APEF M.S. Program. The Staff

188. Management in the Global Economy. W

An overview of how firms do business in the global economy. Focus is on the firm, but also explores the impact of corporate decision-making on national welfare. Emphasizes how national economic policies and international institutions influence firm strategy and industrial structure. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 100A or 100M; course 100B or 100N strongly recommended as preparation. (General Education Code(s): W.) The Staff

189. Political Economy of Capitalism. W
An assessment of modern day capitalism from the three major economics paradigms-liberal, conservative, radical. Theories of Smith, Marx, and Keynes are explored in contemporary writing, with focus on the U.S. from WW II to present. Students cannot receive credit for this course and course 80A. Prerequisite(s): courses 1 and 2; courses 100A or 100M, and 100B or 100N are recommended as preparation. D. Kaun

190. Senior Proseminar. *
Courses focus on problems of interest to advanced students of economics. They offer a flexible framework, so those interested in specific issues can read, present papers, and develop their ideas. The Staff

191. Economics Teaching Practicum. F,W,S
Each student serves as facilitator for small discussion group in connection with core economics courses. Facilitators complete course readings and meet with instructor as a group to discuss the teaching process. May not be counted toward upper-division major requirements. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar, course 42, under faculty supervision. May not be counted toward the upper-division major requirements. Students submit petition to sponsoring agency. The Staff

193. Field Study. F,W,S
Provides for department-sponsored individual field study in the vicinity of the campus under the direct supervision of a faculty sponsor (in contrast to course 198 where faculty supervision is by correspondence). May not be counted toward the upper-division major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides for department-sponsored individual field study in the vicinity of the campus under the direct supervision of a faculty sponsor. May not be counted toward the upper-division major requirements. Students spend 8-10 hours per week at job site. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Advanced Topics in Management. *
Honors course providing detailed analysis of specialized topics in management. Possible topics include: venture capital, the financial services industry, e-business, behavioral finance, advanced consumer behavior, entrepreneurship, high-tech marketing, risk management, and option value approaches to business strategy. Students cannot receive credit for this course and course 194F. Prerequisite(s): courses 100A or 100M, 100B or 100N, and 113. Enrollment by permission of instructor, and review of performance in economics courses. Enrollment restricted to senior and junior business management economics majors. (Formerly Advanced Topics in Business Management Economics.) Enrollment limited to 30. The Staff

194F. Advanced Topics in Management (2 credits). *
Detailed analysis of specialized topics in management. Possible topics include: venture capital, the financial services industry, e-business, behavioral finance, advanced consumer behavior, entrepreneurship, high-tech marketing, risk management, and option value approaches to business strategy. Students cannot receive credit for this course and course 194F. Prerequisite(s): courses 100A or 100M, 100B or 100N, and 113. Enrollment by permission of instructor, and review of performance in economics courses. Enrollment restricted to senior and junior business management economics majors. Enrollment limited to 30. The Staff

195. Senior Thesis. F,W,S

A supervised research project. If the project is of unusual scope, the course may be repeated for credit. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, students submit petition to sponsoring agency. (General Education Code(s): W.) The Staff

197. Economic Rhetoric: Using Economic Theory and Empirical Evidence in Arguing Policy. F,W,S
Economics students are expected to learn to effectively communicate economic theory and evidence relating to economic policy to audiences that do not have economics degrees. The skills to be learned are both written and oral communication. Students learn to present convincing policy arguments in position papers, executive summaries, and in oral presentation that may include charts and other means of communication. Prerequisite(s):Entry Level Writing & Composition requirement; one of the following courses: 100A,100M,100B,100N, or 113. Restricted to sophomore,junior,senior economics, business-management economics, global economics and combined economics/math majors. The Staff

198. Independent Field Study. F,W,S
Provides for department-sponsored individual study program off campus for which faculty supervision is not in-person, but by correspondence. May not be counted toward the upper-division major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for department-sponsored individual study program off campus for which faculty supervision is not in person, but by correspondence. May not be counted toward the upper-division major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
May be repeated for credit, but may be counted only once toward the upper-division major requirements. Undergraduates may not take graduate courses for credit as 199. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Specialized study with individual faculty. May not be applied toward the major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Microeconomic Analysis. F
Survey of partial equilibrium analysis, market distortions, consumer choice and production and trade theory, perfect and imperfect competition, price discrimination, and intertemporal choice theory. Enrollment restricted to applied economics and finance graduate students. The Staff

201. Applications in Microeconomics. S
Applies concepts and tools developed in course 200 to problems encountered in private- and public-sector output and labor markets. The focus is empirical; topics include analysis of labor supply and labor demand and the role of government labor market policies, analysis of pricing policies and regulation, estimation of the returns to schooling, estimation of demand and cost functions, and the role of unions in the economy. Course 200 is strongly recommended as preparation. Enrollment restricted to applied economics and finance graduate students. The Staff

202. Macroeconomic Analysis. F
Aggregate economic analysis: determinants of aggregate expenditures and output, the roles of monetary and fiscal policy, recent developments in macro theory; macro policy issues. Enrollment restricted to applied economics and finance graduate students. The Staff

204A. Advanced Microeconomic Theory. F
Economic theory of individual and market behavior, including constrained optimization, duality, theory of the consumer, theory of the producer, dynamic optimization, behavior under uncertainty, intertemporal choice, asymmetric information, game theory, partial and

general equilibrium, pure and applied welfare economics, public goods and externalities. Illustrative examples emphasize international applications. Courses must be taken in sequence. Enrollment restricted to graduate students or by permission of instructor. The Staff

204B. Advanced Microeconomic Theory. W
Economic theory of individual and market behavior, including constrained optimization, duality, theory of the consumer, theory of the producer, dynamic optimization, behavior under uncertainty, intertemporal choice, asymmetric information, game theory, partial and general equilibrium, pure and applied welfare economics, public goods and externalities. Illustrative examples emphasize international applications. Courses must be taken in sequence. Prerequisite(s): course 204A. The Staff

204C. Advanced Microeconomic Theory. S
Economic theory of individual and market behavior, including constrained optimization, duality, theory of the consumer, theory of the producer, dynamic optimization, behavior under uncertainty, intertemporal choice, asymmetric information, game theory, partial and general equilibrium, pure and applied welfare economics, public goods and externalities. Illustrative examples emphasize international applications. Courses must be taken in sequence. Prerequisite(s): course 204B. The Staff

205A. Advanced Macroeconomic Theory. F
Modern macroeconomic theory: determination of national income; employment, inflation, and exchange rates; theories of growth and business cycle fluctuations; international transmission of inflation and other disturbances; recent developments in the analysis of macroeconomic policy; modern theoretical and empirical analysis of aggregate relationships. Courses must be taken in sequence. Enrollment restricted to graduate students or by permission of instructor. The Staff

205B. Advanced Macroeconomic Theory. W
Modern macroeconomic theory: determination of national income; employment, inflation, and exchange rates; theories of growth and business cycle fluctuations; international transmission of inflation and other disturbances; recent developments in the analysis of macroeconomic policy; modern theoretical and empirical analysis of aggregate relationships. Courses must be taken in sequence. Prerequisite(s): course 205A. The Staff

205C. Advanced Macroeconomic Theory. S
Modern macroeconomic theory: determination of national income; employment, inflation, and exchange rates; theories of growth and business cycle fluctuations; international transmission of inflation and other disturbances; recent developments in the analysis of macroeconomic policy; modern theoretical and empirical analysis of aggregate relationships. Courses must be taken in sequence. Prerequisite(s): course 205B. The Staff

209A. Accounting 1. F
Principles, control, and theory of accounting for assets; accounting as an information system; measurement and determination of income. M.S. level projects required. Students cannot receive credit for this course and course 111A. Enrollment restricted to graduate students. The Staff

209B. Accounting II. W
Principles, control, and theory of accounting for liabilities and equities; preparation and analysis of cash flow statements and earnings per share computation. M.S. level projects required. Students cannot receive credit for this course and course 111B. Enrollment restricted to graduate students. The Staff

210A. Mathematical Methods for Economic Analysis. *
Mathematical methods commonly used in economic analysis are discussed. Covers basic matrix algebra, real analysis, functions, continuity concepts, differentiation, Taylor expansion, implicit function theorem, and optimization. Prerequisite(s): qualifications as determined by instructor; inquire at department office. The Staff

210B. Mathematical Methods for Economic Analysis. F
A course in introductory mathematical economics which covers standard optimization problems, difference and differential equations, optimal control theory, decisions under uncertainty, game theory, and stochastic calculus. Course 210A or equivalent is strongly

recommended as preparation. The Staff

211A. Advanced Econometrics. F
Advanced econometric methods are introduced. Topics include the standard regression analysis, simultaneous equation estimation, nonlinear models, qualitative response models, panel data analysis, and univariate and multivariate time series analysis. Enrollment restricted to graduate students or by permission of instructor. The Staff

211B. Advanced Econometrics. W
Advanced econometric methods are introduced. Topics include the standard regression analysis, simultaneous equation estimation, nonlinear models, qualitative response models, panel data analysis, and univariate and multivariate time series analysis. Course 211A is strongly recommended as preparation for course 211B. The Staff

211C. Topics in Empirical Research. S
A topic course in econometrics designed for graduate students interested in quantitative analysis. Selected topics, including standard and recently developed econometric techniques, are critically and thoroughly discussed. In addition to methodology, focuses on exploring the research potential and applications of advanced econometric techniques. Courses 211A and 211B are strongly recommended as preparation. The Staff

212. Empirical Project in Econometrics (2 credits). *
Empirical project or paper in econometrics to demonstrate student's ability to conduct applied econometric analysis. Ph.D. requirement to be completed by beginning of student's third year of study. Prerequisite(s): courses 211A and 211B. May be repeated for credit. The Staff

216. Applied Econometric Analysis I. F
The use of statistical techniques for the testing of economic hypotheses and the estimation of parameters, with emphasis on regression analysis. Includes methods of dealing with serial correlation, errors in variables, multicollinearity, and heteroscedasticity. Experience with common statistical packages. Enrollment restricted to applied economics and finance graduate students. The Staff

217. Applied Econometric Analysis II. W
Focuses on the application of advanced econometric and time series techniques to economic issues. Computer assignments and empirical applications are used to discuss and illustrate the practical aspects of simultaneous equation systems, nonlinear models, qualitative response models, time series model specification, unit root test, and cointegration analysis. Course 216 is strongly recommended as preparation. Enrollment restricted to applied economics and finance graduate students. The Staff

220A. Development Economics: Theory and Cases. S
Surveys traditional development economics and the neoclassical resurgence in development theory. Topics include sources of growth, income distribution, population and human capital development, savings, fiscal and monetary mobilization and allocation, foreign investment and aid, and macroeconomic policies. Case study focus in the second quarter. Courses 204A and 205A are strongly recommended as preparation. The Staff

220B. Development Economics: Theory and Cases. W
Surveys traditional development economics and the neoclassical resurgence in development theory. Topics include sources of growth, income distribution, population and human capital development, savings, fiscal and monetary mobilization and allocation, foreign investment and aid, and macroeconomic policies. Case study focus in the second quarter. Courses 204A and 205A are strongly recommended as preparation. The Staff

221A. Advanced Monetary Economics I. S
Covers major issues in monetary economics, focusing on the core theoretical models employed in monetary economics. Topics include: money in general equilibrium; money-in-the-utility function approaches; cash-in-advance models; search-based models; welfare costs of inflation; optimal inflation tax; informational frictions in monetary economies; financial and credit frictions; nominal price and wage frictions; time-dependent and state-dependent models of price adjustment; and money in new Keynesian models.
Prerequisite(s): course 205 A-B-C, or by permission of instructor. Enrollment restricted to graduate students. The Staff

221B. Advanced Monetary Economics II. *
Covers major issues in monetary economics, focusing on the core lessons for design and implementation of monetary policies. Topics include: welfare-based policy objectives; optimal policy under discretion; optimal commitment policies; model dynamic stochastic general equilibrium (DSGE) for policy analysis; open economy models for monetary policy analysis; learning; model uncertainty and policy design; empirical evidence on the channels of monetary policy transmission; monetary policy operating procedures; zero nominal interest-rate bound; international transmission of monetary policy; policy and asset prices. Prerequisite(s): course 205 A-B-C, or by permission of instructor. Enrollment restricted to graduate students. The Staff

233. Finance I. W
Applications of economic analysis in private finance. Topics include risky choice and intertemporal choice theory, asset pricing models, efficient market hypotheses, market institutions, and derivative securities. Course 200 is strongly recommended as preparation. Enrollment restricted to applied economics and finance graduate students. The Staff

234. Financial Institutions and Markets. *
This course examines the evolving microstructure of financial markets, instruments, and institutions. Topics include the role of banks and other financial intermediaries and the trading practices for domestic and international financial instruments, including equity, debts, futures, and options. Prerequisite(s): course 233. The Staff

235. Corporate Finance. *
Application of modern financial theory to corporate decision making. Topics covered include capital budgeting and the firm's investment decision, capital structure, dividend policies, and the implications of corporate governance for enterprise financial goals. Prerequisite(s): course 233. The Staff

236. Financial Engineering. S
This course surveys the financial risks faced by corporation, banks, and other financial institutions that arise from changes in interest rates, foreign exchange rates, commodity prices, and stock prices. It examines the characteristics, payoffs, and pricing of financial derivatives and other instruments for managing risk, including options, forwards, futures, swaps, structured notes, and asset-backed securities. Several cases will be used to illustrate how actual firms solve financial risk management problems. Prerequisite(s): course 233. Enrollment restricted to applied economics and finance graduate students. The Staff

239. Current Topics in Finance. *
Topics in finance selected by the instructor. Prerequisite(s): course 233. The Staff

240A. Advanced International Trade Theory I. F
The theory of international trade and commercial policy. Both traditional analyses and recent developments are covered. Topics include both normative and positive theoretical analyses, as well as empirical testing of theory. Enrollment restricted to graduate students. Courses 204A-B-C are strongly recommended as preparation. The Staff

240B. Advanced International Trade Theory II. S
This is the second quarter of a two-quarter sequence. It deals with most major current advanced research topics in trade. It is both theoretical and empirical and is designed to acquaint students with recent research in the field. Research topics include models of political economy of trade policies; trade and labor markets; regionalism and multilateralism; trade and environment; theories, determinants, and implications of foreign direct investments; economic geography. Prerequisite(s): course 240A. The Staff

240C. Advanced International Trade Theory III. *
Covers the empirical aspects of international trade issues. Topics include the testing and estimation of various trade models such as the Ricardian model, Heckscher-Ohlin-Vanek model, intra-industry trade models, trade models associated with multinational corporations, models of trade and intellectual property rights, the impact of trade on income inequality, and trade between developed and developing economies. Prerequisite(s): course 240B. Enrollment restricted to graduate students. The Staff

241A. Advanced International Finance I. F

Financial aspects of aggregate capital and trade flows and income determination in open economies. Specific topics include financial risk in the international setting, international borrowing and lending, money and exchange rate regimes, income determination and macroeconomic policy, current issues in international monetary reform. The Staff

241B. Advanced International Finance II. W
An examination of the formulation and implementation of international economic policy from both theoretical and empirical perspectives. Topics include case studies in fiscal, monetary, exchange rate, tariff, and other regulatory policies. The Staff

241C. Advanced International Finance III. *
Focuses on empirical applications in international finance. Topics include structural and reduced form models of exchange rates, interest parity conditions, purchasing power parity, capital controls, capital flows to emerging markets, and government intervention in foreign exchange markets. Courses 202 and 203 or 205A-B-C strongly recommended as preparation. The Staff

243. History of the International Economy. *
Studies the evolution and functioning of the international economy from the days of the gold standard to the present. Particular attention is paid to the interwar period with its problems of structural transformations and their relation to the Great Depression and its immediate aftermath, the rise and fall of the Bretton Woods system, the experience of floating exchange rate regimes, the rise of the "new industrial countries," and the problems of international indebtedness. Courses 204A and 205A are strongly recommended as preparation. The Staff

249A. International Trade and Development Policy I. *
Focuses on a range of real-life issues in international trade and development. Topics include North American Free Trade Agreement (NAFTA), the semiconductor industry, the Boeing-Airbus aircraft trade problems, the World Trade Organization (WTO) and developing countries, U.S./Japan trade, trade and the environment, and U.S./China trade. Enrollment restricted to graduate students. The Staff

249B. International Trade and Development Policy II. *
Emphasizes government policies to promote growth. Topics include the "Washington Consensus," the East Asian "model," and recent policy changes in East Asia, Latin America, Eastern Europe, and the former Soviet Union. Prerequisite(s): course 249A. Enrollment restricted to graduate students. The Staff

250. Advanced Public Finance. S
Theory of the role of public sector expenditures and taxes in market economies. Analyzes efficiency and equity arguments for government intervention. Topics include the role of public debt and deficits in economies, international effects of tax and spending policies, and economic theories of public sector decision making. Courses 204A and 205A are strongly recommended as preparation. Students cannot receive credit for this course and course 150. The Staff

259A. Cost-Benefit Analysis. *
Applications of economic analysis in public finance, largely from the revenue side: taxation. The issues considered include the effects of taxation on consumer welfare, consumption, labor, capital, production, growth. Course 200 is strongly recommended as preparation. Students cannot receive credit for this course and course 153. The Staff

259B. Public Policy Analysis. *
Applications of welfare and microeconomic theory and methodology to the public expenditure question: cost-benefit. Effects of the taxes discussed in course 259A and sophisticated tools used in the face of these and other distortions with regard to measurement of benefits, costs, and the discount rate. Course 200 strongly recommended as preparation. The Staff

270. Advanced Topics in Applied Microeconomics. *
Advanced topics and current research in microeconomic theory, including game theory and general equilibrium analysis. Courses 204A-B and 205A are strongly recommended as preparation. (Formerly Advanced Topics in Microeconomic Theory .) The Staff

271. Advanced Topics in Macroeconomic Theory. W

Advanced topics and current research in macroeconomic theory, including DSGE models, empirical issues, and optimal policy analysis. Prerequisite(s): courses 204A-B-C, 205A-B-C, and 211A-B-C are strongly recommended as preparation. The Staff

272. Evolutionary Game Theory. W
Reviews static equilibrium concepts, games of incomplete information, and the traditional theory of dynamic games in discrete time. Develops recent evolutionary game models, including replicator and best reply dynamics, and applications to economics, computer science, and biology. Prerequisite(s): upper-division math courses in probability theory are strongly recommended. Cannot receive credit for this course and Economics 166B or Computer Science 166B. (Also offered as Computer Science 272. Students cannot receive credit for both courses.) The Staff

273. Advanced Applied Microeconomics. F
Covers topics in applied microeconomics, including labor economics, public economics, and demography. Discusses advanced econometric techniques and theory commonly used in applied microeconomics and microeconomic theory . Students make extensive use of statistical packages and large data sets to complete course assignments. Upper-division econometric and microeconomics courses strongly recommended. The Staff

274. Workshop in Macroeconomics and Monetary Economics (3 credits). F,W,S
For Ph.D. students in economics who are at the early stages of their research careers as well as for those who are engaged in dissertation work in macroeconomics and monetary economics. Topics vary from quarter to quarter depending on the interests of participants. Prerequisite(s): courses 205A, 205B, and 205C, or by consent of instructor. Enrollment restricted to graduate students. May be repeated for credit. The Staff

275. Workshop in Applied Microeconomics (3 credits). F,W,S
For Ph.D. students in economics who are at the early stages of their research careers as well as for those who are engaged in dissertation work in applied microeconomics or other empirical work. Topics vary from quarter to quarter depending on the interests of participants. Enrollment restricted to graduate students. May be repeated for credit. The Staff

276. Workshop in Experimental Economics (3 credits). F,W,S
For economics doctoral students who are at early stages of their research careers as well as those engaged in dissertation research using laboratory experiments and related techniques. Topics vary from quarter to quarter depending on the interest of participants. Enrollment by permission of instructor. May be repeated for credit. D. Friedman

290. Topics in International Economics. *
Covers several advanced topics in the history of international economics, international trade, and international finance. Topics include imperfect competition and trade, strategic trade policies, increasing returns, and the pattern of trade, economic geography, exchange rate target zones, and balance of payment crises. Topics vary from year to year. Courses 204A-B-C and 205A-B-C are strongly recommended as preparation. The Staff

291. Workshop in Applied Economics. *
Experience in applied projects, report writing and presentation, drawing on previous course work. The Staff

293. Field Study. F,W,S
Students will undertake analytical projects in public or private institutions. The material covered must be different from that of the thesis topic. The Staff

294A. Applied Economics Laboratory (2 credits). F
Practical experience in managing computerized data sets and running statistical packages. Covers SAS, RATS, TSP, Bridge Equity System, LIMDEP, GAUSS, and MAPLE programs; and internet, IFS, OECD, and SPIRS EconLit databases. May be repeated for credit. The Staff

294B. Applied Economics Seminar (2 credits). F,W,S
Weekly seminar designed to present students with current working applications in various fields of applied economics and finance. Enrollment restricted to graduate students. May be repeated for credit. The Staff

294C. Economics Guest Seminar Series (1 credit). F

Biweekly seminars presented by visiting faculty and industry leaders who are experts in their fields provide in-depth insight on topics relevant to graduate students in economics. Enrollment restricted to graduate students. The Staff

295A. Directed Reading. F
Reading in research area of student interest, with faculty supervision through weekly discussion. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

295B. Directed Reading. W
Reading in research area of student interest, with faculty supervision through weekly discussion. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

295C. Directed Reading. S
Reading in research area of student interest, with faculty supervision through weekly discussion. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

296A. Third Year Ph.D. Seminar. F
Student presentations of literature and/or original research in areas of student research interest. Student discussion of presentations under faculty supervision. Prerequisite(s): courses 204C, 205C, 211B, 240A, 240B, 241A, and 241B are required preparation. The Staff

296B. Third Year Ph.D. Seminar. *
Student presentations of literature and/or original research in areas of student research interest. Student discussion of presentations under faculty supervision. Prerequisite(s): courses 204C, 205C, 211B, 240A, 240B, 241A, and 241B are required preparation. The Staff

296C. Third Year Ph.D. Seminar. *
Student presentations of literature and/or original research in areas of student research interest. Student discussion of presentations under faculty supervision. Prerequisite(s): courses 204C, 205C, 211B, 240A, 240B, 241A, and 241B are required preparation. The Staff

297. Independent Study. F,W,S
Independent study and research under faculty supervision. Students submit petition to sponsoring agency. The Staff

298. Dissertation Research. F,W,S
Research toward Ph.D. dissertation under faculty supervision. Prerequisite(s): advancement to candidacy and students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
May be taken once to meet course requirements for the master's degree. Students submit petition to sponsoring agency. The Staff

* Not offered in 2014-15

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Education

2014-15 General Catalog

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http://education.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

50A. CAL Teach 1: Science and Mathematics (2 credits).
Introductory seminar exploring secondary students, teaching, and schools in the context of science and/or mathematics instruction. Concurrent participation in a secondary school internship required. Course material supports and enhances students' placement experiences. Prerequisite(s): Acceptance into CAL Teach and concurrent participation in a secondary school internship in a science or math classroom. Enrollment limited to 25. (General Education Code(s): PR-S.) The Staff

50B. CAL Teach 1: Mathematics (2 credits). F,W
Introductory seminar exploring secondary students, teaching, and schools in the context of mathematics instruction. Concurrent participation in a secondary school internship required. Course material supports and enhances students' placement experiences. Prerequisite(s): Acceptance into CAL Teach and concurrent participation in a secondary school internship in a math classroom. Enrollment limited to 25. (General Education Code(s): PR-S.) The Staff

50C. CAL Teach 1: Science (2 credits). F,W
Introductory seminar exploring secondary students, teaching, and schools in the context of science instruction. Concurrent participation in a secondary school internship required. Course material supports and enhances students' placement experiences. Prerequisite(s): Acceptance into CAL Teach and concurrent participation in a secondary school internship in a science classroom. Enrollment limited to 25. (General Education Code(s): PR-S.) The Staff

60. Introduction to Education: Learning, Schooling, and Society. F,S
Explores the foundations of learning and teaching, the social and political forces within schools and school systems in the U.S., and the educational policies and practices in culturally and linguistically diverse communities. (General Education Code(s): IS, E.) L. Bartlett, D. Ash

96. Theory and Practice of Peer-Guided Learning for Tutors and Learning Assistants (2 credits). F,W
Provides first-time tutors and supplemental-instruction learning assistants with the theoretical background and practical interactive teaching and learning strategies essential for planning, implementing, and evaluating effective peer-guided learning. Employment by Learning Support Services required. H. Gritsch De Cordova

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100A. Cal Teach 2: Science and Mathematics (2 credits). F
Examines students, schools, and science and/or mathematics instruction with emphasis on developing an instructional project aligned with state-mandated content standards. Concurrent participation in a secondary school internship required. Course content supports and enhances students' internship experience. (Formerly course 75A.) (General Education Code(s): W satisfied by taking this course and course 185L.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 50A, 50B, or 50C; and acceptance into the Cal Teach program. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. The Staff

100B. Cal Teach 2: Mathematics (2 credits). S
Examines students, schools, and mathematics instruction with emphasis on developing an instructional project aligned with state-mandated content standards. Concurrent participation in a secondary school internship required. Course content supports and enhances students' internship experience. (Formerly course 75B.) (General Education Code(s): W satisfied by taking this course and course 185L.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 50A, 50B, or 50C; and acceptance into the Cal Teach program. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. The Staff

100C. Cal Teach 2: Science (2 credits). S
Examines students, schools, and science instruction with emphasis on developing an instructional project aligned with state-mandated content standards. Student must concurrently participate in a K-12 school internship. Concurrent participation in a secondary school internship required. Course content supports and enhances students' internship experience. (Formerly course 75C.) (General Education Code(s): W satisfied by taking this course and course 185L.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 50A, 50B, or 50C; and acceptance into the Cal Teach program. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. The Staff

102. Education, Media, and Society. F
Focusing on ways the media (both news and the entertainment industry) portrays schools, teachers, and students to the public, investigates the way society views education, the way education is presented in the media, and the way education is influenced by society. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. (General Education Code(s): IM.) R. Glass

104. Ethical Issues and Teaching. W
Emphasizes a philosophical exploration of the moral complexities of teaching. Students read theoretical investigations of these complexities, and examine case studies that pose difficult moral questions and illuminate the dilemmas of everyday life in classrooms. Course is grounded in a dialogical approach to learning. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. R. Glass

115. K-12 Student Assessment. *
Provides an overview of educational testing. Appropriate use and interpretation of standardized, classroom achievement and special needs assessments are examined. Issues on fair testing of diverse populations of students are discussed within each topic area. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 50. The Staff

120. The Arts in Schools: Aesthetic Education Theory and Practice. W
Explores the historical legacy of the arts within education; considers aesthetic education as an inter-arts philosophical and practical endeavor; studies alternatives to the current situation of the arts in education; develops theory, curricula and methods necessary to teach the arts. Addresses both elementary and secondary teaching in the arts. Meets third-

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

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course requirements. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. (General Education Code(s): IM.) B. Olsen

125. Multicultural Children's Literature for Elementary Classrooms. S
Offers opportunities for undergraduate and graduate students to learn about fundamental aspects of children's literature, increase their knowledge of range and quality of children's literature, enhance their understanding of multicultural children's literature, and develop ways to integrate children's literature into elementary- and middle-school curriculum areas. (Formerly Introduction to Teaching Children's Literature in Grades K-8.) Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. J. Scott

128. Immigrants and Education. F
Research and theory on the education of immigrant students. Major topics include the Americanization movement and America's changing demography, identity maintenance and change, home-school relations, and educators' roles in meeting the needs of culturally and linguistically diverse student populations. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. (General Education Code(s): ER, E.) E. Mosqueda

135. Gender and Education. F
Addresses the changing but continuing patterns of unequal expectations, opportunities, and treatment throughout the educational system for all students, female and male, who do not match a standard model of gender performance. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. C. Cruz

140. Language, Diversity, and Learning. S
Explores the intersection between language, diversity, and education to examine the education of youth who have been historically underserved by schools. Topics include dialect and register variation; language policy; and sociocultural perspectives on learning/teaching of language. Enrollment restricted to junior and senior students. Enrollment limited to 70. (General Education Code(s): ER, E.) L. Pease-Alvarez

141. Bilingualism and Schooling. S
Introduces participants to issues related to the schooling of students who speak languages other than or in addition to English. Uses a multidisciplinary perspective to understand the circumstances these students face in schools and considers approaches and policies that best meet their needs. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. (General Education Code(s): E.) G. Bunch

160. Issues in Educational Reform. S
Explores a variety of perspectives on key educational policy issues including desegregation, bilingual education, affirmative action, charter schools, national and state curriculum standards, student assessment and the assessment and certification of teachers. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. R. Ogawa

164. Urban Education. S
Focuses on urban schooling through critical readings, fieldwork, group projects, and extensive writing. Students explore how socialization, marginalization, and assimilation impede or support academic success, how class intersects with "race", and how "culture" affects one's orientation to education. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. Satisfies American History and Institutions Requirement. (General Education Code(s): E.) E. Mosqueda

170. East Asian Schooling and Immigration. W
Focuses on an historical and contemporary study of education in Japan, China, Korea, Hong Kong, and Taiwan, and the adaptation to schooling in the U.S. of immigrant families from those cultures. Topics include the effects on schooling of language acquisition, religion and cultural practices, family patterns, socioeconomic status, career aspirations, and parental expectations. (Formerly Schools and Asian Cultures.) Prerequisite(s): Enrollment restricted

to juniors, seniors, or education minors. Enrollment limited to 70. (General Education Code(s): CC.) J. Gordon

171. South and Southeast Asian Schooling and Immigration. S
Historical and contemporary study of education in India, Vietnam, Cambodia, Laos, and the Philippines, and the adaptation to schooling in the U.S. of immigrant families. Topics include: effects of language acquisition; religion and cultural practices; family patterns; socioeconomic status; career aspirations; and parental expectations. Prerequisite(s): Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. (General Education Code(s): CC.) J. Gordon

173. Seminar in Critical Pedagogy. F
Philosophical and pedagogical exploration of relationships among oppression, power, society, education, and change. Examines how history, power, economics, and discrimination shape societal perspectives and schooling practices, and considers ways to transform education. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. May be repeated for credit. The Staff

177. Teaching Culturally and Linguistically Diverse Students Math and Science. W
Examines equity issues in the learning and teaching of math and science in culturally and linguistically diverse school settings. Draws on multicultural, bilingual, and math/science education perspectives. Intended for undergraduate majors considering a K-12 teaching career. Satisfies an elective requirement for the minor in education program. Prior completion of course 180 is advised. Enrollment restricted to education or STEM minors, physics education majors, or students with math education concentration or Earth sciences science education concentration, or biology B.A. bioeducation. Enrollment limited to 70. (General Education Code(s): ER.) E. Mosqueda

178. Advanced Educational Studies. *
Advanced academic development, field research, and guided experiential learning for students planning to work in education. Enrollment by interview only. Enrollment restricted to juniors and seniors. May be applied only once to the minor. May be repeated for credit. The Staff

180. Introduction to Teaching. F,W
Designed to encourage students to think about teaching in new ways. Assumptions about teaching and schooling are examined as well as considering what it takes to teach so that children learn and understand. Not a course in how to teach, but an opportunity to reconsider what teaching should try to accomplish and what kinds of learning teachers should foster. Practicum in the schools of 30 hours per quarter required. Prerequisite(s): course 60. Enrollment restricted to education minors or by permission of instructor. Enrollment limited to 120. (General Education Code(s): PR-S.) B. Olsen, P. Stoddart

181. Race, Class, and Culture in Education. S
Examines the schooling experience and educational attainment of racial/ethnic minority students in the U.S. Focuses primarily on domestic minorities. Addresses issues of variability between and within minority groups and the role of cultural, structural, and psychological factors in the educational attainment of these students. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. (General Education Code(s): ER, E.) C. Cruz

182. American Teacher. *
Examines multiple and competing images of "teachers" and, more specifically, notions of the "good teacher"; also explores social, cultural, historical, and policy context of teachers' work in the U.S. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. The Staff

183. Children's Mathematical Thinking. *
Provides an introduction to children's mathematical thinking and an overview of major themes, issues, and questions that researchers in mathematics education have studied in relation to children's mathematical thinking. Prerequisite(s): course 60. Enrollment restricted to junior and senior education minors. Enrollment limited to 70. J. Moschkovich

185B. Introduction to Mathematics Education. W
Provides an introduction to principles and practices for mathematics education; examines how research on learning and teaching mathematics informs approaches to teaching mathematics; provides an introduction to national and state standards, mathematics curricula, and other current issues in mathematics education. (Formerly Introduction to Teaching Mathematics.) Enrollment restricted to majors in mathematics, physics, Earth sciences, computer science, computer engineering, and electrical engineering or to STEM minors or by permission of the instructor. Enrollment limited to 70. J. Moschkovich

185C. Introduction to Teaching Science. S
An introduction to the principles and practices for teaching science in secondary classrooms. Course examines theoretical and practical approaches to teaching science, provides an introduction to national and state standards and an overview of science curricula and current issues in science teaching. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 70. J. Shaw

185L. Introduction to Teaching: Cal Teach 3 (3 credits). W
Supplements theoretical and practical introduction to the teaching of science or mathematics with subject-pedagogical approaches. Concurrent participation in an advanced Cal Teach internship provides context to apply theory and practical techniques. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 50A, 50B, or 50C; course 100A,100B, or 100C; course 185B or 185C. Enrollment restricted to juniors and seniors or education minors.(Formerly course 180A.). (General Education Code(s): W satisfied by taking this course and one of the following: courses 100A, 100B, and 100C.) Enrollment limited to 30. The Staff

187. Cognition and Instruction. *
Addresses the question, "How do people learn?" by examining theories of learning and research on cognition, learning, and instruction. Enrollment restricted to juniors, seniors, or education minors. Enrollment limited to 60. The Staff

194. Group Projects. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Projects (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

197A. Cal Teach Special Project (1 credit). F,W,S
Work with K-12 students on science or math projects, ideally involving inquiry-based learning. Site supervision provided by a credentialed teacher. Project-dependent reading and writing assignments negotiated with instructor. Projects will be offered as available or initiated by student. Enrollment by interview only. Pre-requisite(s): course 50A, 50B, or 50C. Enrollment restricted to majors in the physical and biological sciences and majors in the school of engineering. May be repeated for credit. The Staff

197B. Cal Teach Special Project (2 credits). F,W,S
Work with K-12 students on science or math projects, ideally involving inquiry-based learning. Site supervision provided by a credentialed teacher. Project-dependent reading and writing assignments negotiated with instructor. Projects will be offered as available or initiated by student. Enrollment by interview only. Pre-requisite(s): course 50A, 50B, or 50C. Enrollment restricted to majors in the physical and biological sciences and majors in the school of engineering. May be repeated for credit. The Staff

197C. Cal Teach Special Project (3 credits). F,W,S
Work with K-12 students on science or math projects, ideally involving inquiry-based learning. Site supervision provided by a credentialed teacher. Project-dependent reading and writing assignments negotiated with instructor. Projects will be offered as available or initiated by student. Enrollment by interview only. Pre-requisite(s): course 50A, 50B, or 50C. Enrollment restricted to majors in the physical and biological sciences and majors in the school of engineering. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Beginning Student Teaching. F
A required course that introduces students to the diverse cultural and linguistic settings of today's classrooms. Classroom practices, instructional strategies, and analysis are emphasized. First course in the student teaching placement series. Placements are used to examine and apply teaching methods while developing classroom management skills. Class meetings include discussion and demonstration of teaching methods. (Formerly Applied Classroom Analysis and Methods: Beginning Student Teaching.) Enrollment restricted to MA/credential students. The Staff

201. Intermediate Student Teaching. W
Designed to provide students enrolled in the UCSC teacher education program a coherent, integrated, pre-professional experience in public school classrooms. Students assume part-time student teaching responsibilities totalling 14-16 hours per week under the direct supervision of an exemplary classroom teacher. Weekly seminars and ongoing supervision by department staff are required. Prerequisite(s): course 200. Enrollment restricted to MA/credential students. The Staff

201A. Intermediate Student Teaching: Single Subject. W
Provides advanced pre-professional experience for single subject teaching candidates who progressively assume full-time responsibility for public school student teaching beginning in winter quarter. Taken concurrently with course 201. Weekly supervision and seminars with teacher supervisors are required. Prerequisite(s): course 200. Enrollment restricted to MA/credential students. The Staff

202A. Advanced Student Teaching. S
Designed for students who have extensive field and course experience in education, and who wish to qualify for the single-subject or multiple-subject teaching credential by undertaking a quarter of full-time, supervised student teaching. Prerequisite(s): course 201. Enrollment restricted to M.A./credential students. The Staff

202B. Advanced Student Teaching. S
Designed for students who have extensive field and course experience in education, and who wish to qualify for the single-subject or multiple-subject teaching credential by undertaking a quarter of full-time, supervised student teaching. Prerequisite(s): course 201. Enrollment restricted to M.A./credential students. The Staff

202C. Advanced Student Teaching. S
Designed for students who have extensive field and course experience in education, and who wish to qualify for the single-subject or multiple-subject teaching credential by undertaking a quarter of full-time, supervised student teaching. Prerequisite(s): course 201. Enrollment restricted to M.A./credential students. The Staff

203. Teaching English Language Development: Foundations, Approaches, and Strategies. W
This course will help future educators develop a practical theory for teaching English as a second language in K-5 schools. Topics include the theoretical foundation for language acquisition; current trends and research in the field; the role of culture in teaching English learners; language assessment; and the design of instructional units. Also focuses on teaching social studies to English learners. Enrollment restricted to M.A./credential students. (Formerly, Methods of English Language Development: Multiple Subject Credential) Enrollment restricted to MA/credential students. The Staff

204. Methods of English Language Development: Single Subject. F
Course helps future educators develop a practical theory for teaching English in the elementary and secondary schools to students who speak other languages. Topics include current trends in the field, language assessment ,and the design of instructional units. Enrollment restricted to MA/credential students. G. Bunch

205. Teaching, Learning, and Schooling in a Diverse Society: Multiple Subject. *
Required for master's students in education. Three basic units comprise the subject matter: teaching/learning, with such topics as development, learning, pedagogy, and socialization theories; second, schooling, as the context of teaching/learning both in its existent structures and its reform movements; third, the sociocultural context in which educational institutions exist, topics such as cultural and historical forces, political and economic condition, family, and community structures. Enrollment restricted to MA/credential students. The Staff

206. Teaching, Learning, and Schooling: Single Subject. *
Required for master's students in education. Three basic units comprise the subject matter: teaching/learning, with such topics as development, learning, pedagogy, and socialization theories; schooling, as the context of teaching/learning both in its existent structures and its reform movements; and the sociocultural context in which educational institutions exist, including topics such as cultural and historical forces, political and economic conditions, family, and community structures. Enrollment restricted to MA/credential students. Enrollment limited to 30. The Staff

207. Social Foundations of Education. *
A sustained inquiry into the social, political, economic, and historical foundations of schools with an emphasis on community attitudes toward education. Student narratives of engagement and resistance will provide a basis for insights and interventions useful to educators. Enrollment restricted to MA/credential students. The Staff

208. Portfolio Development (2 credits). *
Provides student and faculty adviser with time to confer over the completion of the required portfolio. Enrollment restricted to MA/credential students. The Staff

210. Health, Safety, and Community (2 credits). *
Addresses the preparation of teachers for creating a supportive, healthy environment for student learning. Covers topics related to physical, emotional, and social health. Enrollment restricted to MA/credential students. The Staff

211. Topics in Elementary Education: Teaching Special Populations (2 credits). F
Addresses the preparation of teachers for meeting needs of special populations within the general education setting. Covers basic knowledge, skills, and strategies. Enrollment restricted to MA/credential students. The Staff

212A. Bilingualism and Biliteracy: History, Politics, Theory, and Practice (2 credits). F
Taught in Spanish. Prepares future bilingual teachers to be knowledgeable about history, politics, theory, and practices related to bilingual instructional programs. Topics: second-language acquisition, bilingual-program models, equity pedagogy. Enrollment restricted to MA/credential students. The Staff

212B. Bilingualism and Biliteracy: Language, Literacy and Content Instruction (2 credits). W
Taught in Spanish. Prepares future bilingual teachers to teach language, literacy, and the content areas in ways that address the needs of culturally and llinguistically diverse students. Topics: literacy in two languages; academic language; assessment. Enrollment restricted to MA/credential students. The Staff

212C. Bilingualism and Biliteracy: Community and School Partnerships (2 credits). S
Taught in Spanish. Provides opportunities for future bilingual teachers to develop culturally relevant practices that build collaboration between the school, students' families, and community. Topics: Latino culture and history, school-parent communication. Enrollment restricted to MA/credential students. The Staff

213. Child and Adolescent Development for Educators (2 credits).
Addresses theories of child and adolescent development and how these theories apply to student success in school. Topics include: cognitive, social, emotional, and physical development, and how this knowledge influences decisions teachers make about instruction and their interaction with students. Enrollment restricted to graduate students. Enrollment limited to 25. The Staff

217. Topics in Elementary Education: Physical Education (2 credits). *
Examines pedagogical understanding in teaching physical education. Introduces candidates to theoretical and research basis in physical education and content standards and

frameworks. Also investigates and presents instructional practices. Enrollment restricted to MA/credential students. The Staff

218. Topics in Elementary Education: Visual Arts (2 credits). *
Examines pedagogical understanding in teaching visual arts. Introduces candidates to theoretical and research basis for teaching visual arts and content standards and frameworks. Also investigates and presents instructional practices. Enrollment restricted to MA/credential students. The Staff

219. Topics in Elementary Education: Performing Arts (2 credits). *
Examines pedagogical understanding in teaching performing arts. Introduces candidates to theoretical and research basis for teaching performing arts and content standards and frameworks. Also investigates and presents instructional practices. Enrollment restricted to MA/credential students. The Staff

220. Reading and Language Arts for Elementary Classrooms. F
This course provides both a theoretical and practical foundation for literacy instruction, emphasizing reading and language arts instruction in grades K–8. Interactive instruction and field experience will be used to examine curricula, methods, materials, and literacy evaluation. Enrollment restricted to MA/credential students. J. Scott

221. Science Learning and Teaching in Elementary Classrooms. W
Examines constructivist and sociocultural approaches to the learning and teaching of science in elementary classrooms, including beliefs about the nature of science and theories of how children learn science. Provides a critical overview of curricula, instructional theories, and multiple approaches to teaching the "big ideas" in elementary science. Students are billed a materials fee. Enrollment restricted to MA/credential students. J. Shaw

222. Mathematics Learning and Teaching in Elementary Classrooms. F
This course is required for the multiple subject credential. Examines constructivist and sociocultural approaches to the learning and teaching of mathematics in elementary classrooms, including the nature of mathematics and theories of how children learn mathematics. Provides an introduction to mathematics teaching standards and a critical overview of curricula, instructional theories, and multiple approaches to teaching the "big ideas" in elementary mathematics. Enrollment restricted to MA/credential students. A. England, J. Wilson

225. Reading Across the Curriculum in Middle School and Secondary. *
Provides a theoretical and practical foundation for teaching reading within content area instruction in middle school and secondary classrooms. Field experiences and interactive instruction will facilitate learning about strategies, curricula, methods, materials, and observation. Intended for students pursuing a single subject credential. Enrollment restricted to MA/credential students. The Staff

226. English Teaching: Theory and Curriculum. F
Required for the single subject English credential student. Examines sociocultural approaches to the learning and teaching of English in secondary classrooms, including theories of how children learn English language, literature, and composition. Enrollment restricted to MA/credential students. B. Olsen

227. English Teaching for Secondary Classrooms. W
Prepares English single subject credential candidates for student teaching in winter and spring. Course focuses on developing curricula and strategies in the content area. Through classroom placements, students observe and apply techniques to develop curriculum units used in student teaching. Enrollment restricted to MA/credential students. The Staff

228. Math Education: Research and Practice. F
Examines research on the learning and teaching of mathematics. Topics include the nature of mathematics cognition and learning, how children learn mathematics, mathematical discourse, and perspectives on addressing diversity in mathematics classrooms. Course is required for M.A./credential students in secondary (single subject) mathematics and of Ph.D. students in mathematics education. Enrollment restricted to MA/credential students. J. Moschkovich

229. Teaching Mathematics in the Secondary Classroom. W
Examines constructivist and sociocultural approaches to teaching mathematics in the

secondary classroom. Course will provide an introduction to mathematics teaching standards and a critical overview of curricula, instructional theories, and multiple approaches to teaching the "big ideas" in secondary mathematics. Required for mathematics secondary credential. Prerequisite(s): course 228. Enrollment restricted to MA/credential students. The Staff

230. Science Education: Research and Practice. F
Examines theoretical approaches to the learning and teaching of science including the nature of scientific knowledge, theories of how children learn science, approaches to scientific discourse, and perspectives on addressing diversity in science classrooms. Course is required for single subjects science credential. Enrollment restricted to MA/credential students. D. Ash

231. Teaching Science in the Secondary Classroom. W
Examines constructivist and sociocultural approaches to teaching science in secondary classrooms. Course will provide a critical overview of curricula, instructional theories, and multiple approaches to teaching the "big ideas" in science. Students are billed a materials fee. Enrollment restricted to MA/credential students. The Staff

232. Social Science: Theory and Curriculum. F
Required for the single subject social science credential student. Tracks both the implicit and explicit connections between theory and practice, illustrating that theory suggests best practice while practice informs theory-formation and testing. Enrollment restricted to MA/credential students. C. Cruz

233. Social Science Teaching for Secondary Classrooms. W
Prepares social science single subject credential candidates for student teaching in winter and spring. Course focuses on developing curricula and strategies in the content area. Through classroom placements, students observe and apply techniques to develop curriculum units that are used in student teaching. Enrollment restricted to MA/credential students. The Staff

235. Introduction to Educational Inquiry. F
Addresses foundational knowledge needed to understand and conduct educational inquiry and research. Topics include epistemology in the human sciences, philosophical foundations of modern research strategies, and general classes of research investigations in education. Enrollment restricted to graduate students. Enrollment limited to 15. P. Stoddart

236. Quantitative Methods in Educational Research. W
Promotes intermediate-level knowledge of quantitative research methods in educational settings. Students learn the foundations of quantitative data theory, general logic behind statistical inference, and specific methods of data analysis in educational contexts. Enrollment restricted to graduate students. Enrollment limited to 15. E. Mosqueda

237. Qualitative Research Methods. S
Graduate level introduction to qualitative methods, with special attention to ethnographic research on schooling. Moves from overview of different methods, through examination of selected studies, to discussion of issues in research design, data collection, analysis, and writing. Enrollment restricted to graduate students; priority is given to graduate students in education. Enrollment limited to 12. L. Bartlett

250. Teacher Thinking, Teacher Knowledge, and Teacher Identity. *
This doctoral seminar explores recent research on teacher thinking, teacher knowledge, and teacher identity to examine interrelationships among teachers' perspectives, preparation experience, biographies, work contexts, career shapes, professional practices, and effects on student achievement. Enrollment restricted to graduate students. Enrollment limited to 15. B. Olsen

251. Analysis of Activity and Interaction in Educational Settings. *
Analyzes topics, which vary systematically from year to year, including analysis of classroom interaction, video recording and transcription, coding and analysis of discourse data, and software programs for qualitative analysis. Prerequisite(s): course 237. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. The Staff

252. Hermeneutics of Education. *
Investigates philosophical hermeneutics to deeply interrogate education. Addresses such questions as: What is hermeneutics? How is education an hermeneutic enterprise? How does knowing hermeneutics deepen the ability to engage in education research? Enrollment restricted to graduate students. Enrollment limited to 12. B. Olsen

253. Research Design in Mathematics and Science Education. *
Examines multiple approaches to designing research studies in mathematics and science education. Introduces multiple types of research designs and principles used by education researchers examining mathematics/science learning and teaching. Enrollment restricted to graduate students. Enrollment limited to 15. J. Moschkovich

254. Critical and Alternative Paradigms in Education Research. *
Examines theoretical foundations of critical and alternative research paradigms commonly used in education, including critical ethnography, participatory research, counter-storytelling, and social-design experiments. Examines critiques of qualitative/quantitative research from feminist and critical theory; surveys how such critiques have informed the development of new paradigms in education research; and explores the benefits and limits of selected alternative paradigms. Enrollment restricted to graduate students. Enrollment limited to 15. C. Cruz

255. Intermediate Quantitative Methods. *
Focuses on the applied statistical modeling and analysis of educational data (large-scale data sets), not on the mathematical foundations of science. Students learn to address quantitative research questions using general linear model (GLM) statistical methods. GLM includes regression analysis, analysis of variance (ANOVA), and analysis of covariance (ANCOVA). Students learn statistics by doing statistics. Prerequisite(s): introductory statistics course (course 236 or equivalent). Enrollment restricted to graduate students. Enrollment limited to 15. E. Mosqueda

256. Advanced Qualitative Analysis in Education Research. S
Emphasizes the analysis of qualitative data in education research and introduces interpretive analytical approaches for its use with empirical data, the use of coding software for ethnographic analysis, and video recording and transcription. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. C. Cruz

260. The Teacher and The School: An Investigation of Related Practice, Reform, and Research. *
Explores empirical and theoretical interconnections between teachers and teaching on the one side, and schools as situated organizations on the other. The course examines these various interconnections in relation to contemporary educational research, practice, and policy reform. Enrollment restricted to graduate students. Enrollment limited to 12. B. Olsen

261. Thinking, Learning, and Teaching. W
Examines multiple theoretical perspectives on thinking, learning, and teaching; the development of the whole person in a variety of cultural contexts; the roles thinking, learning, and teaching play in that development; and how researchers' and educators' conceptions shape instruction. Enrollment restricted to graduate students. Enrollment limited to 15. J. Scott

262. Social and Cultural Context of Education. F
Application of anthropological and sociological theories to study of education. Examines social, cultural, and linguistic context of schooling with particular attention to role of race, class, culture, power, and language in influencing schooling outcomes. Enrollment restricted to graduate students. Enrollment limited to 15. M. Gibson

263. Foundations of Educational Reform. S
Provides students with multiple analytic perspectives from which to examine important educational issues by analyzing political, historical, and philosophical origins of educational reform in the U.S. and internationally. Enrollment restricted to graduate students. Enrollment limited to 15. R. Ogawa

264. Research on Teacher Development and Teacher Education. *

Addresses personal and professional development of teachers. Explores models of teacher education with specific attention to methods and processes by which teachers can be better prepared to work with culturally and linguistically diverse students. Enrollment restricted to graduate students. Enrollment limited to 15. P. Stoddart

265. Teacher as Educational Policy Maker. *
Focuses on the role teachers play in making/implementing educational policy. Addresses how this topic is implicated in enhancing the educational opportunities available to students who, historically, have been underserved by schools. Enrollment restricted to graduate students. Enrollment limited to 15. L. Pease-Alvarez

266. Program Evaluation and Action Research in Educational Reform. *
Overview of the purpose of and practice in program evaluations in a variety of contexts with a specific focus on educational settings. Students learn the techniques of program evaluation; the historical and theoretical context of program evaluations, including its relation to experimental research; and how action research can be used in conducting field-based evaluations. Students should be familiar with basic quantitative and qualitative methodologies. Enrollment restricted to graduate students. Enrollment limited to 15. K. Tellez

268. Schools, Communities, and Families. W
Examines the nexus of schools, communities, and families, and, in particular, how collaboration across institutional boundaries can facilitate school and community reform. Enrollment restricted to graduate students. Enrollment limited to 15. R. Glass

269A. First-Year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for first-year doctoral students. Students develop essential skills for success as scholars, discuss issues in educational research and practice, and are introduced to research by Education Department faculty. Enrollment restricted to education graduate students. Enrollment limited to 15. G. Bunch

269B. First-Year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for first-year doctoral students. Students develop essential skills for success as scholars, discuss issues in educational research and practice, and are introduced to research by Education Department faculty. Enrollment restricted to education graduate students. Enrollment limited to 15. G. Bunch

269C. First-Year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for first-year doctoral students. Students develop essential skills for success as scholars, discuss issues in educational research and practice, and are introduced to research by Education Department faculty. Enrollment restricted to education graduate students. Enrollment limited to 15. G. Bunch

270A. Second-Year Professional Development Seminar (2 credits). *
Three-quarter seminar supports professional development for second-year doctoral students. Activities include preparation of research and conference proposals, presentation of second-year project findings, and attendance at department colloquia. Enrollment restricted to second-year Ph.D. students. Enrollment limited to 12. J. Scott

270B. Second-Year Professional Development Seminar (2 credits). *
Three-quarter seminar supports professional development for second-year doctoral students. Activities include preparation of research and conference proposals, presentation of second-year project findings, and attendance at department colloquia. Enrollment restricted to second-year Ph.D. students. Enrollment limited to 12. J. Scott

270C. Second-Year Professional Development Seminar (2 credits). *
Three-quarter seminar supports professional development for second-year doctoral students. Activities include preparation of research and conference proposals, presentation of second-year project findings, and attendance at department colloquia. Enrollment restricted to second-year Ph.D. students. Enrollment limited to 12. J. Scott

271. Theoretical Perspectives on Learning and Using Literacy. S
Examines theoretical perspectives, educational issues, and scholarship related to use and

development of literacy among diverse populations, particularly those who have not fared well in U.S. schools. Enrollment restricted to graduate students. Enrollment limited to 12. J. Scott

272. Sociolinguistics in Education. *
Investigates discipline of sociolinguistics and explores actual ways in which sociolinguistics has become a useful lens for better understanding teaching, learning, and schooling. Conduct own sociolinguistic analyses of data collected for culminating project. Enrollment restricted to graduate students. Enrollment limited to 15. B. Olsen

273. Language Acquisition, Bilingualism, and Education. *
Foundations of first- and second-language acquisition and bilingualism with emphasis on implications for education in linguistically diverse settings. Topics include linguistic, cognitive, sociolinguistic, and sociocultural approaches to development of languages and the nature of individual and societal bilingualism. Enrollment restricted to graduate students. Enrollment limited to 15. G. Bunch

274. Language and Power in Education. W
Examines relationships between sociopolitical struggles and language/language practices. Students study ways in which Marxism, critical theory, and post structuralism have represented links between language and power, and investigate contemporary studies of language and power in education. Enrollment restricted to graduate students. Enrollment limited to 15. B. Olsen

276. Theory and Practice of Writing. *
Explores first and second language-writing theory, research, and practice, especially relating to language minority students and others considered academically under-prepared. Focuses on educational settings from pre-school settings including families and communities. Enrollment restricted to graduate students. Enrollment limited to 15. G. Bunch, L. Pease-Alvarez

277A. Second-year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for second-year doctoral students as they prepare their qualifying materials and begin dissertation work. Prerequisite(s): courses 269 A-B-C. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

277B. Second-year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for second-year doctoral students as they prepare their qualifying materials and begin dissertation work. Prerequisite(s): courses 269 A-B-C. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

277C. Second-year Doctoral Proseminar (2 credits). *
This three-quarter seminar supports professional development for second-year doctoral students as they prepare their qualifying materials and begin dissertation work. Prerequisite(s): courses 269 A-B-C. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

278. Critical Exploration of Reading Theory and Practice. *
Doctoral seminar that examines historical and current research on reading processes and instructional practices. Intensive study of factors affecting the development of proficient, engaged, and reflective readers who can acquire new knowledge from text. Enrollment restricted to graduate students. Enrollment limited to 15. J. Scott

279A. Dissertation Supervision for Ed.D.. *
Supervision of Ed.D. candidate through third and fourth year of research analysis, writing, and editing of dissertation. Preparation for oral defense and assistance with bringing dissertation to standards of publication and conference presentation. Enrollment restricted to Ed.D. graduate students. Enrollment limited to 20. The Staff

279B. Dissertation Supervision for Ed.D.. *
Supervision of Ed.D. candidate through third and fourth year of research analysis, writing, and editing of dissertation. Preparation for oral defense and assistance with bringing dissertation to standards of publication and conference presentation. Enrollment restricted to Ed.D. graduate students. Enrollment limited to 20. The Staff

279C. Dissertation Supervision for Ed.D.. *
Supervision of Ed.D. candidate through third and fourth year of research analysis, writing, and editing of dissertation. Preparation for oral defense and assistance with bringing dissertation to standards of publication and conference presentation. Enrollment restricted to Ed.D. graduate students. Enrollment limited to 20. The Staff

280. Academic Language. S
Considers and critiques conceptualizations of the language used for academic pursuits, from the early years of schooling to higher education. Focuses on implications for research and practice related to the education of students in linguistically diverse schools and societies. Enrollment restricted to graduate students. Enrollment limited to 15. G. Bunch

281. Conceptual Change in Science and Mathematics. *
Examines approaches in cognitive science, mathematics education, and science education to documenting student conceptions in science and mathematics, defining conceptual change, and describing relationship between conceptual change and learning with understanding. Enrollment restricted to graduate students. Enrollment limited to 12. J. Moschkovich

282. Informal Learning in Sciences and Mathematics. *
Explores research on learning outside of school in multiple settings such as museums, after-school clubs, aquariums, workplaces, and homes. Readings draw from multiple fields and disciplines, including cognitive psychology, cognitive anthropology, cognitive science, education, museum education and evaluation, science, and mathematics education. Examine theoretical approaches to describing and understanding how people learn science and mathematics outside of school, empirical studies documenting learning in multiple non-school settings, and diversity issues in out-of-school settings. Enrollment restricted to graduate students. Enrollment limited to 15. D. Ash

283. Equity and Social Justice in Mathematics and Science Education. *
Examines the theory, research, policy and practice of social justice and equity in mathematics and science education in local, national, and international contexts. Emphasizes the promotion of equity and critical mathematics and science literacy in schools and communities. Enrollment restricted to graduate students. J. Shaw

284. Gender in Mathematics and Science Education. *
Explores basic aspects of gender in the fields of mathematics and science education. Discusses historical trends, current dilemmas, and how science and mathematics block or enable access for women. Enrollment restricted to graduate students. Enrollment limited to 15. D. Ash

285. Culture and Learning. *
Examines multiple approaches to the study of the relation between culture and learning. Readings include historical and contemporary perspectives from cognitive science, cognitive anthropology, cross-cultural psychology, cultural psychology, and socio-cultural theories as frameworks for the study of culture and learning. Enrollment restricted to graduate students. Enrollment limited to 15. J. Moschkovich

286. Special Topics in Math and Science Education. *
Focuses on particular issues of theoretical importance to research in mathematics and science education. Topics vary from year to year. Particular issues in cognition, learning, teaching, curriculum, and assessment in mathematics and science education may be covered. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. J. Moschkovich, D. Ash, J. Shaw

287. Issues in Educational Assessment. *
Familiarizes students with the basic concepts of educational assessment and explores issues related to the design and implementation of educational assessment as well as the application of educational assessment in educational research. Enrollment restricted to graduate students. Enrollment limited to 12. J. Shaw

288. Ethnographies of Education. *
Offers opportunity to critique a range of book-length ethnographic studies of education focusing on relationship between culture, learning, and schooling in the U.S. with comparative studies from other countries. Enrollment restricted to graduate students.

Enrollment limited to 12. The Staff

289. School Organization. *
Applies multiple perspectives drawn from organizational theory, highlighting important aspects of organization of schools, including their operational environment, instructional organization, and professional and bureaucratic dimensions. Enrollment restricted to graduate students. Enrollment limited to 12. R. Ogawa

290. CHAT and Educational Practice and Research. *
Introduction to cultural-historical activity theory (CHAT) based on work of Vygotsky, Bakhtin, and contemporary developments of their ideas. Explores the utility of CHAT as a framework for thinking about educational practice and research. Enrollment restricted to graduate students. Enrollment limited to 15. J. Moschkovich

291. Globalization and Transnationalism in Education. W
Examines educational access and advancement in several nations affected by globalization, national policies, and localized identity and opportunity structures. Attention to language and cultural expectations relevant to research in international contexts and how this knowledge provides reflection on the American condition. (Formerly "Comparative and International Education.") Enrollment restricted to graduate students. Enrollment limited to 15. J. Gordon

292. Ideology and Education. *
Philosophical study of the theory of ideology from Marx to the present and how ideologies (racism, sexism, classism, linguicism, abilityism) become embodied, reproduced, resisted, and transformed (and particularly the role of education therein). Enrollment restricted to graduate students. Enrollment limited to 22. R. Glass

293A. Research Apprenticeship (2 credits). F,W,S
Research apprenticeship under guidance of faculty member during first or second year of doctoral studies. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

293B. Research Apprenticeship. F,W,S
Research apprenticeship under guidance of faculty member during first or second year of doctoral studies. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

294. Second-Year Research Project. F,W,S
Doctoral students work with faculty advisors to plan, carry out, and write up small independent research project during second year of graduate studies. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

295. Critical Theories of Education. *
Investigates critical theories in education. Situates the themes against and within critical theory and philosophic foundations of Paulo Freire's theory of liberation education. Elaborates these themes within the discourses on critical race theory and education, and feminism and education. Enrollment restricted to graduate students. Enrollment limited to 15. R. Glass

296. Educational Policy and the Context of Teachers' Work. F
Focuses on both the conceptual and methodological developments in the study of policy and on the research relation to the policy context of teachers' work. Enrollment restricted to graduate students. Enrollment limited to 12. L. Bartlett

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

298. TA Apprenticeship (2 credits). F,W,S
Students work with a faculty member who is teaching an undergraduate or MA/Credential course. Students will not be responsible for final grades, narrative evaluations, or holding discussion section. The expected course time commitment is limited to 2-3 hours per week, plus class meeting time. Students gain perspectives and practices of teaching

undergraduate and graduate courses, working with the instructor on lesson planning, class instruction, and grading some student work. Course cannot be repeated for course credit. Enrollment restricted to graduate students. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Electrical Engineering

2014-15 General Catalog

Baskin School of Engineering
335 Baskin Engineering Building
(831) 459-2158
http://www.soe.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

80J. Renewable Energy Sources. S
Introduction to energy storage and conversion with special emphasis on renewable sources. Fundamental energy conversion limits based on physics and existing material properties. Various sources, such as solar, wind, hydropower, geothermal, and fuel cells described. Cost-benefit analysis of different alternative sources performed, and key roadblocks for large-scale implementation examined. Latest research on solar cells and applications of nanotechnology on energy conversion and storage introduced. Students cannot receive credit for this course and course 81J. (General Education Code(s): PE-E, T2-Natural Sciences.) M. Isaacson

80S. Sustainability Engineering and Practice. F
Topical introduction to principles and practices of sustainability engineering and ecological design with emphasis on implementation in society. Provides an understanding of basic scientific, engineering, and social principles in the design, deployment, and operation of resource-based human systems, and how they can be maintained for this and future generations. No specialized background in engineering, science, or social sciences is assumed. (General Education Code(s): SR, T7-Natural Sciences or Social Sciences.) K. Monsen

80T. Modern Electronic Technology and How It Works. W
Basic knowledge of electricity and "how things work," how technology evolves, its impact on society and history, and basic technical literacy for the non-specialist. Broad overview of professional aspects of engineering and introduction and overview of basic systems and components. Topics include electrical power, radio, television, radar, computers, robots, telecommunications, and the Internet. (General Education Code(s): SI, T7-Natural Sciences or Social Sciences, Q.) K. Pedrotti

81C. Designing a Sustainable Future. S
Introduces key technological solutions to environmental problems; discusses their underlying principles; and examines their societal dimensions. Topics include: conventional and renewable energy; emerging technologies for transportation, energy efficiency clean water; planetary engineering; and lean manufacturing. (Formerly Technological Innovation and Environmental Challenges.) (Also offered as College Eight 81C. Students cannot receive credit for both courses.) (General Education Code(s): SI, T-2 Natural Sciences.) The Staff

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

94. Group Tutorial. F,W,S
A means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
A means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Introduction to Electronic Circuits. F,W
Introduction to the physical basis and mathematical models of electrical components and circuits. Topics include circuit theorems (Thevenin and Norton Equivalents, Superposition), constant and sinusiodal inputs, natural and forced response of linear circuits. Introduction to circuit/network design, maximum power transfer, analog filters, and circuit analysis using Matlab. Topics in elementary electronics including ampliphiers and feedback. Prerequisite(s): Physics 5C/N or 6C/N, and Mathematics 24 or previous or concurrent enrollment in Applied Mathematics and Statistics 20 or 20A. Concurrent enrollment in course 101L is required. S. Shin, J. Kubby

101L. Introduction to Electronic Circuits Laboratory (2 credits). F,W
Illustrates topics covered in course 101. One two-hour laboratory session per week. Students are billed for a materials fee. Prerequisite(s): Physics 5C/N or 6C/N; and Mathematics 24 or previous or concurrent enrollment in Applied Mathematics and Statistics 20 or 20A. Concurrent enrollment in course 101 is required. S. Shin, J. Kubby

103. Signals and Systems. F,S
The course covers the following topics: characterization and analysis of continuous-time signals and linear systems, time domain analysis using convolution, frequency domain analysis using the Fourier series and the Fourier transform, the Laplace transform, transfer functions and block diagrams, continuous-time filters, sampling of continuous time signals, examples of applications to communications and control systems. Prerequisite(s): courses 101/L and Applied Mathematics and Statistics 20 or 20A. P. Milanfar, B. Friedlander

103L. Signals and Systems Laboratory (2 credits). F,S
Use and operation of spectrum analyzers; advanced signal analysis using oscilloscopes; measuring impulse response, step response, frequency response, and computer analysis of real signals. MATLAB programming is taught and used as a tool for signal analysis. Students are billed a materials fee. Prerequisite(s): course 101and 101L, and Applied Mathematics and Statistics 20 or 20A. Concurrent enrollment in course 103 required. P. Milanfar, B. Friedlander

104. Bio-electronics and Bio-instrumentations. *
Focuses on the analysis, design, and measurement of components and systems of biomedical devices which interface biological systems with electronics mechanics, and optics. Topics include: abiotic/biotic interface; low-power analog/digital circuits and systems; signal integrity; energy harvesting; wireless techniques; regulatory/ethic compliance tailored for both invasive and non-invasive biomedical applications. Prerequisite(s): course 103. Enrollment restricted to juniors, seniors, and graduate students. The Staff

115. Introduction to Micro-Electro-Mechanical-Systems (MEMS) Design.
Begins with overview of MEMS devices and processes that are used to fabricate them. The basic governing equations for MEMS devices in different energy domains (mechanical, electrical, optical, thermal, and fluidic) reviewed, and both analytical and finite element coupled-domain modeling is used to design MEMS devices. Students work in teams to design, lay out, and fabricate MEMS devices and test structures using a standard multi-user

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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process available through a foundry service. A presentation and term paper describing the design and layout will be required. Prerequisite(s): courses 101/L, 135/L, 145/L, Mathematics 19A and 19B, Mathematics 23A and 23B, and Mathematics 24 or Applied Mathematics and Statistics 20 or 20A, Physics 5A, 5B, 5C, and 5D. Enrollment limited to 15. The Staff

122A. Collaborative Sustainability Project Design. F,W,S
This course is the first quarter of a three quarter series of courses that together comprise the IDEASS Program (Impact Designs: Engineering and Sustainability through Student Service), which provides students with opportunities to plan, implement, and evaluate interdisciplinary sustainable design projects in the built environment for the Monterey Bay Region. In fall quarter students are introduced to project topics and background information. In collaboration with an outside mentor project teams design, revise, and complete a project plan including project goals and deliverables, timeline of key activities and major milestones, stakeholder map, evaluation plan, and budget (as applicable). Students apply online; selected applicants complete in-person interviews. (Formerly course 122.) Enrollment limited to 65. May be repeated for credit. M. Isaacson

122B. Collaborative Sustainability Project Implementation. W
The second of a three-quarter sequence that together comprise the IDEASS Program (Impact Designs: Engineering and Sustainability through Student Service) which provides opportunities for students to plan, implement, and evaluate interdisciplinary sustainable-design projects in the built environment for the Monterey Bay Region. In winter quarter, project teams work collaboratively to implement the project plans approved during the fall quarter. Students participate in a weekly seminary series that includes guest lectures and field trips as well as workshops in project management, public speaking, writing skills, and other professional development. Prerequisite(s): course 122A. Students apply online; selected applicants complete in-person interviews. Enrollment is restricted to juniors and seniors. M. Isaacson

122C. Collaborative Sustainability Project Implementation. S
The third of a three-quarter sequence that together comprise the IDEASS Program (Impact Designs: Engineering and Sustainability through Student Service) which provides opportunities for students to plan, implement, and evaluate interdisciplinary sustainable-design projects in the built environment for the Monterey Bay Region. In spring quarter, project teams work collaboratively to continue implementation of project plans approved during the fall quarter, then evaluate projects impacts. Students participate in a weekly seminary series that includes guest lectures and field trips as well as workshops in project management, public speaking, writing skills, and other professional development. Students also work in the community on educational public outreach regarding project impacts. Prerequisite(s): course 122A. Students apply online; selected applicants complete in-person interviews. Enrollment is restricted to juniors and seniors. M. Isaacson

123A. Engineering Design Project I. *
First of a two-course sequence that is the culmination of the engineering program. Students apply knowledge and skills gained in elective track to complete a major design project. Students complete research, specification, planning, and procurement for a substantial project. Includes technical discussions, design reviews, and formal presentations; engineering design cycle, engineering teams, and professional practices. Formal technical specification of the approved project is presented to faculty. Prerequisite(s): Electrical Engineering 171 and Computer Engineering 100; previous or concurrent enrollment in Computer Engineering 185 and in at least one of the following: Electrical Enginneering 157, Computer Engineering 121 or Computer Engineering 118; permission of department and instructor. Students are billed a materials fee. (General Education Code(s): PR-E.) The Staff

123B. Engineering Design Project II (7 credits). *
Second of two-course sequence in engineering system design. Students fully implement and test system designed and specified in course 123A. Formal written report, oral presentation, and demonstration of successful project to review panel of engineering faculty required. Students are billed a materials fee. Prerequisite(s): course 123A. The Staff

129A. Capstone Project I (2 credits). F
First of a three-course sequence in which students apply knowledge and skills gained in

elective track to complete a major design project. In this first course, students complete the specification and planning for a substantial project. Topics covered: engineering design cycle, engineering teams, and professional practices. Prerequisite(s): course 171; and Computer Engineering 100; and Computer Engineering 185; and previous or concurrent enrollment in course 157 or Computer Engineering 118 or Computer Engineering 121. Enrollment restricted to seniors. Enrollment by permission of instructor. S. Petersen

129B. Capstone Project II. W
Second of a three-course sequence in which students apply knowledge and skills gained in elective track to complete a major design project. In this second course, students complete the training, research, and procurement for a substantial project and a preliminary implementation. Students are billed a materials fee. Prerequisite(s): courses 129A and 171; and Computer Engineering 100; and Computer Engineering 185; and previous or concurrent enrollment in course 157 or Computer Engineering 118 or Computer Engineering 121. Enrollment restricted to seniors. Enrollment by permission of instructor. (General Education Code(s): PR-E.) S. Petersen, The Staff

129C. Captone Project III. S
Third of a three-course sequence in which students apply knowledge and skills gained in this elective track to complete a major design project. In this third course, students work in teams to complete the project specified and advance on the results of the work in the first two courses. A formal written report, oral presentation, and demonstration of the successful project to a review panel of engineering faculty is required. Students are billed a materials fee. Prerequisite(s): courses 129B and 171; and Computer Engineering 100; and Computer Engineering 185; and previous or concurrent enrollment in course 157 or Computer Engineering 118 or Computer Engineering 121. Enrollment restricted to seniors. Enrollment by permission of instructor. J. Vesecky, (F) The Staff

130. Introduction to Optoelectronics and Photonics. F
Introduction to optics, photonics and optoelectronics, fiber optic devices and communication systems: Topics include: ray optics, electromagnetic optics, resonator optics, interaction between photons and atoms, dielectric waveguides and fibers, semiconductor light sources and detectors, modulators, amplifiers, switches, and optical fiber communication systems. Taught in conjunction with course 230. Students cannot receive credit for this course and course 230. Prerequisite(s): Physics 5B and 5C, or 6B and 6C; concurrent enrollment in course 130L. A. Yanik

130L. Introduction to Optoelectronics Laboratory (1 credit). F
Includes a series of projects to provide hands-on experience needed for basic concepts and laboratory techniques of optical fiber technology. Students are billed a materials fee. Prerequisite(s): Physics 5L-M-N, or 6L-M-N; concurrent enrollment in course 130. Enrollment limited to 30. A. Yanik

135. Electromagnetic Fields and Waves. W
Vector analysis. Electrostatic fields. Magnetostatic fields. Time-varying fields and Maxwell's equations. Plane waves. Prerequisite(s): course 101/L; Mathematics 23B; and Mathematics 24 or Applied Mathematics and Statistics 20 or 20A. Students must concurrently enroll in course 135. A. Yanik

135L. Electromagnetic Fields and Waves Laboratory (2 credits). W
Laboratory sequence illustrating topics in course 135. One two-hour laboratory session per week. Students are billed a materials fee. Prerequisite(s): course 101/L; Mathematics 23B; and Mathematics 24 or Applied Mathematics and Statistics 20 or 20A. Students must concurrently enroll in course 135. A. Yanik

136. Engineering Electromagnetics. S
Course will cover electromagnetic wave propagation, transmission lines, waveguides, and antennas. Prerequisite(s): course 135/L. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors or permission of instructor. The Staff

145. Properties of Materials. F
The fundamental electrical, optical, and magnetic properties of materials, with emphasis on metals and semiconductors: chemical bonds, crystal structures, elementary quantum mechanics, energy bands. Electrical and thermal conduction. Optical and magnetic properties. Prerequisite(s): Physics 5A/L, 5B/M, and 5C/N or 6A/L, 6B/M, and 6C/N.

Students must also concurrently enroll in course 145L. N. Kobayashi

145L. Properties of Materials Laboratory (2 credits). F
Laboratory sequence illustrating topics covered in course 145. One two-hour laboratory per week. Students are billed a materials fee. Prerequisite(s): Physics 5A/L, 5B/M, and 5C/N or 6A/L, 6B/M, and 6C/N. Students must also concurrently enroll in course 145. N. Kobayashi

151. Communications Systems. W
An introduction to communication systems. Analysis and design of communication systems based on radio, transmission lines, and fiber optics. Topics include fundamentals of analog and digital signal transmission in the context of baseband communications, including concepts such as modulation and demodulation techniques, multiplexing and multiple access, channel loss, distortion, bandwidth, signal-to-noise ratios and error control. Digital communication concepts include an introduction to sampling and quantization, transmission coding and error control. Prerequisite(s): courses 103, 101/L, and Computer Engineering 107 or probability theory and random variables background. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors or permission of instructor. H. Sadjadpour

152. Introduction to Wireless Communications. S
Introduction to the principles of wireless communications systems. Wireless propagation channels and their impact on digital communications. Modulation techniques for wireless systems and their performance. Multi-antenna systems and diversity. Multicarrier and spread spectrum. Multi-access methods: FDMA, TDMA, CDMA. The structure of cellular systems. Students cannot receive credit for this course and course 252. Prerequisite(s): Computer Engineering 107 and course 151, or by consent of instructor. Enrollment restricted to juniors and seniors. B. Friedlander

153. Digital Signal Processing. F
Introduction to the principles of signal processing, including discrete-time signals and systems, the z-transform, sampling of continuous-time signals, transform analysis of linear time-invariant systems, structures for discrete-time systems, the discrete Fourier transform, computation of the discrete Fourier transform, and filter design techniques. Taught in conjunction with Electrical Engineering 250. Students cannot receive credit for this course and Electrical Engineering 250. (Also offered as Computer Engineering 153. Students cannot receive credit for both courses.) Prerequisite(s): course 103. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors or permission of instructor. A. Fletcher

154. Feedback Control Systems. F
Analysis and design of continuous linear feedback control systems. Essential principles and advantages of feedback. Design by root locus, frequency response, and state space methods and comparisons of these techniques. Applications. (Also offered as Computer Engineering 141. Students cannot receive credit for both courses.) Prerequisite(s): course 103. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors, or by permission of instructor. Enrollment limited to 30. D. Milutinovic

157. RF Hardware Design. W
Engineering design cycle for wireless and RF systems: design, practical hardware implementation, and prototype. Prerequisite(s): courses 101/L, 103, and 171, and Computer Engineering 174; or consent of instructor. Concurrent enrollment in course 157L is required. Enrollment limited to 30. K. Pedrotti, S. Petersen

157L. RF Hardware Design Laboratory (2 credits). W
Laboratory to accompany course 157, emphasizing hardware-design practice and principles applies to RF apparatus. Students design and implement a substantial final project during the last half of the course. Students are billed a materials fee. Prerequisite(s): courses 101/L, 103, 171, and Computer Engineering 174; or consent of instructor. Concurrent enrollment in course 157 is required. Enrollment limited to 30. S. Petersen

171. Analog Electronics. S
Introduction to (semiconductor) electronic devices. Conduction of electric currents in semiconductors, the semiconductor p-n junction, the transistor. Analysis and synthesis of linear and nonlinear electronic circuits containing diodes and transistors. Biasing, small

signal models, frequency response, and feedback. Operational amplifiers and integrated circuits. Prerequisite(s): course 101/L; previous or concurrent enrollment in course 171L required. K. Pedrotti

171L. Analog Electronics Laboratory (2 credits). S
Laboratory sequence illustrating topics covered in course 171. One two-hour laboratory session per week. Students are billed a materials fee. Prerequisite(s): courses 101/L; previous or concurrent enrollment in course 171 required. K. Pedrotti

172. Advanced Analog Circuits. *
Analog circuit design covering the basic amplifier configurations, current mirrors, differential amplifiers, frequency response, feedback amplifiers, noise, bandgap references, one- and two-stage operational amplifier design, feedback amplifier stability, switched capacitor circuits and optionally the fundamentals of digital-to-analog and analog-to-digital converters. Emphasis throughout will be on the development of approximate and intuitive methods for understanding and designing circuits. Cannot receive credit for this course and course 221. Prerequisite(s): course 171. The Staff

173. High-Speed Digital Design. S
Studies of analog circuit principles relevant to high-speed digital design: signal propagation, crosstalk, and electromagnetic interference. Topics include electrical characteristics of digital circuits, interfacing different logic families, measurement techniques, transmission lines, ground planes and grounding, terminations, power systems, connectors/ribbon cables, clock distribution, shielding, electromagnetic compatibility and noise suppression, and bus architectures. (Formerly Computer Engineering 173.) Prerequisite(s): courses 101/L and 174. Previous or concurrent enrollment in course 173L required. Course 171 and Computer Engineering 121 recommended. Enrollment limited to 30. S. Petersen

173L. High-Speed Digital Design Laboratory (2 credits). S
Laboratory sequence illustrating topics covered in course 173. One two-hour laboratory session per week. Students are billed a materials fee. (Formerly Computer Engineering 173L.) Prerequisite(s): courses 101/L and 174. Previous or concurrent enrollment in course 173 required. Course 171 and Computer Engineering 121 recommended. Enrollment limited to 30. S. Petersen

174. Introduction to EDA Tools for PCB Design (3 credits). F
Focus on EDA tools for design of printed-circuit boards. Elements of design flow covered: schematic capture and simulation to final PCB layout. Final project is required. Students are billed a materials fee. (Formerly Computer Engineering 174.) Prerequisite(s): course 101/L or consent of instructor. S. Petersen

175. Energy Generation and Control. S
Introduces electrical energy generation, sensing, and control, emphasizing the emerging smart grid. Topics include 3-phase AC power systems, voltage and transient stability, fault analysis, grid protection, power-flow analysis, economic dispatch, and high voltage DC distribution (HVDC). Prerequisite(s): course 101. Concurrent enrollment in course 175L required. J. Vesecky

175L. Energy Generation and Control Laboratory (2 credits). S
Computer analysis and simulation of energy generation, components, power-flow analysis, systems, and control covering topics from course 195. Weekly computer simulations reinforce the concepts introduced in course 175. Students are billed a materials fee. Prerequisite(s): course 101. Concurrent enrollment in course 175 required. J. Vesecky

176. Energy Conservation and Control. F
AC/DC electric-machine drives for speed/position control. Integrated discussion of electric machines, power electronics, and control systems. Computer simulations. Applications in electric transportation, hybrid-car technology, robotics, process control, and energy conservation. Prerequisite(s): courses 103 and 171. Concurrent enrollment in course 176L is required. S. Petersen

176L. Energy Conversion and Control Laboratory (2 credits). F
Simulink-based simulations of electric machines/drives in applications such as energy conservation and motion control in robotics and electric vehicles. Students are billed a

materials fee. Prerequisite(s): courses 103 and 171. Concurrent enrollment in course 176 is required. S. Petersen

177. Power Electronics. W
Switch-mode power converter design and analysis. Non-switching power supplies. Electronic power-factor correction. Soft switching. Power-semiconductor devices. Use in energy conservation, renewable energy, lighting, and power transmission. Prerequisite(s): course 103. Concurrent enrollment in course 177L is required. The Staff

177L. Power Electronics Laboratory (2 credits). W
Buck, boost, buck-boost, flyback, and forward converter design and control. Students are billed a materials fee. Prerequisite(s): course 103. Concurrent enrollment in course 177 is required. The Staff

178. Device Electronics. *
This course reviews the fundamental principles, device's materials, and design and introduces the operation of several semiconductor devices. Topics include the motion of charge carriers in solids, equilibrium statistics, the electronic structure of solids, doping, the pn junction, the junction transistor, the Schottky diode, the field-effect transistor, the light-emitting diode, and the photodiode. Prerequisite(s): courses 145/L and 171/L. Enrollment restricted to School of Engineering and Division of Physical and Biological Sciences majors or permission of instructor. The Staff

180J. Advanced Renewable Energy Sources. S
Provides a comprehensive overview of renewable energy sources. Fundamental energy-conversion limits based on physics and existing material properties discussed. Various sources and devices, such as solar, wind, hydropower, geothermal, and fuel cells described. Solar- and wind-site assessment, as well as biofuel energy balance, also discussed. Key scientific and economic roadblocks for large-scale implementation examined. Finally, the latest research on application of nanotechnology to energy conversion and storage introduced. Taught in conjunction with course 80J. Prerequisite(s): Mathematics 3 or Applied Mathematics and Statistics 3, 5 or 7. Enrollment limited to 30. (General Education Code(s): PE-E.) M. Isaacson

183. Special Topics in Electrical Engineering. *
Topics vary with instructor. Sample topics include smart grids, bioelectronics, antennas, etc. Enrollment by instructor permission. Approval of undergraduate adviser required for credit as an upper-division elective. May be repeated for credit. The Staff

193. Field Study. F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a faculty member of the electrical engineering program and a willing sponsor at the field site and using resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives by submitting a written and oral presentation. May not normally be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study with specific academic objectives carried out under the direction of a faculty member of the electrical engineering program and a willing sponsor at the field site and using resources not normally available on campus. Credit is based on the presentation of evidence of achieving the objectives by submitting a written and oral presentation. May not normally be repeated for credit. The Staff

195. Senior Thesis Research. F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. If using this course to replace the capstone design requirement (courses 123A and 123B), students must take course 157 or Computer Engineering 118 to fulfill the ABET team design experience. May be repeated for credit. The Staff

195F. Senior Thesis Research (2 credits). F,W,S
Prerequisite(s): petition on file with sponsoring agency. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Individual Study or Research. F,W,S
Provides for department-sponsored individual study program off campus, for which faculty supervision is not in person, but by correspondence. Students submit petition to

sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for department-sponsored individual study program off campus for which faculty supervision is not in person, but by correspondence. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Research and Teaching in Electrical Engineering (3 credits). *
Basic teaching techniques for TAs: responsibilities and rights, resource materials, computer security, leading discussion or lab sessions, presentations techniques, maintaining class records, electronic handling of homework, and grading. Examines research and professional training: use of library and online databases, technical typesetting, writing journal and conference papers, publishing, giving talks, and ethical issues. Enrollment restricted to graduate students. The Staff

211. Introduction to Nanotechnology. *
Introduction to underlying principles of nanoscience and nanotechnology. Intended for multidisciplinary audience with a variety of backgrounds. Introduces scientific principles and laws relevant on the nanoscale. Discusses applications in engineering, physics, chemistry, and biology. Prerequisite(s): course 145 or consent of instructor. Enrollment limited to 35. The Staff

212. Introduction to BioMEMS. S
Oriented to general engineering and science students. Topics included are: 1) microfabrication of silicon, glass, and polymer materials; 2) microfluidics and electrokinetics; 3) sensors, actuators, and drug-delivery systems; 4) micro total-analysis systems and lab-on-a-chip devices; 5) detection and measuring systems; 6) genomics, proteomics, DNA, and protein microarrays; 7) emerging applications in medicine, research, and homeland security; 8) packaging, power systems, data communication, and RF safety; and 9) biocompatibility and standards. Recommended for advanced undergraduates and graduate students in bioengineering, electrical engineering, chemistry, and health-related fields including biochemistry, molecular and cellular biology, physiology, and genetics. Enrollment restricted to graduate students, or by permission of the instructor. J. Kubby

213. Nanocharacterization of Materials. W
Covers the many characterization techniques used to characterize materials from volumes less than one cubic micrometer, including the basic physics of each method, the methodology used to get quantitative results, and the advantages and limitations of each technique. Enrollment restricted to graduate students, or to undergraduates majoring in engineering or science by permission of instructor. M. Isaacson

215. Micro-Electro-Mechanical Systems (MEMS) Design. *
Introduction to MEMS technology: covers basic microfabrication technologies, the governing physics for MEMS devices in different energy domains (mechanical, electrical, optical, thermal, and fluidic). Fabrication and design of MEMS devices illustrated using examples of existing research prototypes and commercial products. Students design, lay out, and fabricate an optical MEMS deformable mirror device for applications in adaptive optics. Students are billed a materials fee. Prerequisite(s): courses 135, 145, and 211; and Physics 5A, 5B, and 5C. Enrollment restricted to seniors and graduate students. May be repeated for credit. The Staff

216. Nanomaterials and Nanometer-Scale Devices. S
Materials controlled at nanometer-scale will revolutionize existing technologies. Course offers opportunities of learning materials that exhibit peculiar physical characteristics at the nanometer scales. Course also includes discussions of unique device architecture based

on materials crafted at the nanometer scale. N. Kobayashi

218. Fundamentals of Nanoelectronics. S
Covers microscopic theory of electron transport in nanoelectronic devices and transistors. Topics include: ballistic transport; quantum conductance, NEGF-Landauer formalisms; molecular conductors; graphene and carbon nanotubes, quantum resonant tunneling devices; nanotransistors; and spintronics. Prerequisite(s): course 211 or 216. Enrollment restricted to graduate students. Students with background in basic matrix algebra and MATLAB programming may enroll with permission of instructor. A. Yanik

221. Advanced Analog Integrated Circuits. *
Analog integrated circuit design with emphasis on fundamentals of designing linear circuits using CMOS. Covers MOS devices and device modeling, current mirrors, op-amp design, op-amp compensation, comparators, multipliers, voltage references, sample-and-holds, noise, and an introduction to more complicated systems using these building blocks, such as phase locked loops and analog-to-digital converters. If time permits, integrated circuit layout issues and device/circuit fabrication. Students cannot receive credit for this course and course 172. Prerequisite(s): course 171 or equivalent; course 178 or equivalent recommended. Enrollment limited to 20. The Staff

222. High-Speed Low-Power Integrated Circuit Design. *
Digital integrated circuit design covered with an emphasis on high-speed and low-power applications. Covers signaling techniques and circuits including transmitters and receivers, with emphasis on on-chip interconnect, timing fundamentals and timing circuits. Theoretical fundamentals of phase locked loops and design issues of implementation addressed. Course has a project design component. Interview to assess technical skills of student. Enrollment restricted to electrical engineering and computer engineering graduate students. Enrollment limited to 20. May be repeated for credit. The Staff

223. Advanced Solid-State Devices. *
Solid-state devices advance rapidly by employing new materials, new architecture, and new functional principles. Class offers opportunities to learn the latest advancements in solid-state devices (e.g., electronic, optoelectronic, photonic devices, and smart sensors) viewed from various scientific, technological, and engineering aspects, such as energy conversion and computation. The Staff

224. Physical Design of Micro- and Opto-Electronic Packages. *
Micro- and opto-electronic packaging and materials; mechanical properties and behavior, thermal stress in dissimilar materials, and predictive modeling. Design for reliability, dynamic response to shocks and vibrations; reliability evaluations and testing; plastic packages of IC devices; photonics packages, fiber optics structures, and new frontiers. Enrollment restricted to graduate students. The Staff

225. Basics of Electronics Reliability. *
Basic concepts of reliability engineering taught in application to microelectronic and photonic materials, assemblies, and packages and systems. Emphasis on the physics and mechanics of failure physical design for reliability predictive modeling and accelerated testing, with numerous practical examples and illustrations. Prerequisite(s): basic calculus; electronic and photonic devices and systems. Enrollment restricted to graduate students. The Staff

226. CMOS Radio Frequency Integrated Circuit Design. *
Covers narrowband and high-frequency techniques, noise, distortion, nonlinearities, low-noise amplifiers, power amplifiers, mixers, receivers, and transmitters for wireless communications. Topics are presented in the context of integrated designs in CMOS, but topics are fundamental and widely applicable. Prerequisite(s): course 172 or 221 or permission of instructor. The Staff

227. Fundamentals of Semiconductor Physics. F
Semiconductor physics is examined for advanced new materials and devices. Discusses how familiar concepts are extended to new electronics. Intended for students interested in electrical engineering, physics, and materials science applications. Good familiarity wish basic electromagnetism and quantum physics is assumed. Enrollment restricted to graduate students. T. Yamada

230. Optical Fiber Communication. F
Components and system design of optical fiber communication. Topics include step-index fibers, graded-index fibers, fiber modes, single-mode fibers, multimode fibers, dispersion, loss mechanics, fiber fabrication, light-emission processes in semiconductors, light-emitting diodes, laser diodes, modulation response, source-fiber coupling, photodetectors, receivers, receiver noise and sensitivity, system design, power budget and rise-time budget, fiber-optic networks (FDDI, SONET, etc), wavelength division multiplexing (WDM). Students cannot receive credit for this course and course 130. Enrollment restricted to graduate students. May be repeated for credit. A. Yanik

231. Optical Electronics. F
Introduction to phenomena, devices, and applications of optoelectronics. Main emphasis is on optical properties of semiconductors and semiconductor lasers. Prerequisite(s): course 145/L. May be repeated for credit. H. Schmidt

232. Quantum Electronics. S
Covers basic theory of interaction of electromagnetic radiation with resonant atomic transitions and density matrix treatment; and applications including Rabi oscillations, slow light; nonlinear optics; coherent radiation, and noise in photodetectors and lasers. Prerequisite(s): course 231 or equivalent. Z. Bian

233. Fiber Optics and Integrated Optics. *
Concepts and analysis of optical wave propagation in optical fibers and waveguides. Topics include geometrical optics description and electromagnetic theory of slab waveguides; modes, dispersion, and birefringence in optical fibers; mode coupling and gratings in fibers; wavelength-division multiplexing; nonlinear optics in fibers and solitons; semiconductor optical amplifiers and Er doped fiber amplifiers. Prerequisite(s): courses 135 and 145. The Staff

234. Liquid Crystal Displays. *
Introduction to principle of operation, components and systems of liquid crystal displays (LCDs). Topics include basic LCD components, properties of liquid crystals, polarization of optical waves, optical wave propagation in anisotropic media, Jones matrix method, various display systems, active matrix addressing, and color LCDs. Prerequisite(s): course 135 and 136. Enrollment restricted to seniors and graduate students. The Staff

235. Optical Information Storage and Processing. *
Introduction to applications of optical technologies in data storage and information processing. Topics include basic principles of Fourier optics; electro-optic, acousto-optic, and magneto-optic effects and devices; planar and volume holography; optical data storage systems; and optical information processing, interconnecting, and switching systems. Enrollment restricted to graduate students, or undergraduates having completed Physics 5B and 5C and course 103. The Staff

236. Integrated Biophotonics. W
Covers use of integrated optics for study of biological material; fluorescence spectroscopy, single molecule detection, optical tweezers, layered dielectric media, hollow-core waveguides, photonic crystals, optofluidics, biophotonic systems, and applications. Prerequisite(s): course 233 or equivalent. Enrollment restricted to graduate students. Enrollment limited to 20. H. Schmidt

241. Introduction to Feedback Control Systems. F
Graduate-level introduction to control of continuous linear systems using classical feedback techniques. Design of feedback controllers for command-following error, disturbance rejection, stability, and dynamic response specifications. Root locus and frequency response design techniques. Extensive use of Matlab for computer-aided controller design. Course has concurrent lectures with Electrical Engineering 154. (Also offered as Computer Engineering 241. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. D. Milutinovic

250. Digital Signal Processing. F
In-depth study of signal processing techniques, including discrete-time signals and systems, the z-transform, sampling of continuous-time signals, transform analysis of linear time-invariant systems, structures for discrete-time systems, the discrete Fourier transform, computation of the discrete Fourier transform, filter design techniques. Students

cannot receive credit for this course and course 153. A. Fletcher

251. Principles of Digital Communications. W
A core course on digital communications theory. Provides an introduction to digital communication, including source coding, characterization of communication signals and systems, modulation and demodulation for the additive Gaussian channel, digital signaling, and over bandwidth constrained linear filter channels and over fading multipath channels. Prerequisite(s): course 151 and 153 (or Computer Engineering 153) and Computer Engineering 107. B. Friedlander

252. Wireless Communications. S
In-depth study of the physical layer of wireless communications. Wireless propagation channels and their impact on digital communications. Modulation techniques for wireless systems and their performance. Multi-antenna systems and diversity. Multicarrier and spread spectrum. Multi-access methods: FDMA, TDMA, CDMA. The structure of cellular systems. Students cannot receive credit for this course and course 152. Prerequisite(s): course 251. B. Friedlander

253. Introduction to Information Theory. F
An introduction to information theory including topics such as entropy, relative entropy, mutual information, asymptotic equipartition property, channel capacity, differential entropy, rate distortion theory, and universal source coding. (Also offered as Computer Science 250. Students cannot receive credit for both courses.) Prerequisite(s): Computer Engineering 107, or Applied Mathematics and Statistics 131 or equivalent course, or permission of instructor. H. Sadjadpour

254. Multi-User Information Theory. *
Topics include basic information theory, multiple-access channel, broadcast channel, interference channel, relay channel, capacity with feedback, capacity of networks, and channels with state and current research. Prerequisite(s): course 253. Enrollment restricted to graduate students. The Staff

255. Multiple-Antenna Wireless Communications. *
Basic theory of multiple-antenna wireless systems. Introduction to space-time propagation models, capacity of multiple-input multiple-output (MIMO) channels, space-time coding, transmitter CSI, and multiuser space-time systems. Includes discussion of multiple antennas in emerging systems and standards. Prerequisite(s): course 252 and Computer Engineering 107, or Applied Mathematics and Statistics 131, or equivalent. The Staff

256. Introduction to Radar Systems and SAR. *
Fundamentals of radar systems and radar-signaling processing, including SAR. Emphasizes real-world applications. MATLAB emphasizes algorithm development and performance analysis. Basic EM theory and a first course in signal processing are recommended. Enrollment limited to 20. The Staff

261. Error Control Coding. S
Covers the following topics: introduction to algebra; linear block code; cyclic codes; BCH code; RS codes; spectral domain study of codes; CRC; and product codes. H. Sadjadpour

262. Statistical Signal Processing. W
Covers fundamental approaches to designing optimal estimators and detectors of deterministic and random parameters and processes in noise, and includes analysis of their performance. Binary hypothesis testing: the Neyman-Pearson Theorem. Receiver operating characteristics. Deterministic versus random signals. Detection with unknown parameters. Optimal estimation of the unknown parameters: least square, maximum likelihood, Bayesian estimation. Will review the fundamental mathematical and statistical techniques employed. Many applications of the techniques are presented throughout the course. Note: While a review of probability and statistics is provided, this is not a basic course on this material. (Formerly Statistical Signal Processing I.) Prerequisite(s): course 103 and Computer Engineering 107, or permission of instructor. A. Fletcher

263. Advanced Topics in Coding Theory.
Covers convolutional codes and its principles, maximum likelihood decoding and Viterbi decoding, performance evaluation of convolutional codes, trellis coded modulation (TCM), rotationally invariant convolutional codes, turbo codes, turbo decoding principles,

performance evaluation of turbo codes, interleaver design for turbo codes, topics on turbo codes, space-time codes, and LDPC. Prerequisite(s): course 261. Enrollment restricted to electrical engineering, computer engineering, and computer science graduate students. Enrollment limited to 10. H. Sadjadpour

264. Image Processing and Reconstruction. W
Fundamental concepts in digital image processing and reconstruction. Continuous and discrete images; image acquisition, sampling. Linear transformations of images, convolution and superposition. Image enhancement and restoration, spatial and spectral filtering. Temporal image processing: change detection, image registration, motion estimation. Image reconstruction from incomplete data. Applications. Students that have completed Computer Engineering 261 may not take this course for credit. Prerequisite(s): course 153 or permission of instructor. P. Milanfar

265. Introduction to Inverse Problems (3 credits). *
Fundamental approaches and techniques in solving inverse problems in engineering and applied sciences, particularly in imaging. Initial emphasis on fundamental mathematical, numerical, and statistical formulations and known solution methods. Sampling of applications presented from diverse set of areas (astronomical, medical and optical imaging, and geophysical exploration). Enrollment restricted to graduate students. The Staff

270. Neural Implant Engineering. *
Advanced studies of the basic neuroscience-engineering design requirements and technological issues associated with implantable neural prostheses, with particular emphasis on retinal and cortical function. Course is team-taught via remote web cast. A basic understanding of physics, circuit theory, and electronics is required. Enrollment restricted to graduate students; juniors and seniors may enroll by permission of instructor. The Staff

280B. Seminar on Integrated Bioelectronics (2 credits). *
Weekly seminar covering current research in integrated bioelectronics. May be repeated for credit. The Staff

280I. Seminar on Microscopy and Nanotechnology (1 credit). *
Weekly seminar series covering research topics and experimental research in microscopy and nanotechnology. Current research and literature are discussed. Students lead discussion and participate in all meetings. Enrollment restricted to graduate students. Enrollment by permission of instructor. Enrollment limited to 10. May be repeated for credit. The Staff

280M. Seminar on Micro-Electro-Mechanical Systems (MEMS) (2 credits). F,W,S
Weekly seminar series covering topics of current research interest in Micro-Electro-Mechanical Systems (MEMS) design, fabrication and applications. Current research work and literature in these areas are discussed. Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. May be repeated for credit. J. Kubby

280O. Seminar on Applied Optics (2 credits). F,W,S
Weekly seminar series covering topics of current research in applied optics, including integrated, quantum, nonlinear, and nano-optics. Current research work and literature in these areas are discussed. Enrollment by permission of instructor. May be repeated for credit. H. Schmidt

280Q. Seminar on Quantum Electronics and Nanoelectronics (2 credits). *
Weekly series covers current research in quantum electronics including electron and photon transport in nanostructures; nanoscale heat transport; optoelectronic integrated circuits; nanoscale devices for energy conversion; micro-refrigeration; thermal and acoustic imaging of nanostructures. Current research work and recent literature are discussed. Enrollment restricted to graduate students; undergraduates may enroll by permission of instructor. May be repeated for credit. The Staff

281. Guest Seminar Series (1 credit). *
Distinguished speakers from industry, universities, and government discuss current developments in electrical engineering and related fields. Emphasis on research questions

that may lead to collaborative work with faculty and graduate students. Enrollment restricted to graduate students. May be repeated for credit. The Staff

283. Special Topics in Electrical Engineering (3 credits). W
Graduate seminar on a research topic in electrical engineering that varies with the particular instructor. Topics may include, but are not limited to, electromagnetics, antennas, electronics biotechnology, nanotechnology, signal processing, communications, VLSI, MEMS, and radio frequency. Enrollment restricted to graduate students and consent of instructor. Enrollment limited to 25. May be repeated for credit. F. Dowla

290. EE Graduate Seminar (1 credit). *
Research seminar at the graduate level regarding technical areas of electrical engineering activity that are of interest to the research and/or commercial communities. Enrollment restricted to computer engineering, electrical engineering, or physics graduate students, or by permission of instructor. Enrollment limited to 30. May be repeated for credit. The Staff

291. Tomorrow's Professor: Preparing for an Academic Career in Science and Engineering (3 credits). *
The aim of this course is two-fold: (1) inform, motivate, and prepare graduate students for a possible career in academia; (2) expose both undergraduate and graduate students to the academic enterprise, possible career options for those who pursue advanced degrees in engineering and science. The Staff

293. Advanced Topics in Electrical Engineering. F,S
Graduate seminar course on a research topic in electrical engineering that varies with the particular instructor. Typical topics include, but are not limited to, electromagnetics, antennas, electronics biotechnology, nanotechnology, signal processing, communications, VLSI, and MEMS. Prerequisite(s): Consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 25. May be repeated for credit. A. Fletcher, M. Oye

296. Master Project. F,W,S
Master project conducted under faculty supervision. Prerequisite(s): Petition on file with sponsor faculty. The Staff

297. Independent Study or Research. F,W,S
Independent study or research under faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Thesis research conducted under faculty supervision. Students submit petition to sponsoring agency. The Staff

* Not offered in 2014-15

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Environmental Studies

2014-15 General Catalog

405 Interdisciplinary Sciences Building
(831) 459-2634
http://envs.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

15. Natural History of the UCSC Campus (2 credits). *
Introduces students to the range of natural species and communities occurring on the UCSC campus. All class time is spent outside, and each week a different area of campus is visited. Course 24 is recommended. The Staff

17. Curation of Natural History Collections (2 credits). W
Introduction and training in the skills needed to create, manage, and exhibit natural history collections, including plants, insects, fungi, birds, mammals, reptiles, and amphibians. Enrollment limited to 12. C. Lay

23. The Physical and Chemical Environment. S
Provides an overview of the physical and chemical environment of planet Earth. Fundamental chemistry and physics is introduced in the process of learning about Earth in a holistic way. The influence of human societies on the global environment is one focus of discussion. Earth's many "spheres" are explored first: the lithosphere; the atmosphere; the hydrosphere, and the ecosphere. Then global cycles of carbon, nitrogen, and several other elements are studied in the context of basic sciences and societal issues. (General Education Code(s): IN.) W. Cheng

24. General Ecology. F
Covers principles of ecology including limits to species abundances, evolutionary ecology, population dynamics, community interactions and patterns, and ecosystem patterns and dynamics. Prerequisite(s): Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3 or higher; or mathematics placement examination (MPE) score of 300 or higher; or AP Calculus AB exam score of 3 or higher; course 23 recommended as prerequisite to this course. (General Education Code(s): SI, IN.) The Staff

25. Environmental Policy and Economics. W
Introduces basic concepts from policy studies and economics that help explain environmental challenges. Provides an overview of how government, non-governmental organizations, and the private sector are dealing with major environmental challenges. (General Education Code(s): PE-E, IS.) A. Millard-Ball

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

65. Introduction to Fresh Water: Processes and Policy. *
Introduction to freshwater resources from multiple scientific and policy perspectives. After a review of basic concepts, water issues affecting cities, farms, open space, and multiple-use landscapes are studied. Students cannot receive credit for this course if they have previously received credit for course 165. (General Education Code(s): PE-E.) B. Haddad

80A. The Future of Rain Forests. *
A broad overview of both ecological and social aspects related to tropical rain forests drawing on case studies worldwide. Topics include the biology and distribution of rain forests, causes and effects of their destruction, and management options to facilitate their conservation. (General Education Code(s): PE-E, T7-Natural Sciences or Social Sciences.) (S) The Staff

80B. The Ecological Forecast for Global Warming. F
A broad overview of the impacts of human activities on the global climate system. Topics include how climate affects the distribution of ecosystems, the influence of global climate change on biodiversity, ecosystem function, and consequences for the human enterprise. (General Education Code(s): PE-E, T7-Natural Sciences or Social Sciences.) M. Loik

83. Environmental Studies Internship. F,W,S
A supervised off-campus learning experience related to environmental problem solving. Focuses on initial experiences in applied work and specific skill development. Students may be placed individually or with a team in government agencies, private organizations, citizen action groups. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

91F. Community and Agroecology (2 credits). *
Interdisciplinary two-credit seminar designed to introduce students to concepts of community and agroecology in the context of sustainability. Course can serve as a gateway to or as a continuing basis for participation in PICA (Program in Community and Agroecology). Specific topics and readings change each quarter. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Directed reading, supervised research, and organized projects relating to environmental problems. May be repeated for credit with consent of the chairperson of Environmental Studies Department. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Provides for department-sponsored directed reading, supervised research, or organized project for lower-division students under the direct supervision of a faculty sponsor. May not be counted toward major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100. Ecology and Society. W,S
Introduction to environmental issues in an interdisciplinary matrix. Focuses on three issues at the intersection of ecological questions and social institutions: agroecology and sustainable agriculture; population growth, economic growth, and environmental degradation; and biodiversity conservation and land management. Reviews the important roles of disciplinary abstraction and of the application of that knowledge to context-dependent explanations of environmental problems. Prerequisite(s): course 23 or CHEM 1A; course 24 or BIOE 20C; course 25; and AMS 7/L or ECON 113; and one from: ANTH 2, SOCY 1,10,15, PHIL 21,22,24,28, or 80G. Concurrent enrollment in 100L is required. S. Philpott, Z. Tzankova

100L. Ecology and Society Writing Laboratory (2 credits). W,S
Required writing lab accompanying course 100. Students are introduced to writing in different styles and for different audiences typical of the ecosystem-society interface. Course 100 writing assignments are developed, written, and revised in conjunction with the lab. W credit is granted only upon successful completion of course 100. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements. Concurrent enrollment in 100 is required. (General Education Code(s): PR-E.) S. Philpott, Z. Tzankova

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- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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104A. Introduction to Environmental Field Methods. *
A course in the process of field research and monitoring, with emphasis on use of the scientific method; experimental design, data handling, statistical analysis and presentation; and basic field methodologies. Application of basic field skills, including habitat description; methods for sampling plants, animals, soils, water, and microclimate; and observational and manipulative techniques to address ecological, conservation, and management questions. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; concurrent enrollment in course 104L and previous or concurrent enrollment in courses 100/L required, or by permission of instructor. (General Education Code(s): W.) E. Zavaleta

104L. Field Methods Laboratory (2 credits). *
Students directly observe elements of natural history and ecological process; design and implement field studies based on lectures; deploy the methods discussed in lectures; and collect data to analyze, interpret, and report in written and oral forms. Concurrent enrollment in course 104A is required. E. Zavaleta

106A. Natural History of Birds. *
The evolution, taxonomy, physiology, behavior, ecology, and management of birds. Lecture, discussion, field format. Birds observed in habitats including bay, marsh, meadow, and forest. Evaluations based on a field journal and examinations. Students are billed a materials fee. Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L, or by permission of instructor. Course 105 or Biology 138 are recommended. Enrollment limited to 25. The Staff

107A. Natural History Field Quarter. S
A 15-unit field course that uses California wild lands to develop skills of natural history observation and interpretation. Students gain the ability to identify plants, animals, vegetation types, and landscapes, as well as address the complex issues of preservation and management of these resources. Enrollment by interview. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L; concurrent enrollment in courses 107B and 107C required. Students are billed a materials fee. The Staff

107B. Natural History Field Quarter. S
A 15-unit field course that uses California wild lands to develop skills of natural history observation and interpretation. Students gain the ability to identify plants, animals, vegetation types, and landscapes, as well as address the complex issues of preservation and management of these resources. Enrollment by interview. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L; concurrent enrollment in courses 107A and 107C required. The Staff

107C. Natural History Field Quarter. S
A 15-unit field course that uses California wild lands to develop skills of natural history observation and interpretation. Students gain the ability to identify plants, animals, vegetation types, and landscapes, as well as address the complex issues of preservation and management of these resources. Enrollment by interview. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L; concurrent enrollment in courses 107A and 107B required. The Staff

108. General Entomology. *
Introduction to entomology including anatomy, physiology, systematics, evolution, behavior, and reproduction of the world's most diverse group of organisms. These topics are illustrated in several contexts, from the importance of insects as disease vectors to the historical and contemporary uses of insects by humans. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. Offered in alternate academic years. D. Letourneau

108L. General Entomology Laboratory (3 credits). *
Laboratory sections are devoted to the identification of insects. Individual collections representing 15 orders, sight identification of 60 families, and use of taxonomic keys for positive designations required. Concurrent enrollment in course 108 is required. Offered in alternate academic years. D. Letourneau

109A. Ecology and Conservation in Practice Supercourse: Ecological Field Methods. *
An intensive, on-site learning experience in terrestrial field ecology and conservation,

using the University of California Natural Reserves. Students study advance concepts in ecology, conservation, and field methods for four weeks, then experience total immersion in field research at the UC Natural Reserves. Lectures, field experiments, and computer exercises familiarize students with research methods, study design, statistical approaches, and analytical tools for ecological research. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151B-C-D or ENVS 109B-C-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Biology:Ecology & Evolutionary 151A. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

109B. Ecology and Conservation in Practice Supercourse: Ecological Field Methods Laboratory. *
Field-oriented course in ecological research. Combines overview of methodologies and approaches to field research with practical field studies. Students complete field projects in ecology and also learn the natural history of the flora and fauna of California. Students are billed a materials fee. Enrollment by application. Prerequisite(s): Entry Level Writing and Composition requirements; BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-C-D or ENVS 109A-C-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Biology:Ecology & Evolutionary 151B. Students cannot receive credit for both courses.) (General Education Code(s): W.) D. Croll, E. Zavaleta

109C. Ecology and Conservation in Practice Supercourse: Functions and Processes of Terrestrial Ecosystems. *
From lectures and discussion of terrestrial community and ecosystem ecology, students work individually or in small groups to present an idea for a project, review relevant literature, develop a research question/hypothesis, design and perform an experiment, collect and analyze data, and write a report. The instructor evaluates the feasibility of each student's project before it begins. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-B-D or ENVS 109A-B-D is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Biology:Ecology & Evolutionary 151C. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

109D. Ecology and Conservation in Practice Supercourse: Conservation in Practice. *
Focuses on current issues in environmental and conservation biology and the emerging field methods used to address them. From field-oriented lectures about current issues in environmental and conservation biology, students pursue research project as individuals and small groups to develop hands-on experience with field skills in conservation research and resource management. Enrollment by application. Prerequisite(s): BIOL 20A, BIOE 20B, BIOE 20C or ENVS 23, 24, 100; and AMS 7 and 7L. Concurrent enrollment in BIOE 151A-B-C or ENVS 109A-B-C is required. Satisfies the senior exit requirement for biological sciences majors and satisfies the senior exit requirement for environmental studies majors by prior approval. Students cannot receive credit for this course and BIOE 150, 150L, ENVS 104A or 196A. (Also offered as Biology:Ecology & Evolutionary 151D. Students cannot receive credit for both courses.) D. Croll, E. Zavaleta

110. Institutions, the Environment, and Economic Systems. S
Debate about environmental policy is often couched in economic terms. Environmental issues have become questions of political economy, as they influence international and domestic policy and reflect on the functioning of the market system. Examines the assumptions and implications of alternative approaches to political economy, as these pertain to questions of environmental policy and political institutions. Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L, or by permission of instructor. (S) M. Fitzsimmons

115A. Geographic Information Systems and Environmental Applications. F
Introduction to geographic information systems (GIS) as the technology of processing

spatial data, including input, storage and retrieval; manipulation and analysis; reporting and interpretation. Emphasizes GIS as a decision support system for environmental and social problem solving, using basic model building, experimental design, and database management. Students cannot receive credit for this course and course 215A. Prerequisite(s): Previous or concurrent enrollment in course 115L, 100/L, or permission of instructor. Course in computer science, Earth science, math, or geography recommended. The Staff

115L. Exercises in Geographic Information Systems (2 credits). F
Exercises in Geographic Information Systems and Remote Sensing that demonstrate the development of digital geographic data. Students gain hands-on experience with developing datasets, using imagery to create GIS layers, performing spatial analysis, and utilizing GPS technology. Emphasis placed on environmental applications. Students cannot receive credit for this course and course 215L. Students are billed a materials fee. Concurrent enrollment in course 115A is required. The Staff

120. Conservation Biology. S
Introduces biological and anthropogenic influences on the diversity and scarcity of organisms. Explores the mathematical models and research tools that provide the foundation for many conservation and management decisions regarding endangered and/or declining species. Topics explored in the context of various examples of conservation decision-making in the real world. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

122. Tropical Ecology and Conservation. *
An introduction to the ecological processes, principles, and players of tropical ecosystems, and to conservation issues facing tropical American forests. We will look at how tropical ecosystems work, roles of humans in shaping them, and current conservation opportunities and dilemmas. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L is required, or by permission of instructor. G. Gilbert

123. Animal Ecology and Conservation. *
Advanced course in animal ecology and conservation focusing on the ecology, behavior, biogeography, and evolution of vertebrates. Prerequisite(s): course 120. Previous or concurrent enrollment in courses 100 and 100L required; or by permission of instructor. C. Wilmers

125. Ecosystems of California. *
A survey of the diversity, structure, and functioning of California's ecosystems through time and the ways they have influenced and responded to human activities and stewardship. Topics include: ecosystem drivers such as climate, soils, and land-use history; human and ecological prehistory; comparative marine, freshwater, and terrestrial ecosystem dynamics; and managed ecosystems such as range, fisheries, and agriculture. Prerequisite(s): previous or concurrent enrollment in courses 100/100L. (General Education Code(s): PE-E.) E. Zavaleta

129. Integrated Pest Management. F
Provides an extensive coverage of applied ecology, pest control technology, and the social, political, and economic factors regulating the ideologies and practice of pest management. Topics include agroecosystem design and population regulation of insects, weeds, vertebrates, and pathogens; field monitoring, chemical and biological control; economic thresholds, decision-making processes, and the role of agribusiness. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. D. Letourneau

129L. Integrated Pest Management Laboratory (2 credits). *
Field trips and field exercises that demonstrate the practice of integrated pest management techniques. Individual and group projects provide hands-on experience with field sampling techniques, pest identification, recognition of biological control agents, experimental design, interview techniques, data interpretation and field report writing. Prerequisite(s): concurrent enrollment in course 129. The Staff

130A. Agroecology and Sustainable Agriculture. F
Ecological concepts and principles are applied to the design and management of sustainable agroecosystems. Alternatives for agriculture are discussed in terms of

ecosystem structure and function. A weekly three-hour lab is required. Prerequisite(s): Concurrent enrollment in course 130L and previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. C. Shennan

130B. Principles of Sustainable Agriculture. W
Agricultural sustainability is examined as a complex set of interactions between ecological, social, and economic components of an agroecosystem. Case studies are drawn from issues facing current U.S. agriculture and a basis for formulating policy for change that ensures sustainability is developed. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. M. Fitzsimmons

130L. Agroecology and Sustainable Agriculture Laboratory (2 credits). F
Laboratory and field exercises to train in the analysis of ecological processes in agricultural systems, with a focus on the quantification of ecological sustainability. Experimental design, analysis, and data interpretation are emphasized. Students are billed a materials fee. Concurrent enrollment in course 130A is required. C. Shennan

131. Insect Ecology. S
Advanced course in ecology featuring insect-plant interactions such as herbivory, pollination, and the effects of plants on insect population dynamics. Lectures emphasize current controversies in ecological theory and relate theory to application. Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. Offered in alternate academic years. S. Philpott

133. Agroecology Practicum. F,W,S
Lectures and demonstrations are combined with field applications to give students direct experience and knowledge of sustainable agriculture and horticulture practices and principles. UCSC Farm and Garden are the living laboratories for testing agroecological principles. Emphasis is placed on small-farm systems. May be applied to major only once. Students are billed a materials fee. Prerequisite(s): courses 130A and 130L and previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. May be repeated for credit. The Staff

138. Field Ethnobotany. *
Lectures, laboratory, and fieldwork examine field botany from a human ecology perspective. Students have the opportunity to learn the skills of field botany and plant identification through the study of plants that are of major significance for human cultures. The emphasis of field skills is on applications to sustainable management of natural resources. Prerequisite(s): courses 130A and 130L, or by permission of instructor. Concurrent enrollment in course 138L required. Offered in alternate academic years. The Staff

138L. Ethnobotany Laboratory (2 credits). *
Laboratory and field studies allow students to learn the taxonomy of important useful plant families, carry out field studies on local plant use and management practices, and investigate in detail home garden agroecosystems and model systems. Prerequisite(s): concurrent enrollment in course 138 required. The Staff

140. National Environmental Policy. W
An overview of all major federal environmental policy domains. Analyzes political, social, economic, and other forces influencing federal (and some state) public policy responses to land use, natural resources, pollution, and conservation dilemmas. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. D. Press

140L. National Environmental Policy Field Studies Laboratory (2 credits). *
Students travel to waste-management facilities and environmental agencies around the San Francisco and Monterey Bay regions. Laboratory assignments include: facility profiles and policy-options memos related to each facility. Enrollment restricted to environmental studies majors, and environmental studies/economics, environmental studies/biology, or environmental studies/Earth sciences combined majors. Concurrent enrollment in course 140 is required. Enrollment limited to 24. D. Press

141. Ecological Economics. F
Application of economic analysis to natural resource policy and management. Topics

include welfare economics, property rights and externalities, natural resource valuation, exhaustible and renewable resources, and sustainable development. Prerequisite(s): Economics 1 is strongly recommended as preparation. Previous or concurrent enrollment in courses 100 and 100L is required, or by permission of instructor. A. Millard-Ball

142. Energy Politics and Policy. W
Explores the social and environmental dimensions of energy production and consumption. Provides an overview of the tools to evaluate a new clean-energy economy and its wider political and economic implications. Students study assessment tools, such as risk assessment, material energy balances, and life-cycle assessment. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

142L. Energy Politics and Policy Laboratory (2 credits). *
Trains students in the concepts and skills required to make decisions about energy production. Concurrent enrollment in course 142 required. Enrollment limited to 24. The Staff

143. Sustainable Development: Economy, Policy, and Environment. W
Considers whether and how global poverty can be alleviated without irreparably damaging the environment. Examines interactions among population, economic growth, poverty, global consumption ethos, property rights systems, global economy, state capacity, and environmental damage. Scrutinizes impact of various developmental strategies adopted during the past 50 years on poverty, governance, and the environment. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. J. Bury

145. Green Building Design. S
Promotes an ecological approach to design with an understanding of the environmental opportunities and constraints at play on the site and situation; works with the environment to maximize human comfort and energy efficiency. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

146. Water Quality: Policy, Regulation, and Management. *
Building on prior preparation, the course provides an in-depth examination of American water-quality policy, regulation and management. In addition to a detailed understanding of pollutant-discharge permitting, students learn about nonpoint source water pollution and its regulatory remedies. Prerequisite(s): course 100/L, and 140 or 149 or 150 or 165. (General Education Code(s): PE-E.) D. Press

147. Environmental Inequality/Environmental Justice. S
Reviews research on race, class, and differential exposure to environmental hazards. Shows how environmental inequality has, from the start, been an essential feature of modernity. Situates the environmental-justice movement in the history of American environmentalism. Students cannot receive credit for this course and Sociology 185. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. (General Education Code(s): ER.) The Staff

149. Environmental Law and Policy. S
Surveys a wide range of topics in environmental law, including state and federal jurisdiction, administrative law, separation of powers, state and local land use regulation, public land and resource management, pollution control, and private rights and remedies. Students read a large number of judicial cases and other legal documents. (Also offered as Legal Studies 149. Students cannot receive credit for both courses.) Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. T. Duane

150. Coastal and Marine Policy. *
Introduces and analyzes the history, design, implementation, and effectiveness of key legal and institutional frameworks that govern the use and stewardship of coastal and marine areas and resources. Primary focus is on the U.S., although attention is also devoted to international laws and institutions targeting major transboundary issues like marine pollution and management of migratory fish stocks. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. Z. Tzankova

151. Environmental Assessment. S
Introduction to California land use planning law and practice, and the theory, practice, and public policy aspects of environmental assessment, using the California Environmental Quality Act (CEQA) as a model. The National Environmental Policy Act (NEPA) and other environmental and planning legislation also considered. Covers elements of State law and regulations, environmental impact assessment requirements, and practical procedures for preparing and evaluating CEQA documents, with case studies that exemplify legal, regulatory and public policy and practice aspects of the assessment process. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

154. Amazonian Cultures and Conservation. *
Overview of human societies in the Amazon from both a historical and contemporary perspective. Topics include indigenous resource management, deforestation, conservation politics, culture, and economic change. Students cannot receive credit for this course and Latin American and Latino Studies 167. (Formerly Latin American and Latino Studies 167, Amazonian Societies and the Environment) Prerequisite(s): previous or concurrent enrollment in course 100 and 100L, or permission of instructor. (General Education Code(s): CC, E.) The Staff

156. Environmental Action through Writing. *
Guided practice in writing skills useful to environmental activists. Assignments emphasize thinking quickly, revising adeptly, researching resourcefully, and tempering powerful passions with careful arguments. Toward the development of effective individual voices, students read each other's drafts as well as the published work of established writers. Enrollment priority will be given to students who have not taken course 157. Prerequisite(s):satisfaction of the Entry Level Writing and Composition requirements and previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. (General Education Code(s): W.) The Staff

157. Writing in the Natural Sciences. *
Guided practice in writing effectively about science and natural history for a variety of audiences. Assignments emphasize reporting first-hand observations, explaining processes and phenomena, understanding scientific papers, and writing about scientific and technical subjects for a general audience. Enrollment priority will be given to students who have not taken course 156. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and previous or concurrent enrollment in courses 100/L required, or by permission of instructor. (General Education Code(s): W.) The Staff

158. Political Ecology and Social Change. F
The object is to provide a rigorous grounding in the method of political ecology and to demonstrate how this approach has been used in environmental analysis and problem solving by environmental social movements. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L is required, or by permission of instructor. J. Bury

159. Nature Literature. *
Introduction to 19th- and 20th-century American writers who have influenced our understanding of humans' place in the natural world. Readings include original works as well as biographical and critical texts. Discussions, field trips, and writing assignments emphasize active learning. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

160. Restoration Ecology. W
A multidisciplinary overview of restoring degraded ecosystems. Among the topics addressed are linkages between ecological principles and restoration, planning and implementing restoration projects, evaluating restoration success, and case studies of restoration of specific ecosystem types. Participation in one work day is required. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L is required, or by permission of instructor. K. Holl

161A. Soils and Plant Nutrition. W
Provides fundamentals of soils and plant nutrition. The physical, biological, and chemical components of soils are investigated in relation to their ecological functions, fertility to plants, and sustainable management. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. W. Cheng

161L. Soils and Plant Nutrition Laboratory (2 credits). W
Practice analytical techniques for evaluation of physical, chemical, and biological properties of soils. Grow plants to observe some typical symptoms of plant nutrient deficiencies. Students are billed a materials fee. Prerequisite(s): Concurrent enrollment in course 161A is required. W. Cheng

162. Plant Physiological Ecology. S
Introduces the theory of plant interactions with the physical environment. Emphasizes influence of abiotic stresses on the recruitment, survival, growth, productivity, and reproduction of plants. Prior course work in ecology and/or plant physiology is recommended. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. M. Loik

162L. Plant Physiological Ecology Laboratory (2 credits). S
Introduces techniques for the study of plant interactions with the physical environment. Examines the role of stress on energy budgets, water relations, photosynthesis, and reproductive allocation. Emphasizes experimental design, field techniques, and instrumentation during field trips to local chaparral and grassland ecosystems. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. M. Loik

163. Plant Disease Ecology. S
Introduction to ecological roles of plant diseases, including their importance in regulating plant population dynamics, community diversity, and system function in natural ecosystems; considerations of plant diseases in conservation ecology; and ecological approaches to managing diseases in agroecosystems. Students cannot receive credit for this course and course 263. Prerequisite(s): Previous or concurrent enrollment in courses 100 and100L required, or by permission of instructor. G. Gilbert

163L. Plant Disease Ecology Lab (2 credits). S
Introduction to techniques for studying plant diseases, including detection, isolation, cultivation, and identification of important groups of plant pathogens, completing Koch's postulates; diseases assessment techniques; experimental manipulation of plant-pathogen systems; and basic epidemiological tools. One field trip required. Prerequisite(s): concurrent enrollment in course 163 required. G. Gilbert

165. Freshwater Issues and Policy. *
Concepts, vocabulary, and skills necessary to the analysis of freshwater issues are introduced from hydrology, ecology, law, economics, engineering, and other disciplines. The skills are then applied to case studies involving local, state, and international freshwater conflicts and crises. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L is required, or by permission of instructor. The Staff

166. Agroecosystem Analysis and Watershed Management. S
Explores a range of approaches to examine agroecosystem function, watershed management, and concepts of sustainability. Uses a combination of lecture, demonstration, field work, and field trips to illustrate approaches to analysis of managed ecosystems behavior and the integration of biophysical and socio-political knowledge to aid in watershed management. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor; and course 130A or 130B or 129 or 133 or 160 or 167. C. Shennan

167. Freshwater and Wetland Ecology. F
Field and lecture course teaches the physical and biological patterns and processes in freshwater and wetland systems, primarily focusing on Central Coast systems from headwaters to coastal marshes. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

167L. Freshwater and Wetland Ecology Lab (2 credits). F
Provides basic skills to assess chemical, biological, and physical characteristics of freshwater creeks, rivers, and wetlands. These skills are needed in environmental consulting, municipal agencies engaging in water management or impacts on water, and regulatory agencies. Relies on methods in geomorphology, biogeochemistry, hydrology, and field biology. Students are billed a materials fee. Concurrent enrollment in course 167

is required. The Staff

168. Biogeochemistry and the Global Environment. W
Studies biogeochemical cycles and related environmental issues such as global environmental change, eutrophication, ecosystem degradation, and agricultural sustainability. Discusses transformation and movement of major nutrient elements in context of watershed ecology and societal implications. Students cannot receive credit for this course and course 268. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. W. Cheng

169. Climate Change Ecology. *
Advanced topics in atmospheric science and ecological theory. Topics include impacts on biodiversity, carbon sequestration, sustainable agriculture, and innovative solutions. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. Enrollment limited to 40. The Staff

172. Environmental Risks and Public Policy. F
Introduces students to the dilemmas in public policy relating to the management of environmental risks, and discusses their underlying philosophical underpinnings. Explores emergent alternatives, such as the precautionary principle and alternatives assessment, and examines the relationship between experts and the lay public in public controversies. (Formerly Science, Policy, and the Environment.) Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. (General Education Code(s): W.) S. Rajan

173. An Introduction to World Environmental History. W
Introduces students to some of the central issues in world environmental history such as: human attitudes toward the natural environment; the role of human societies, their institutions and technologies in changing the face of the earth; and the historical impact of environmental and developmental policies on race, class, and gender differences in a variety of human communities across the world. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. S. Rajan

175. Biotechnology: Social and Environmental Dimensions. *
Surveys the rapid development of genetic engineering science and biotechnology-based industries and examines the economic, health, environmental, legal, and social justice dimensions of new biotechnology applications: genetic screening, cloning, transgenic animals and crops, genetically engineered food, and biodiversity prospecting. Readings, lectures, World Wide Web site reviews, student presentations, and papers will address controversial choices faced now by scientists, farmers, doctors, consumers, public officials, and global governance agencies. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

176. Vulnerability, Complex Systems, and Disasters. W
Introduces students to the research on the relationship between vulnerability and disasters, and on complex systems including hazardous technologies. Explores perspectives on disasters in the literature on political ecology. Also examines relevant work of organizational sociology, and related fields including normal accident and high reliability organizational theories. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L or by permission of the instructor. (General Education Code(s): PE-T.) S. Rajan

177. Teaching Environmental Education. S
Designed for environmental studies majors interested in teaching environmental education in the K-12 school system. Students investigate incorporation of environmental education in the classroom; design an environmental education school project; and are placed in a school where they observe environmental education in practice. Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L required, or by permission of instructor. The Staff

179. Environmental Interpretation. F
A field course in theory and practice of environmental interpretation in parks, museums, and school programs with special attention to local natural history and children. Students will work to define their own interpretive philosophy, skills, and style. Background in natural history and/or experience working with children recommended. Prerequisite(s): Previous or concurrent enrollment in courses 100 and 100L required, or by permission of

instructor. The Staff

183. Environmental Studies Internship. F,W,S
A supervised off-campus learning experience related to environmental problem solving. Students may work with government agencies, private organizations, citizen action groups, or in specialized apprenticeships on an individual or team basis. A significant, independently researched project is required. Internship intended for environmental studies majors. Prerequisite(s): previous or concurrent enrollment in courses 100 and 100L and by permission of instructor. Students submit petition to course sponsoring agency. May be repeated for credit. The Staff

183A. Senior Internship. F,W,S
First quarter of two-quarter senior internship exit requirement. Supervised off-campus learning experience related to environmental problem-solving. Students may work with government agencies, private organizations, citizen action groups, or in specialized apprenticeships on an individual or team basis. Students submit petition to course-sponsoring agency. Enrollment restricted to environmental studies majors and the combined majors with Earth science, biology, and economics. Enrollment by permission of instructor. The Staff

183B. Senior Internship. F,W,S
This course combines fieldwork at an off-campus agency and a comprehensive analytical paper produced for the agency. Equivalent to a thesis in terms of the depth and quality of the work expected. Prerequisite(s): course 183A. Students submit petition to course-sponsoring agency. Enrollment restricted to environmental studies majors and the combined majors with Earth sciences, biology, and economics. The Staff

184. Environmental Studies Internship (2 credits). F,W,S
Supervised learning experience related to environmental problem solving. Students may work with government agencies, private organizations, citizen action groups, or in specialized apprenticeships on an individual or team basis. This 2-credit internship puts students in the field and offers them the experience of practicing environmental problem solving. This internship experience focuses on specific skill development. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

189. Environmental Studies Research Seminar (1 credit). F,W,S
Research seminars presented weekly throughout the year by environmental studies faculty, visiting scholars, and graduate students. Students discuss content and methodology of research presented following each seminar. Students write critiques of some seminars. Z. Tzankova

190. Capstone Course: Environmental Problem Solving. W
A synthetic course that draws on the knowledge and skills students bring from other courses in the major. Focuses on written and oral individual and group projects in which students must take the initiative. Emphasizes developing skills critical for students in their future careers. Prerequisite(s): course 100; Entry Level Writing and Composition requirements. Enrollment restricted to senior environmental studies majors and the combined majors with Earth sciences, biology, and economics. D. Letourneau

191F. Community and Agroecology Seminar (2 credits). *
Interdisciplinary two-credit seminar designed for upper-division students who want to become involved in PICA (Program in Community and Agroecology) and to explore concepts of community and agroecology as they relate to sustainability. Also emphasizes development of leadership skills. Specific topics and readings change each quarter. Prerequisite(s): course 91F, 130A, 130B, 133, or equivalent experience. Enrollment limited to 25. May be repeated for credit. The Staff

192. Directed Student Teaching. F,W,S
Teaching a lower-division seminar. (See course 42.) Prerequisite(s): upper-division standing; permission of environmental studies faculty member and chairperson of department. The Staff

194. Teaching Environmental Studies. F,W,S
This provides an opportunity to participate in the preparation and teaching of introductory environmental studies courses. Students will have significant responsibility in leading

discussion sections. Students submit petition to sponsoring agency. The Staff

195A. Senior Research. F,W,S
An individually supervised course, with emphasis on independent research that either results in a thesis or project or is done in conjunction with a senior internship. In order to receive credit, students must turn in an electronic copy of the final write-up. Satisfies the senior comprehensive requirement. Students submit petition to sponsoring agency. Prerequisite(s): Entry Level Writing and Composition requirements. The Staff

195B. Senior Thesis Group. *
Students involved in group or individual research that results in a senior thesis or project or done in conjunction with an internship meet regularly with their faculty sponsor to discuss the progress of their work, to receive academic and technical guidance, and to critique one another's written work. To receive credit the student must submit two bound copies of the completed research and write-up. Satisfies the senior comprehensive requirement. Students must discuss details with faculty sponsor. Students submit petition to sponsoring agency. Prerequisite(s):Entry Level Writing and Composition requirements. J. Bury, K. Holl

196. Senior Seminar. F,W,S
Readings and discussions of primary literature on a current environmental studies topic. Field or literature-based research projects (individual or group) writing multiple drafts resulting in a final paper. Topics vary yearly; consult current course listings. Enrollment by application with selection based on appropriate background and academic performance and by consent of instructor. Satisfies senior comprehensive requirement. Enrollment restricted to senior environmental studies majors; senior environmental studies/biology combined majors; senior environmental studies / Earth sciences combined majors; and senior environmental studies /economics combined majors. Prerequisite(s): Entry Level Writing and Composition requirements. The Staff

199. Tutorial. F,W,S
Advanced directed reading, supervised research, and organized projects relating to environmental problems. May be repeated for credit with consent of the chair of environmental studies. Students submit petition to sponsoring agency. Prerequisite(s): prior or concurrent enrollment in courses 100 and 100L. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Provides for department-sponsored directed reading, supervised research, or organized project under the direct supervision of a faculty sponsor. May not be counted toward major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

201A. Keywords and Concepts: Geography and Ecology. F
Exploration of keywords and concepts that underlie interdisciplinary work in environmental studies through lectures, directed readings, and discussion. Modules include resonant concepts in ecology and society; ecology and evolution; environment and development; the global environment and society; agroecology and conservation biology. (Formerly Keywords and Concepts.) Enrollment restricted to graduate students. G. Gilbert, A. Szasz

201B. Keywords and Concepts: Biogeochemistry and Environmental Policy. W
Exploration of the keywords and concepts that underlie interdisciplinary work in environmental studies through lectures, directed readings, and discussion. Modules include resonant concepts in economics and public policy, biogeochemistry, and global change. (Formerly Keywords and Concepts.) Enrollment restricted to graduate students. Z. Tzankova, C. Shennan

201M. Developing Research Proposals (2 credits). F
Offers graduate students the opportunity to become familiar with the research expertise of the faculty in the Environmental Studies department. Enrollment restricted to graduate students. M. Loik

201N. Interdisciplinary Research Design in Environmental Studies. S
Provides students with opportunities to learn research protocols, practices, and methods used in environmental studies. Combination of lectures, reading, practical exercises, and

short projects used to explore how these methods can best be incorporated into interdisciplinary research designs. Enrollment restricted to graduate students. D. Letourneau

210. Political Ecological Thought and Environment. *
Provides an introduction to social scientific analyses of the relationships between capitalistic development and the environment in the late 20th century. It has a dual purpose: First, to develop a contemporary historical understanding and sensibility of how economic change, new institutional configurations, and world scale processes are shaping interactions with the environment. Second, to examine some recent political social theoretical perspectives on nature-society relations and radical environmental and social movements. Enrollment restricted to graduate students in environmental studies. J. Bury

215A. Geographic Information Systems and Environmental Applications. F
Introduction to geographic information systems (GIS) as the technology of processing spatial data, including input, storage and retrieval; manipulation and analysis; reporting and interpretation. Emphasizes GIS as a decision support system for environmental and social problem solving, using basic model building, experimental design, and database management. Students cannot receive credit for this course and course 115A. Concurrent enrollment in course 215L is required. Enrollment restricted to environmental studies graduates students. The Staff

215L. Exercises in Geographic Information Systems (2 credits). F
Exercises in Geographic Information Systems and Remote Sensing that demonstrate the development of digital geographic data. Students gain hands-on experience with developing datasets, using imagery to create GIS layers, performing spatial analysis, and utilizing GPS technology. Emphasis placed on environmental applications. Students cannot receive credit for this course and course course 115L. Students are billed a materials fee. Concurrent enrollment in course 215A is required. Enrollment restricted to environmental studies graduate students. The Staff

220. Conservation Biology. F
The principles of conservation biology, including a review of the core disciplines of demography, population genetics, island biogeography, and community ecology and discussion of area and edge effects, population viability, and ecosystem issues related to the maintenance of biological diversity, especially in fragmented landscapes. Enrollment restricted to environmental studies graduate students. K. Holl

230. Agroecology and Sustainable Agriculture. *
The application of ecological concepts and principles to the design and management of agricultural systems. The long-term goal of sustainable agroecosystems is examined in economic, social, and ecological contexts. Enrollment restricted to environmental studies graduate students. C. Shennan

235. Social Theories of Nature. *
Intensive reading and discussion seminar on the treatment of nature in social theory. Focuses on major recent works which examine nature in social theory, in themselves, and in the context of the intellectual history of development of disciplinary discourses about nature. Students write critical reviews of assigned books and a research paper situating a particular book within its intellectual tradition. Prerequisite(s): interview with instructor to determine preparedness. May be repeated for credit. M. Fitzsimmons

240. Public Policy and Conservation. S
Introduction to political and economic approaches to policy analysis, with particular reference to natural resource scarcity, property rights, and environmental conservation. Case studies apply economic and policy process concepts to the management of public lands, biodiversity, and renewable resources. Enrollment restricted to environmental studies graduate students. T. Duane

247. Regional Approaches to Environmental Policy. *
A research seminar combining theoretical issues in democratic theory, political economy, and planning with emerging concepts of bioregionalism. The focus is on institutional, scientific, and political innovations in managing the environment. Students evaluate current and historical proposals to regionalize environmental policy in the U.S. Enrollment restricted to environmental studies graduate students. The Staff

263. Plant Disease Ecology. *
Introduction to ecological roles of plant diseases, including their importance in regulating plant populations dynamics, community diversity and system function in natural ecosystems, considerations of plant diseases in conservation ecology, and ecological approaches to managing diseases in agroecosystems. Students cannot receive credit for this course and course 163. Prerequisite(s): one ecology course. Enrollment restricted to graduate students. G. Gilbert

268. Biogeochemistry and the Global Environment. *
Studies biogeochemical cycles and related environmental issues such as global environmental change, eutrophication, ecosystem degradation, and agricultural sustainabilty. Discusses transformation and movement of major nutrient elements in context of watershed ecology and societal implications. Students cannot receive credit for this course and course 168. Enrollment restricted to environmental studies graduate students. W. Cheng

271. Valuing the Environment. *
Intensive seminar examining the normative underpinnings of environmental values. Draws on tools from analytical, ethical, and political philosophy to develop normative arguments concerning environmental inequality and justice, environmental preservation, and risk evaluation. Involves team projects in which students develop cases on controversial contemporary issues such as biotechnology. Prerequisite(s): interview only. Enrollment restricted to graduate students. May be repeated for credit. S. Rajan

280. Advanced Topics in Environmental Studies. W,S
Intensive research seminar, including reading and critique of primary research literature and research in progress. Topics vary and are announced in advance; students should consult with faculty prior to enrolling. Enrollment by permission of instructor. Enrollment restricted to graduate students. May be repeated for credit. The Staff

283. Environmental Studies Internship. F,W,S
Graduate level internship focuses on integrating interdisciplinary academic theory with practical, specialized experience in a professional setting. Course intended for environmental studies graduate students; students must complete paperwork and meet with coordinator prior to first day of instruction. The Staff

290. Interdisciplinary Research Seminar (2 credits). F,W,S
Research seminars presented weekly throughout the year by environmental studies and affiliated faculty, by visiting scholars, and by graduate students. Students discuss the content and methodology of research presented following each seminar. Enrollment restricted to graduate students. May be repeated for credit. Z. Tzankova

290L. Graduate Research Seminar (2 credits). F,W,S
Graduate student presentations of doctoral research proposals, dissertation work-in-progress, grant applications, and conference papers. This weekly laboratory meeting seeks to develop professional skills, teach constructive criticism, and foster effective discussion among peers. Enrollment restricted to graduate students. W. Cheng, S. Rajan, G. Gilbert

291. Advanced Readings in Environmental Studies (3 credits). F,W,S
Focusing on a recently published volume or on a topic of current interest, this seminar requires a rigorous analysis of the principles and methods employed in the four core areas of the program: sustainable agriculture and agro-ecology; conservation biology; environmental policy analysis; and political economy. Enrollment restricted to graduate students. May be repeated for credit. The Staff

291C. Advanced Readings in Risk and Public Policy (3 credits). *
Advanced readings and research on environmental risk and public policy. Explores environmental decision making given the question of the burden of proof and scientific uncertainty and grapples, in an advanced manner, with emergent policy alternatives, such as the precautionary principle. Also offered as course 281C for 5 credits. Prerequisite(s): course 172 or equivalent work demonstrated by an interview. Enrollment restricted to graduate students. May be repeated for credit. S. Rajan

291D. Advanced Readings in Tropical Ecology, Agriculture, and Development (3 credits). S
Analyzes recent publications in ecology, conservation, agroecology, and development in

tropical and subtropical regions, particularly Latin America. Discussions place special emphasis on integration across natural and social science disciplines to address issues of sustainability in tropical regions. Enrollment restricted to graduate students. G. Gilbert

291M. Advanced Readings in Biogeochemistry (3 credits). *
Course consists of three parts: fundamental biogeochemistry of the Earth, global cycles of nutrient elements, and societal and scientific issues of global change. Class activities include (1) presentation of summary statements based on reading assignments; (2) discussion of theories, concepts, methodologies, and applications; (3) computer simulation and modeling of elemental cycles using STELLA; and (4) integration of scientific information on global change with social issues by writing. Enrollment restricted to graduate students. W. Cheng

291P. Advanced Readings in Environmental History and Anthropology (3 credits). *
Course of readings systematically surveying the theoretical contributions of the disciplines of environmental history, historical ecology, environmental anthropology, and geography. After an overview of the evolution of 20th-century thought on the relationship between environment and culture as seen through the lenses of these disciplines, explores emerging research hybrids and new research frontiers. Enrollment restricted to graduate students. S. Rajan

292. Topics in Research in Environmental Studies (2 credits). F,W,S
Seminar in which students give critically evaluated presentations regarding current research in environmental studies and issues in research design. Students should consult with faculty prior to enrolling. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study and research under faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Feminist Studies

2014-15 General Catalog

416 Humanities 1
(831) 459-2461 or 459-2757
fmst@ucsc.edu
http://feministstudies.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

1. Feminist Studies: An Introduction. F
Introduces the core concepts underlying the interdisciplinary field-formation of feminist studies within multiple geopolitical contexts. Explores how feminist inquiry rethinks disciplinary assumptions and categories, and animacvtes our engagement with culture, history, and society. Topics include: the social construction of gender; the gendered division of labor, production, and reproduction; intersections of gender, race, class, and ethnicity; and histories of sexuality. (Formerly Introduction to Feminisms.) (General Education Code(s): CC, IH.) A. Arondekar

10. Feminisms of/and the Global South. W
Explores feminist theories from domestic U.S. and global contexts in order to ask how interventions of women of color in the U.S. and of radical feminist movements in non-U.S. locations radically re-imagine feminist politics. Rather than focusing on feminist movements that represent different regions of the world, course examines feminist theory through multiple histories of colonialism, post-colonialism, and globalization. (Formerly course 80F.) (General Education Code(s): CC, T5-Humanities and Arts or Social Sciences, E.) A. Arondekar

14. Popular Culture in South Asia. F
Popular culture enables people to make sense of their modern selves and their place in the world. Focusing on South Asia, this course explores the region's rich and variegated popular culture forms, including film, music, television, the painted and printed image, and sport. It also investigates how the popular articulates with nation and global conjunctures and how it constructs hierarchies of class, gender, caste, and sexuality. (General Education Code(s): IM.) M. Murty

20. Feminism and Social Justice. F
Examines, and critically analyzes, select post-World War II movements for social justice in the United States from feminist perspectives. Considers how those movements and their participants responded to issues of race, class, gender, and sexuality. A feminist, transnational, analytic framework is also developed to consider how those movements may have embraced, enhanced, or debilitated feminist formations in other parts of the world. (Formerly course 80A.) (General Education Code(s): ER, T5-Humanities and Arts or Social Sciences.) B. Aptheker

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

21. Religion in American Politics and Culture. *
Introduces dominant discourses about Christianity and Islam in the American public sphere, with particular attention paid to race, gender, sexuality, and class in thinking about religion. Visual and textual media, political commentary, and popular ethnographies are analyzed. (Formerly course 80T.) (General Education Code(s): IM.) M. Fernando, N. Atanasoski

30. Feminism and Science. S
Explores questions of science and justice. Examines the nature of scientific practice, the culture of science, and the possibilities for the responsible practice of science. Rather than focusing on feminist critiques of science, the course examines how science and technology are changing our world and the workings of power. (Formerly course 80K.) Enrollment limited to 80. (General Education Code(s): PE-T, T5-Humanities and Arts or Social Sciences.) K. Barad

40. Sexuality and Globalization. *
Examines the relationship between sexuality and the contemporary term "globalization" as a dense entanglement of processes that emerges from a history of U.S. empire. Sexuality cannot be separated from power struggles over the classification of bodies, territories, and questions of temporality. Examines how sexualized contact zones produce new knowledge, commerce, inequalities, possibilities, and identities. (Formerly course 80B.) (General Education Code(s): CC, T5-Humanities and Arts or Social Sciences.) F. Schaeffer-Grabiel

41. Trans Gender Bodies. W
Draws from representations of transgender/transsexual people in popular, biomedical, and political contexts. Examines the impact of transgender lives on concepts of gender, identity, and technology. Engages with biological and sexological frameworks of sex/gender, trans experience, and social movements and theories. (Formerly course 80M.) M. Ochoa

80S. Women in Music. F
An exploration of the sociological position of women as composers and performers in Western and non-Western musics, with a focus on both ethnographic and historical sources. (Also offered as Music 80S. Students cannot receive credit for both courses.) Offered in alternate academic years. (General Education Code(s): CC, T4-Humanities and Arts, A.) T. Merchant

Upper-Division Courses

100. Feminist Theories. W
Core course for feminist studies. Serves as an introduction to thinking theoretically about issues of feminism within multiple contexts and intellectual traditions. Sustained discussion of gender and its critical connections to productions of race, class, and sexuality. Focus will change each year. Enrollment restricted to sophomores, juniors, and seniors. A. Arondekar

102. Feminist Critical Race Studies. *
Working from the perspective that race is a cultural invention and racism is a political, economic, and social relation, investigates how "race" is produced as a meaningful and powerful social category, examines the effects of racism as a social relation, and argues for the necessity of combining feminist and critical race studies. By considering different historical periods and places, aims to equip students with the tools necessary to critically examine the production and reproduction of race and racism in the U.S. Prerequisite(s): one course from feminist studies. Enrollment restricted to juniors and seniors. Enrollment limited to 20. (General Education Code(s): E.) The Staff

112. Women and the Law. *
Interdisciplinary approach to study of law in its relation to category "women" and production of gender. Considers various materials including critical race theory, domestic case law and international instruments, representations of law, and writings by and on behalf of women living under different forms of legal control. Examines how law structures rights, offers protections, produces hierarchies, and sexualizes power relations in both public and intimate life. (Also offered as Politics 112. Students cannot receive credit for both courses.) Enrollment restricted to feminist studies, politics, legal studies, and Latin American and Latino studies/politics combined majors during priority enrollment only. G.

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Teaching and Administrative Staff

Appendixes

Archive of General Catalogs

Nondiscrimination Statement

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Dent

115. Gender, Sexuality, and Transnational Migration Across the Americas. F
Examines migration as a mode of inquiry into transnational practices across geographic locales and temporal zones. Analyzes migration in relation to the transnational formation of gender, race, and sexuality as well as processes of neocolonialism, the state, and globalization. Prerequisite(s): course 1, 100, or 145. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): ER, E.) F. Schaeffer-Grabiel

120. Transnational Feminisms. *
Explores the emergence of transnational feminism through U.S. women of color and postcolonial feminism. Underscores the role of globalization, nationalism, and state formation in relation to feminist theorizing, activism, and labor across the Global South. In an attempt to understand the salience of inequalities, the course interrogates the continuation of feminst critique that is attentive to the war on terror, neocolonialism, and empire. Prerequisite(s): course 1. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 40. (General Education Code(s): CC, E.) F. Schaeffer-Grabiel

123. Feminism and Cultural Production. S
Explores relationship between feminism and culture. Topics will vary and include different forms of cultural production such as film and literature. Regional/national focus will also vary. Prerequisite(s): course 1. Enrollment restricted to sophomores, juniors, and seniors. May be repeated for credit. (General Education Code(s): A, E.) V. Cooppan, J. Gonzalez

124. Technology, Science, and Race Across the Americas. *
Examines new ways of understanding the body and race through the intersection of technology and science. Addresses how broader structures of power and the rise of new technological and scientific discoveries mediate power relations and alter how race, national boundaries, the body, and citizenship are normalized and contested from colonialism to the present. Course content may vary; themes may include: U.S. eugenics, I.Q. tests, patenting debates, sterilization, assisted reproduction, biometrics, and genetics across the Americas. (Formerly Technologies and Latinidad: Cyberspace and Beyond.) Enrollment restricted to sophomore, junior, and senior feminist studies majors during priority enrollment only. Enrollment limited to 25. (General Education Code(s): PE-T, E.) F. Schaeffer-Grabiel

126. Images, Power, and Politics: Methods in Visual and Textual Analysis. W
Introduces the analysis of visual images and text with particular emphasis on feminist critical methodologies. Using case studies from photography, film, TV, advertising, and new media, students learn how to read and analyze culture. Enrollment restricted to sophomore, junior, and senior feminist studies majors during priority enrollment only. Enrollment limited to 25. (General Education Code(s): IM.) N. Atanasoski

132. Gender and Postcoloniality. F
Postcolonial feminist studies. Explores how discourses of gender and sexuality shaped the policies and ideologies of the historical processes of colonialism, the civilizing mission, and anticolonial nationalism. Considers orientalism as a gendered discourse as well as colonial understandings of gender and sexuality in decolonialization. Explores Western media representations, literature, the law, and the place of gender in the current debate between cultural relativism and universalism. Provides an understanding of some key terms in postcolonial studies and an in-depth examination of the place of gender in these processes. Enrollment restricted to juniors and seniors. Enrollment limited to 20. (General Education Code(s): E.) A. Arondekar

133. Science and the Body. *
Contemporary technoscientific practices, such as nano-, info-, and biotechnologies, are rapidly reworking what it means to be human. Course examines how both our understanding of the human and the very nature of the human are constituted through technoscientific practices. Prerequisite(s): courses 1 and 100. Enrollment restricted to juniors and seniors. (General Education Code(s): PE-T.) K. Barad

135. Topics in Science and Sexuality. *
Introduces the multiple debates animating the linkages between science, race, and sexuality. Interrogates the interrelated, epistemological frameworks of science and sexuality/queer studies across a range of interdisciplinary and geopolitical locations.

Prerequisite(s): course 100 or 145. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. May be repeated for credit. A. Arondekar

139. African American Women's History. *
Considers African American women as central to understanding of U.S. history, focusing on everyday survival, resistance, and movements for social change. Discussion of critical theories for historical research, gender, and race. Emphasis on biography, cultural history, and documentary and archival research. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): ER, E.) B. Aptheker

145. Racial and Gender Formations in the U.S. F
Introduces the defining issues surrounding racial and gender formations in the U.S. through an understanding of the term "women of color" as an emergent, dynamic, and socio-political phenomenon. Interrogates organizing practices around women of color across multiple sites: film and media, globalization, representation, sexuality, historiography, and war, to name a select few. (General Education Code(s): ER, E.) F. Schaeffer-Grabiel

148. Gender and Global Development. *
Uses the critical tools of feminist theory and cultural anthropology to look at how global development discourses and institutions mobilize, reinforce, and challenge systems of gender-based inequality. Topics include non-governmental organizations (NGOs), development practice, microcredit, and technocrat cultures. (Formerly Gender and Development.) (Also offered as Anthropology 148. Students cannot receive credit for both courses.) M. Moodie

150. Mediating Desire. *
From a foundation in semiotics, considers the ways race and gender are constructed, understood, performed, embraced, commodified, and exploited through representations. Uses representations of, by, and for the margins to engage theories of communication, identity, and representation. Creative final projects encouraged. (Formerly Community Studies 152) Enrollment restricted to sophomore, junior, and senior feminist studies majors or by permission of instructor. (General Education Code(s): ER, E.) M. Ochoa

168. Topics in Feminist Philosophy. *
Topics in feminist philosophy, which may include: the nature of feminist philosophy, feminist approaches to philosophical issues, social and political philosophy, theories of knowledge, ethics, aesthetics, and science, technology, and medicine studies. Presupposes some familiarity with philosophy or feminist scholarship. (Also offered as Philosophy 147. Students cannot receive credit for both courses.) Prerequisite(s): Philosophy 100A or 100B or 100C. The Staff

175. Gender and Sexualities in Latina/o America. *
Advanced topics in gender and sexuality in Latin America and Latina/o studies. Analyzes role of power, race, coloniality, national and transnational processes in the production and analysis of genders and sexualities. Materials include memoir, fiction, ethnography, social documentary and history. (Formerly, Gender and Sexuality in Latin America.) Enrollment restricted to sophomore, junior, and senior feminist studies majors or by permission of instructor. (General Education Code(s): CC, E.) M. Ochoa

189. Advanced Topics in Feminist Theory. S
Focus on a particular problem in feminist theory. Problems vary each year but might include theorizing the gendered subject, racializing gender, the meeting points of psychoanalysis and social-political analysis in theorizing gender, the relationship between queer theory and feminist theory, postcolonial feminist theory. Prerequisite(s): course 100. Enrollment restricted to juniors, seniors, and graduate students. Enrollment limited to 20. May be repeated for credit. The Staff

193. Field Study. F,W,S
Individual field study in the vicinity of the campus under the direct supervision of a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Individual field study in the vicinity of the campus under the direct supervision of a faculty

sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Senior Seminar.
Discussion classes providing a broad overview of some general "area of concentration." Discussion of assigned readings, focus on oral presentations, and a final 20- to 25-page paper. Satisfies the senior comprehensive requirement in feminist studies. Enrollment limited to 20. The Staff

194A. Feminist Jurisprudence. *
Approaches legal reasoning from a feminist and intersectional perspective with attention to structures and jurisdiction, case materials, and emerging international frameworks for gender justice. Designed to facilitate completion of a substantial research essay based in feminist legal philosophy. Instructor permission required to enroll. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; course 112 or Politics 112. Enrollment restricted to senior feminist studies majors. Enrollment limited to 20. G. Dent

194D. Feminist Science Studies. *
Examines different feminist approaches to understanding the nature of scientific practices. Particular attention paid to notions of evidence, methods, cultural and material constraints, and the heterogeneous nature of laboratory practices. Considers the ways in which gender, race, and sexuality are constructed by science and how they influence both scientific practices and conceptions of science. Also examines the feminist commitment to taking social factors into account without forfeiting the notion of objectivity. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; and courses 1 and 100. Enrollment restricted to senior feminist studies majors. Enrollment limited to 20. K. Barad

194F. Chicana/Latina Cultural Production. W
Traces the intersection between Chicana studies and Latin American studies through transnational forms of cultural production, imaginaries, and empowerment. Analysis of theories of cultural production and discussion of the political salience of culture as a site for resistance, critique, and creativity. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; course 100. Enrollment restricted to senior feminist study majors. Enrollment limited to 20. (General Education Code(s): E.) F. Schaeffer-Grabiel

194G. Images of Africa. *
Explores questions of colonialism, empire, race, gender, and geopolitics in the proliferating images–filmic, televisual, and media–of Africa in the United States. Facilitates the completion of a substantial research essay based on the study of popular culture. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; course 100; enrollment restricted to seniors. Enrollment by permission of instructor. Enrollment limited to 20. G. Dent

194H. Michel Foucault: An Introduction. F
French philosopher Michel Foucault's writings on modern forms of knowledge, power, and subjectivity provide a serious challenge to how we negotiate social oppression. Engages some of Foucault's most cited works, and grapples specifically with his primary claim that modern societies are marked less by freedom and autonomy than by discipline and docility. Prerequisite(s): courses 1 and 100; and satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to juniors, seniors, and graduate feminist studies majors. Enrollment limited to 20. A. Arondekar

194I. Feminist Oral History and Memoir. S
Designed to train students in oral history and memoir writing. Emphasizes the specialness of transgressive voices; race, class, and sexuality, women's silence, erasure, censorship, and marginalization are addressed. The politics of memory, narratives, storytelling, and editorial judgment are considered. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 100. Enrollment restricted to senior feminist studies majors. Enrollment limited to 20. (General Education Code(s): W.) B. Aptheker

194K. Black Diaspora. F
Seminar focuses on the historical and subjective processes that produce the concept of an African or Black Diaspora. In narrative, film, and cultural studies, themes of slavery, exile, home, identity, alienation, colonialism, politics, and reinvention are explored.

Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 100. Enrollment restricted to senior feminist studies majors. Enrollment limited to 15. G. Dent

194N. Gender, Class, and Sex in Shanghai. *
Focusing on Shanghai, course examines issues of gender, class, and sex in modern urban Chinese history. Given Shanghai's history as a treaty port, particular attention paid to ways in which its semi-colonial status inflected the articulation of gender identities, class formations and issues of sexuality (particularly sexual labor). Also looks at Shanghai during the Maoist period and in the context of more contemporary economic reforms. (Also offered as History 194A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; and History 40B, 140C, 140D, or 140E, or permission of instructor. Restricted to junior and senior feminist studies majors. Enrollment limited to 20. (General Education Code(s): W.) E. Honig

194O. The Politics of Gender and Human Rights. W
Examines human rights projects and discourses with a focus on the politics of gender, sexuality, race, and rights in the international sphere. Reading important human rights documents and theoretical writings, and addressing particular case studies, emphasizes the tensions between the ideals of the universal and the particular inherent in human rights law, activism, and humanitarianism. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; courses 1 and 100. Enrollment restricted to senior feminist studies majors. Enrollment limited to 20. N. Atanasoski

194Q. Queer Diasporas. *
Queer diaspora emerged from Third World/queer-of-color critique of queer theory and provides a framework for analyzing racializations, genders, and sexualities in colonial, developmental, and modernizing contexts. Readings from anthropology, history, literature, and feminist and cultural studies. Prerequisite(s): course 100 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. M. Ochoa

194T. Transgender Studies. *
Explores literature from the natural sciences, anthropology, history, cultural studies, and sociology. Provides theoretical approaches to complex questions in queer studies and geopolitics, and a framework for understanding embodiment, medical regulation, gender formation, the human/animal divide, etc. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to senior feminist studies majors. Enrollment limited to 20. M. Ochoa

195. Senior Thesis or Project. F,W,S
The senior thesis/project which satisfies the major requirement. Course is for independent research and writing. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; students submit petition to sponsoring agency. May be repeated for credit. (General Education Code(s): W.) The Staff

198. Independent Field Study. F,W,S
Provides for individual study program off campus for which faculty supervision is not in person. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for individual study program off campus for which faculty supervision is not in person. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Feminist Theories. F

Introductory required course for feminist studies graduate students. Covers major theorists, debates, and current questions as well as foundational texts through which feminist critiques have been grounded. Content changes with instructor. Enrollment restricted to graduate students. Enrollment limited to 15. G. Dent

201. Topics in Feminist Methodologies. W
Explores feminist theorizing across disciplinary and cultural contexts for both methodology (theories about the research process) and epistemology (theories of knowledge). Goal is to orient students toward changes in organization of knowledge and provide them with different feminist methodologies in their pursuit of both an "object" of study and an epistemology. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. F. Schaeffer-Grabiel

202. Disciplining Knowledge/Graduate Research. S
Prepares students to develop research skills and initiate their research projects. Students consider what is meant by feminist research and undertake designing and performing feminist research. Prerequisite(s): course 200 and course 201. Enrollment restricted to graduate studensts. Enrollment limited to 15. N. Atanasoski

203. Feminist Pedagogies. *
Examines feminist pedagogies as projects in transgressing traditional disciplinary boundaries. Examines historical examples of alternative pedagogies and contemporary models for creating communities dedicated to social justice. Designed to assist graduate students develop teaching strategies in multiple fields. Enrollment restricted to graduate students. Enrollment limited to 15. B. Aptheker

204. Ways of Seeing and Hearing. *
Graduate-level advanced seminar explores ways that seeing, hearing, and knowing are influenced by culture, power, race, and other factors. Readings emphasize how documentary subjects are constituted and known, addressing questions of epistemology, social constructivism, objectivity, and method. (Also offered as Social Documentation 204. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. M. Ochoa

207. Topics in Queer/Race Studies. *
Explores the interrelated epistemological frameworks of critical race studies and queer studies. Through the study of a range of philosophical, scientific, literary, and cinematic texts, course historicizes and theorizes discourses of race and sexuality. Enrollment restricted to graduate students. Enrollment limited to 15. A. Arondekar

211. Sexuality, Race, and Migration in the Americas. *
Analyzes the ways transnational processes intersect with changing notions of gender, sexuality, and race. Examines processes such as tourism, the Internet, capitalism, and labor spanning Brazil, the Dominican Republic, and the United States. Enrollment restricted to graduate students. Enrollment limited to 15. F. Schaeffer-Grabiel

214. Topics in Feminist Science Studies. S
Graduate seminar on feminist science studies. Topics will vary and may include: the joint consideration of science studies and poststructuralist theory; the relationship between discursive practices and material phenomena; and the relationship between ontology, epistemology, and ethics. Enrollment restricted to graduate students. Enrollment limited to 15. K. Barad

215. Postcolonial and Postsocialist Transactional Analytics. *
Addresses the intersection of the postcolonial and the postsocialist as theoretical ground. Considers how (neo)liberal ideologies about race, class, gender, secularism, and democracy are shaped by the intersection between postsocialist geopolitics and imperial legacies. (Formerly Postsocialism, Postcolonialism, Neoliberalism.) Enrollment restricted to graduate students. Enrollment limited to 15. N. Atanasoski

216. Archives/Genders/Histories: An Introduction. *
Explores the entanglements of archives, genders, and histories across a number of intellectual and imperial contexts. Approaches the concept of the archive to reflect on who counts as a historical and/or gendered subject and what are the ethics of representation that guide such archival formations. Draws on literature from philosophy, gender/sexuality

studies, anthropology, history, and literary criticism. Enrollment restricted to graduate students. Enrollment limited to 15. A. Arondekar

222. Religion, Feminism, and Sexual Politics. *
Focuses on the increasing importance of religion as a category of analysis in feminist theory. Addresses the relationship of religion, feminist politics, and activism in connection with nationalism, the family, sexuality, and geopolitics. Enrollment restricted to graduate students. Enrollment limited to 15. N. Atanasoski

232. Topics in Postcolonial Studies. W
Variable topics that could include postcolonial approaches to questions of epistemology and knowledge production, theories of nationalism and nation-state formation, subaltern historiography, analyses of modernization and developmental theory, postcolonial approaches to globalization, and transnationalism. Significant component of feminist contributions to these literatures. Enrollment restricted to graduate students. Enrollment limited to 15. A. Arondekar

240. Culture and Politics of Human Rights. *
Examines cultural, philosophical, and political foundations for human rights and provides students with critical grounding in the major theoretical debates over conceptualizations of human rights in the Americas. Addresses the role of feminist activism and jurisprudence in the expansion of human rights since the Universal Declaration of Human Rights. Addresses challenges of accommodating gender rights, collective rights, and social and economic rights within international human rights framework. (Also offered as Latin American&Latino Studies 240. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. R. Fregoso

245. Race and Representation. *
Explores how human subjects come to be visually defined and marked by "race" discourse. Covers diverse theoretical literatures on the topic, primarily in visual studies, but also in cultural studies, post-colonial studies, and psychoanalysis. (Also offered as History of Consciousness 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. J. Gonzalez

251. Feminist Theory and Social Psychology. *
Course bridges feminist theory and social psychological research to explore connections between theory covered and empirical studies on various topics in social psychology. Seminar format allows students opportunity for extensive discussion. (Also offered as Psychology 251. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. The Staff

260. Black Feminist Reconstruction. S
Re-visions and extends Reconstruction from 1865-1920 from a black feminist standpoint. Topics include: redefining democracy; labor; literacy and education; suffrage; re-visioning sexuality; childbirth; parenting, etc. Analyzes traditional historiography and the methodological implications of the boundaries between history and fiction, and archival and oral traditions. Enrollment restricted to graduate students Enrollment limited to 15. B. Aptheker

264. The Idea of Africa. *
Examines the position of Africa in cultural studies and the simultaneous processes of over- and under-representation of the continent that mark enunciations of the global and the local. Themes include defining diaspora, the West as philosophy, and Africa in the global economy. (Also offered as History of Consciousness 264. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. G. Dent

268A. Science and Justice: Experiments in Collaboration. *
Considers the practical and epistemological necessity of collaborative research in the development of new sciences and technologies that are attentive to questions of ethics and justice. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267A, Biomolecular Engineering 268A, and Sociology 268A. Students cannot receive credit for more than one course.) Enrollment limited to 15. J. Reardon, K. Barad

268B. Science and Justice Research Seminar.

Provides in-depth instruction in conducting collaborative interdisciplinary research. Students produce a final research project that explores how this training might generate research that is more responsive to the links between questions of knowledge and questions of justice. Prerequisite(s): Sociology 268A, Biomolecular Engineering 268A, Feminist Studies 268A, or Anthropology 267A. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267B, Biomolecular Engineering 268B, and Sociology 268B. Students cannot receive credit for more than one course.) Enrollment limited to 15. J. Reardon, K. Barad

297. Independent Study. F,W,S
Independent study and research under faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study (2 credits). F,W,S
Independent study and research under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to students who have advanced to candidacy. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

* Not offered in 2014-15

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Film and Digital Media

2014-15 General Catalog

101 Communications Building
(831) 459-3204
film@ucsc.edu
http://film.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

10. Professional Topics in Film, Television, and Digital Media (2 credits). *
Taught by a working professional, lectures and workshop provide students with career-related information and insight into a specific profession in film, television, and digital media. Students research various aspects of a film, television, or digital media profession. Enrollment restricted to film and digital media majors and minors, pre-majors and proposed majors. The Staff

20A. Introduction to Film Studies. F
An introduction to the basic elements, range, and diversity of cinematic representation and expression. Aesthetic, theoretical, and critical issues are explored in the context of class screenings and critical readings. Students are billed a course materials fee. If space allows, restrictions may be lifted after priority enrollment. Enrollment restricted to first-year, sophomore, and junior proposed and pre-film and digital media majors and film and digital media minors. P. Limbrick

20B. Introduction to Television Studies. S
Introduction to the basic forms of televisual presentation, including differing narrative structure from movies and situation comedies to soap opera, plus modes of direct discourse in news, advertising, sports, music, television, and other genres. Alternative forms and modes in electronic media, such as independent video art and documentary, public television, cable, and electronic networks are explored, with their potential for expressing cultural diversity set in relation to social, cultural, and political conditions. Students are billed a course materials fee. If space allows, restrictions may be lifted after priority enrollment. Enrollment restricted to first-year, sophomore, and junior declared, proposed, and pre-film and digital media majors and film and digital media minors. The Staff

20C. Introduction to Digital Media. W
Introduces fundamental features of digital media and examines the immense visual, social, and psychological impact of the "digital revolution" on our culture. Topics include the concepts and forms of the digital hypertext interface, Internet, and web, and the impact of digital media on conceptions of the self, body, identity, and community. Students are billed a course materials fee. If space allows, restrictions may be lifted after priority enrollment. Enrollment restricted to first-year, sophomore, and junior declared, proposed, and pre-film and digital media majors and film and digital media minors. W. Sack

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

20P. Introduction to Production Technique. W
Introduction to production process with emphasis on low-budget, independent film and video making. Explores conceptualization, planning, shooting, editing of documentary, personal essay, and feature narrative works. Emphasis on visualization and shooting style, and scriptwriting, but not hands-on editing. Open to students of varied backgrounds and goals. Students are billed a course materials fee. Prerequisite(s): Course 20A, 20B, 20C, or 80A. Enrollment restricted to pre-majors, proposed majors, majors, minors, frosh, sophomores, juniors, and students not currently declared in the production concentration. (General Education Code(s): PR-C.) The Staff

42. Student-Directed Seminar. W,S
Seminars on selected topics taught by upper-division students under faculty supervision (see course 192). Students submit petition to sponsoring agency. The Staff

80A. The Film Experience. F
Students learn to understand how films reach the public through a collaborative, industrial, and artistic practice; how films "work" in a narrative sense; how they construct meanings for viewers; and how their formal techniques construct different possibilities for meaning and interpretation. (General Education Code(s): IM.) The Staff

80M. Understanding Media. *
Introduces students to contemporary concerns, issues, and topics of media and media criticism. With an emphasis on visual analysis, students develop conceptual tools to think critically about photography, cinema, television, video, and print journalism. (General Education Code(s): IM.) J. Horne

80S. Special Topics in Film and Digital Media. F,S
Study of selected aspects of film, television, and/or digital media. Includes weekly screenings and historical/theoretical readings. May be repeated for credit. (General Education Code(s): IM, T5-Humanities and Arts or Social Sciences, A.) S. Ruiz, The Staff

80T. Technothrillers. *
Examination of recent films classified as "thrillers" that approach technology (computers, robotics, biotech, the Internet, etc.) through suspense, anxiety, and paranoia. It will also address how technologically produced popular culture negotiates attitudes toward technological change. Students are billed a course materials fee. (Formerly course 80A.) (General Education Code(s): PE-T, T5-Humanities and Arts or Social Sciences, A.) The Staff

80V. Video Games as Visual Culture. W
Through the aesthetics and theory of electronic games, course introduces the histories, ideas, and debates that inform game studies. Topics include: games and cinema; race, class, and representation; narratology/ludology debates; interactivity; serious games; and alternative games. (General Education Code(s): PE-T.) S. Murray

80X. Sex in the Cinema. *
Examines the historical representation of sexual difference, orientation, and politics in film and video using cultural studies, political and economic historiography, and feminist and queer theory and paying special attention to intersections of U.S. political movements with filmmaking and reception. (General Education Code(s): IM, T5-Humanities and Arts or Social Sciences, A.) The Staff

Upper-Division Courses

120. Introduction to Film Theory and Criticism. W
An introduction to classical and contemporary film theory and those theoretical paradigms and methods that have illuminated the media: formalism, realism, structuralism, semiotics, psychoanalysis, Marxism, feminism, and issues of identity and difference. Students are billed a course materials fee. Prerequisite(s): course 20A, satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to film and digital media majors, pre-majors, and minors during priority enrollment; may be opened if space allows. (General Education Code(s): W.) J. Horne

130. Silent Cinema. S
Presents the development of silent film as a cultural form from the early period to the beginning of sound, addressing its historical evolution, technological development,

Management
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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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aesthetic transformations, and varied cultural contexts. Students are billed a course materials fee. Usually offered in alternate academic years. Prerequisite(s): course 20A . (General Education Code(s): IM.) S. Stamp

132A. International Cinema to 1960. *
A survey of significant developments in narrative film outside Hollywood from the advent of sound technology to the late '50s. Differing inter/national contexts, theoretical movements, technological innovations, and major directors are studied. Students are billed a course materials fee. Usually offered alternate academic years. Prerequisite(s): course 20A . (General Education Code(s): CC, A.) P. Limbrick

132B. International Cinema, 1960 to Present. *
A survey of significant developments in narrative film outside Hollywood from 1960 to the present. Major film movements and directors from around the world are studied. Students are billed a course materials fee. Usually offered in alternate academic years. Prerequisite(s): course 20A . (General Education Code(s): CC, A.) P. Limbrick

132C. Gender and Global Cinema. W
Offers students historical and critical tools to investigate global film through the framework of gender. Focused in particular on contemporary film (from 1960 to present), the class is structured both chronologically and via national industries. Students are billed a course materials fee. Prerequisite(s): course 20A. (General Education Code(s): CC, E.) Y. Wang

134A. American Film, 1930–1960. *
A survey of American narrative cinema from 1930 to 1960. Examines developments in film style, film technology, and the film industry in relation to American cultural history. Students are billed a course materials fee. Prerequisite(s): course 20A or 20B. Offered in alternate academic years. (General Education Code(s): IM.) S. Stamp

134B. American Film, 1960–Present. F
A survey of American narrative cinema from 1960 to the present. Examines developments in film style, film technology, and the film industry in relation to American cultural history. Students are billed a course materials fee. Prerequisite(s): course 20A or 20B. Offered in alternate academic years. (General Education Code(s): IM.) The Staff

136A. Experimental Film and Video. *
A survey of various experimental styles and practices in film and video, addressing the historical developments of these media formats. The course situates experimental film and video work within the larger contexts of artistic traditions as well as networks of production and reception. Students are billed a course materials fee. Prerequisite(s): course 20A . (General Education Code(s): IM, A.) The Staff

136B. History of Television. W
Survey of the historical development of broadcast television from its origins to the present day phenomena of cable, satellite, and electronic networks. Examination of major genres, forms, and modes of production and consumption within cultural, social, and economic contexts. Offered every other year, alternating with course 136A. Students are billed a course materials fee. Prerequisite(s): course 20B. (General Education Code(s): IM, A.) R. Prelinger

136C. Visual Culture and Technology: History of New Media. *
Explores the relationship between technology and change and surveys the history of various technologies of visual culture from print to computer based imagery and the Internet. Students are billed a course materials fee. Prerequisite(s): course 20C. (General Education Code(s): PE-T.) The Staff

136D. Documentary Film and Video. F
Explores the category of nonfiction through a historical and theoretical study of documentary in film and video. Addresses ethnographic film, Soviet and Griersonian documentary, cinema verite and/or other selected documentary texts and the issues of representation they raise. Students are billed a course materials fee. (Formerly course 161.) Prerequisite(s): course 20A or 20B. Offered in alternate academic years. (General Education Code(s): IM.) J. Kahana

142. Beyond Cybernetics: Advanced Topics in New Media Technologies. *
Analysis of the effects of communication and information technologies on culture and

cultural production through the study of systems and networks. Assignments may include papers, Internet presentations, development/participation in virtual communities, interactive multimedia. Emphasis on advanced critical and experimental approaches. Students are billed a course materials fee. Prerequisite(s): course 20C. Enrollment restricted to film and digital media majors. Enrollment limited to 40. L. Andrews, S. Daniel

150. Screenwriting. F
Problems in writing for film and television are explored through the writing of original material and analysis of existing works. Various film genres, conventions, and styles, both fictional and nonfictional, are examined. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Admission by application process which may begin prior to start of quarter; application materials generally available final week of preceding quarter. See enrollment conditions section in quarterly Schedule of Classes for application dates and other application instructions that may apply. May be repeated for credit. (General Education Code(s): PR-C, W.) The Staff

151. Film Directing. S
Workshop that explores the director's involvement in film and video production. Topics will include the manipulation of time and space, continuity, script planning and blocking, and working with actors and crew. Students will participate in group and individual exercises in pre-production and scene direction. Prerequisite(s): courses 20A, 20P, and/or 170B are recommended. Admission by application process which may begin prior to the start of the quarter; application materials generally available final week of preceding quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Enrollment limited to 25. (General Education Code(s): PR-E, A.) The Staff

152. Script Analysis. *
Students analyze diverse narrative techniques, dramatic structures, and genre forms to understand the craft of screenwriting and prepare for their own creative writing and filmmaking. Students read finished scripts and view films. Prerequisite(s): course 120. Enrollment restricted to film and digital media majors and film and digital media pre-majors. Enrollment limited to 25. The Staff

160. Film Genres. S
Concentrated study of films from one cinematic grouping with similar themes and narrative structures such as westerns, musicals, or science fiction, or a comparative study of different genres. History, theory, and criticism of the genre are covered. Students are billed a course materials fee. Prerequisite(s): course 130, 132A, 132B, 132C, 134A or 134B. May be repeated for credit. (General Education Code(s): A.) The Staff

161. Topics in Documentary.
Study of topics in documentary film and video. The Staff

161B. Documentary Animation. *
Examines the history, practice, and emergence of documentary animation in contemporary film, on the Web and as activist media with emphasis on the discourse central to social documentary, decolonial theory, and the politics of representation. Prerequisite(s): course 20A. Enrollment restricted to juniors and seniors. J. Leanos

162. Film Authors. F
Intensive critical study of the work of one film auteur (director, screenwriter, actor, cinematographer). Themes, style, and structure are explored using various critical modes of analysis. Students are billed a course materials fee. Prerequisite(s): course 130, 132A, 132B, 132C, 134A, or 134B.. May be repeated for credit. (General Education Code(s): IM.) S. Stamp

165A. Film, Video, and Gender. *
A study of texts, theories, and issues of gender in film and/or video. Changing focus on one or more topics, including production and authorship, representation, reception, theories of identification, sexual preference, and related issues. Students are billed a course materials fee. Usually offered in alternate academic years. Prerequisite(s): course 20A or 20B. (General Education Code(s): A.) I. Gustafson

165B. Race on Screen. *

Review of historical and critical tools to interpret representations of race on cinematic, television, and computer screens. Class will consider the place of race in theoretical and historical scholarship and examine the debates about race produced within and across film and digital media. Students are billed a course materials fee. Usually offered in alternate academic years. Prerequisite(s): course 20A or 20B. (General Education Code(s): ER, E.) Y. Wang

165C. Lesbian, Gay, and Queer Film and Video. *
An overview of homosexuality and LGBT representations in American film. Explores the format and historical significance of New Queer Cinema. Recent independent queer film and video discussed. Topics include: authorship; spectatorship; genre and genre reappropriation; historical gender constructs; the "art" film; mainstream versus independent production; and the relationship of film to popular music. Students are billed a materials fee. Enrollment restricted to juniors, sophomores, and seniors. (General Education Code(s): IM.) The Staff

165D. Asian Americans and Media. W
Examines media representations about, as well as by, Asian Americans. Using critical essays on film theory, racial studies, feminist criticism, and independent cinema, students develop the skills necessary to conduct critical analysis of Asian Americans in film and television. Students are billed a course materials fee. Prerequisite(s): course 20A. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 60. (General Education Code(s): ER, E.) L. Kim

165E. Chicana/o Cinema, Video. *
Examines emergence of Chicana/o cinema and video from a place of social displacement, resistance, and affirmation. Looks at Chicana/o representation and spectatorship as it pertains to ethnicity, class, gender, and the beginning of a new Chicana/o film aesthetic. Students are billed a course materials fee. (Formerly course 185E.) Prerequisite(s): course 20A. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 60. (General Education Code(s): CC, E.) The Staff

168. National Cinema and Culture. S
Study of a specific cinematic or other media tradition of a region, nation, language, diasporic collectivity or other unifying cultural entity. Not a survey, this course selects one focus or offers a comparative of cross-cultural framework. Students are billed a course materials fee. Prerequisite(s): course 130, 132A, 132B, or 132C. May be repeated for credit. (General Education Code(s): CC.) P. Limbrick

170A. Fundamentals of Digital Media Production. F,S
Introduction to the conceptual and technical fundamentals of making digital media. Covers principles of digital image manipulation, basic web authoring, and interface design through projects that introduce production techniques and methods. Students are billed a course materials fee. Prerequisite(s): course 20C or Computer Science 101 or Computer Science 109. Enrollment limited to 20. (General Education Code(s): PR-C, A.) W. Sack, The Staff

170B. Fundamentals of Film and Video Production. F,W,S
An introduction to the art and craft of making films and videos. Covers principles of cinematography, videography, editing, production planning, and lighting involving both production techniques and methods. Students are billed a course materials fee. Prerequisite(s): course 20A or 20B and one other film/video and digital media critical studies or history course required. Completion of additional upper-division film and digital media critical studies or history courses improves students' ability to be admitted to this course. Admission by application and entrance essay. The online application process begins several weeks prior to the start of the quarter. See enrollment conditions section in quarterly Schedule of Classes for application dates and other application instructions that may apply. Enrollment limited to 24. (General Education Code(s): PR-C, A.) I. Gustafson, J. Taylor, I. Lusztig, L. Andrews

171. Special Topics Workshops.
Study of selected aspects of film, video, and/or digital media production. The Staff

171A. Sound. W
The cinematic equation equals images plus sound. What are sound-specific properties? What is the relationship between sound and image? Examines these and

other questions through the creation of audio and audiovisual pieces. Students are billed a course materials fee. Prerequisite(s): priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A or 170B may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Enrollment limited to 20. L. Andrews

171C. Special Topics Workshop: Found Footage. S
Students will consider the practice of "recycling" images perhaps not intended by the original "owner" or "creator." In addition to assigned readings and technical workshops, students produce three video projects and give a presentation on a specific issue or artist/group. Prerequisite(s): course 170A or 170B; priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A or 170B may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Enrollment limited to 20. (General Education Code(s): PR-C.) R. Prelinger

171D. Social Information Spaces. *
Investigates how information spaces can be designed to be inhabited, socially navigable spaces. Emphasizes the social navigation of information spaces, a set of techniques and ideas from computer-supported cooperative works, human-computer interaction, and architecture. Prerequisite(s): course 170A. Enrollment limited to 20. The Staff

171F. Special Topics Workshop: Autobiographical Film. F
Students explore autobiography as a filmmaking genre and practice, using experimental, fictionalized, documentary, and hybrid forms. Readings and screenings provide a theoretical context for production work. Topics include: strategies of (self) representation, reenactment, performance, portraiture, memoir, confession, and diaristic film. Admission is by an online application process which begins several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A or 170B may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Students are billed a course materials fee. Enrollment limited to 20. I. Lusztig

171G. Documentary Animation Workshop. W
A project-based production seminar in documentary animation: students learn diverse animation styles and techniques, and apply them to a documentary-animation class project. Courses 161B and 170A are strongly recommended as preparation (or equivalent background). Enrollment by interview only: an online application process is available in the preceding quarter. Enrollment limited to 20. J. Leanos

172. Narrative Video Workshop. F,W
Intermediate workshop in film and video production concentrating on narrative production, development of critical standards, and technical methods. Topics include cinematography, sound, and non-linear digital editing techniques. Each student is responsible for the completion of short narratives from assignments. Students are billed a course materials fee. Prerequisite(s): priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See enrollment conditions section in quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A or 170B may apply by submitting an application and sample of production work at first class

meeting; these applications will be considered on a space-available basis. (Formerly Film and Video Studio.) Enrollment limited to 20. G. Vazquez, The Staff

173. Narrative Digital Media Workshop. *
Analysis of cinematic codes and narrative structure through digital video, Internet and interactive multimedia projects. Required readings address contemporary research in narratology and hyper-media, exploring the potential of digital technology to reconfigure the role of both author and audience. Students billed a materials course fee. (Formerly Narrative Workshop: Reconfiguring Narrative Within the Digital Realm.) Prerequisite(s): course 170A. Enrollment limited to 20. S. Daniel

175. Documentary Video Workshop. W
Workshop in documentary video production, development of critical standards, ethical issues, and technical methods. Each student is responsible for the completion of short documentaries from assignments. Students are billed a course materials fee. Prerequisite(s): priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A or 170B may apply by submitting an application and sample of production work at first class meeting; applications will be considered on a space-available basis. Enrollment limited to 20. E. Hollander

176. Experimental Video Workshop. S
Introductory workshop in video production (non-narrative, experimental). Topics include a survey of non-narrative experimental video from a historical/theoretical perspective and an introduction to videography, fundamentals of video editing, and sound. Students are billed a course materials fee. Students must bear the cost of all materials. Prerequisite(s): course 170B; priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170B may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Enrollment limited to 20. (General Education Code(s): A.) The Staff

177. Digital Media Workshop: Computer as Medium. W
Introduction to the computer as a medium as well as a tool. Students explore art practice within digital imaging and information and communications environments through projects, readings, and "screenings." Assignments may include designing virtual communities and /or interactive, multimedia web works. Students are billed a course materials fee. Prerequisite(s): course 170A. Enrollment limited to 20. S. Daniel

178A. Personal Computers in Film and Video. W
Introduction to the specific applications of computers for film and video. By using computer-generated, enhanced and imported graphics, animation, text, sound, and moving video, students create still and time-based works in a computer environment. Prerequisite(s): course 170A or 170B; priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins several weeks prior to the start of the quarter. See enrollment conditions section in quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170B may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Students are billed a course materials fee. Enrollment limited to 20. S. Ruiz

178B. Advanced Personal Computers in Film and Video. *
Study of advanced computer tools in digital media, including exploration, creation, and manipulation of sound with the same level of complexity as required in composing the moving image. Students produce a final project that demonstrates skills learned. Prerequisite(s): course 170A; priority given to students who have been accepted into the production concentration. Admission is by an online application process which begins

several weeks prior to the start of the quarter. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions that may apply. Students who are not in the production concentration and who have completed course 170A may apply by submitting an application and sample of production work at first class meeting; these applications will be considered on a space-available basis. Enrollment limited to 20. The Staff

180. Writing About Film, Television, and Digital Media. *
Improves students' ability to write and edit, and invites students to explore different kinds of writing related to film, television, and digital media including historical, theoretical, cultural criticism, popular reviews, grant proposals, online forums, and publishing. Prerequisite(s): course 20A, 20B, or 20C. Enrollment restricted to sophomore and junior film and digital media majors. Enrollment limited to 20. L. Kim

185. Special Topics in Film and Video.
Study of selected aspects of film and/or video history, theory, or criticism. Students are billed a course materials fee. The Staff

185D. Sound and Image in Theory and Criticism. *
Explores theories and critiques of sound in culture and analyzes sound in relation to media images in film, video, and other media. Voice, noise, and music are addressed. Students are billed a course materials fee. Prerequisite(s): course 120. (General Education Code(s): A.) J. Kahana

185R. The Film Remake. *
History and theory of the remake through case studies across cultural, gender, and genre boundaries. Examines changing cultural, social, stylistic, and technical values and explores notions of originality, repetition, homage, allusion, quotation, and intertextuality from Feuillade and Hitchcock to Raimi and Johnny To. Students are billed a course materials fee. Prerequisite(s): course 120, 130, 132A, 132B, 132C, 134A or 134B. The Staff

185S. Advanced Topics in Film Studies. S
Study of a selected aspect of film history, theory ,or criticism. Includes weekly screenings and historical/theoretical readings. Usually offered in alternate academic years with rotating topics. Students are billed a course materials fee. Prerequisite(s): courses 120, 130, 132A, 132B, 132C, 134A, or 134B. May be repeated for credit. Y. Wang

185X. EyeCandy Seminar. W
Seminar and workshop on writing, producing, and publishing a journal. Students engage in assignments and exercises directly and indirectly related to the production of a web launch as well as a print copy of EyeCandy . Permission of instructor required based upon student's participation in EyeCandy in winter and spring quarters. Preference given to film and digital media majors and minors; others may apply based on qualifications and as space allows. Students are billed a course materials fee. May be repeated for credit. (General Education Code(s): PR-E.) L. Kim

187. Advanced Topics in Television Studies. S
Study of a selected aspect of television history, television criticism, or national television. Includes weekly screenings and historical/theoretical readings. Usually offered in alternate academic years, with rotating topics. Students are billed a course materials fee. Prerequisite(s): course 20B. Enrollment restricted to junior and senior film and digital media majors and minors. May be repeated for credit. The Staff

189. Advanced Topics in Digital and Electronic Media Studies. *
Study of a selected aspect of digital and/or electronic media history and criticism. Topics can include virtual environments, electronic networks, video installations, computer games, and hyper-media. Usually offered in alternate academic years. Students are billed a course materials fee. Prerequisite(s): course 20C. Enrollment restricted to junior and senior film and digital media majors and minors during priority enrollment; may be opened if space allows. May be repeated for credit. The Staff

192. Directed Student Teaching. F,W,S
Teaching a lower-division course under faculty supervision (see course 42). Proposal supported by a faculty sponsor and department. The Staff

194A. Film Theory Seminar. F

Advanced senior seminar examining classical and contemporary film theory and those theoretical paradigms and methods that have illuminated the medium: formalism, realism, structuralism, semiology, psychoanalysis, Marxism, feminism, and phenomenology. Primary texts are read. Students are billed a course materials fee. Prerequisite(s): course 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. P. Limbrick

194B. Electronic Media Theory Seminar. S
Study of the major theoretical approaches to electronic media and their critical application to texts from television, independent video art and documentary, and electronic networks. Readings include a range of theoretical approaches selected from semiotic, ideological, feminist, cultural studies, reception theory, postmodernist, and other critical traditions. Students are billed a course materials fee. Prerequisite(s): courses 20B and 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. L. Kim

194C. New Media Theory Seminar. *
Study of theories of emerging genres of electronic culture, with emphasis on the discourse about computer-assisted and computer-generated forms of art and mass culture such as digital imagery, virtual environments, telematics, hyper- and multimedia, and electronic networks. Students are billed a course materials fee. Prerequisite(s): courses 20C and 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. S. Daniel

194D. Film History Seminar. S
In-depth study of film history investigating developments in cinematic style, technological innovation, and industrial practice against the broad canvas of cultural history. Students will acquire the basic tools necessary to conduct informed film historical research. Students are billed a course materials fee. Prerequisite(s): course 120 and either 130 or 134A or 134B. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. The Staff

194E. International Cinemas. S
In-depth study of the history and theory of international cinemas with changing topics such as globalism and resistance, postcolonial theory, international productions and querying race, the "national," and cinema. Students are billed a course materials fee. Prerequisite(s): course 120 and either 132A, 132B, or 132C. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. Y. Wang

194F. Film and the Other Arts. *
Examines the use of artistic media within films and of films that thematically are about other media. What do other art forms allow for—in terms of the story, the film's meaning, the gaze, and the spectator? Students are billed a course materials fee. (Formerly Film and the Other Arts: Music and Dance .) Prerequisite(s): course 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. L. Kim

194G. New(s) Media. *
Addresses the role of new media technologies in the production, distribution, and reception of the news, especially international news. Examines software and network technologies as amplifying, filtering, extending, and countering the forces of media. Students are billed a course materials fee. Prerequisite(s): courses 20C and 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. W. Sack

194S. Special Topics Seminar. W
Intensive research and writing on a changing topic chosen to demonstrate critical mastery in a specific area of film and digitial media studies, for example, film adaptations and their literary sources, documentary/reality shows, or networked new media texts. Students are billed a course materials fee. Prerequisite(s): course 120. Enrollment restricted to senior film and digital media majors. Enrollment limited to 20. May be repeated for credit. The Staff

195. Senior Thesis/Project. F,W,S
An individually supervised course, with emphasis on independent research, to culminate in a senior thesis/project/production. Proposals should be submitted to adviser one quarter in advance. Petition required, approved by instructor and department; thesis petitions available in the department office. The Staff

196A. Senior Project in Narrative Production. W,S
Students accomplish a range of production work focused on narrative production including script development, casting, and rehearsing to shooting and post-production work. Students are billed a course materials fee. Admission by application during the preceding quarter. Students may apply a maximum of two times. See the enrollment conditions section in the quarterly Schedule of Classes for application dates and other application instructions. (Formerly Senior Project in Film and Video Production.) Enrollment limited to 20. G. Vazquez, The Staff

196B. Senior Project in Screenwriting. W
Students write a full-length (75-100 page) screenplay in this seminar while studying structural concepts and character development in selected films. Scheduling, outlining, pitching ideas, and critique are all part of the workshop format of the class. Prerequiste(s): satisfaction of the Entry Level Writing and Composition requirements; course 150 or another screenwriting course. Interview only: petition required; special application should be submitted to adviser one quarter in advance; see department office for more information. Enrollment restricted to senior film and digital media majors. Enrollment limited to 16. (General Education Code(s): W.) The Staff

196C. Senior Documentary Workshop. S
Students are responsible for producing short documentaries (up to 12 minutes). In class, students discuss each other's work as well as view and discuss other documentary films. Admission by application during the preceding quarter. Enrollment restricted to senior film and digital media majors. Students are billed a course materials fee. Enrollment limited to 20. I. Gustafson

197. Senior Digital Media Workshop. *
Independent projects using the computer as a medium as well as a tool. Students will design and implement projects in digital imaging, information, and communications environments. Students' projects may include designing virtual communities, building collaborative networks, and/or interactive, multimedia web works. Students are billed a course materials fee. Admission by application during previous quarter. See department office for more information. Enrollment limited to 20. W. Sack

198. Independent Field Study. F,W,S
Provides for department-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Students engaging in field study must complete application procedures for such study by the fifth week of the previous quarter. Field study may not be used to satisfy major requirements. Petition required, approved by instructor and department; petitions available in the department office. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for department-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Students engaging in field study must complete application procedures for such study by the fifth week of the previous quarter. Field study may not be used to satisfy major requirements. Petition required, approved by instructor and department; petitions available in the department office. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual study in areas approved by sponsoring instructors. Tutorial may not be used to satisfy major requirements. Petition required, approved by instructor and department; petitions available in the department office. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual study in areas approved by sponsoring instructors. Tutorial may not be used to satisfy major requirements. Petition required, approved by instructor and department; petitions available in the department office. May be repeated for credit. The Staff

Graduate Courses

200A. Introduction to Graduate Study. F
Introduces graduate study in the critical practice of film and digital media. Conducted as a pro-seminar, with faculty presentations and discussion. Enrollment restricted to graduate

students. Enrollment limited to 15. J. Horne

200B. Theory and Praxis of Film and Digital Media 1. W
Investigates methods for rhetorical production of written and visual/aural texts. Emphasizes questions about delineation between theory and practice, and provides groundwork in theories relevant to key areas in film, television, and digital media studies. (Formerly Theory and Praxis of Digital Media 1.) Enrollment restricted to graduate students. Enrollment limited to 15. J. Kahana

200C. Theory and Praxis of Film and Digital Media 2. S
Investigates methods for rhetorical production of written and visual/aural texts. Emphasizes interwoven practices of the artist/researcher/teacher, formal and expressive possibilities of "hybridized" research, and cultural issues raised by integrated methods of inquiry. Students are billed a course materials fee. Enrollment restricted to graduate students. Enrollment limited to 15. I. Lusztig

204. Grant Writing (2 credits). *
Devoted entirely to writing grant proposals. Students work on grants for educational support, their doctoral dissertation grants, or both. (Also offered as History of Art&Visual Culture 204. Students cannot receive credit for both courses.) Enrollment restricted to visual studies and film and digital media graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

222. Critical Methodologies in Film and Television. *
Introduces graduate students to critical methodologies in media studies and offers sustained examination of theoretical approaches to media studies. Methodologies may include (but are not limited to) contemporary theory (semiotic, psychoanalytic, ideological), cultural studies, intertextuality, feminist film, and television theory. Enrollment restricted to graduate students. Enrollment limited to 14. The Staff

223. The Film/Video Essay. S
Focuses on "essayistic" approaches to scholarship and production, emphasizing relationships between theory and praxis that this mode of production requires. Enrollment restricted to graduate students. Enrollment limited to 15. I. Gustafson

224. Mediating Difference. F
Considers theoretical and strategic, situated "difference" in the era of (semi-)colonialism, post-colonialism, and globalism, examining theoretical writing alongside media works on the topic. Enrollment restricted to graduate students. Enrollment limited to 15. Y. Wang

225. Software Studies. *
Today, our lives are woven into vast software systems that facilitate our family communications, personal relations, jobs, and cultural, economic, political, and social institutions. Course examines these conditions of life and thought using insights from the arts and humanities. Enrollment restricted to graduate students. W. Sack

226. Queer Theory and Global Film and Media. *
Examines queer subjectivities, practices, and theories in relation to globalization, transnationalism, and postcoloniality, focusing on film/media produced outside the United States. The course addresses representation and also uses queer theoretical work to engage wider contexts of film/media production, distribution, and exhibition. Enrollment restricted to graduate students. P. Limbrick

227. Representing Memory. *
Studio-based hybrid practice/theory to explore problems of historical representation in film, video, and new media and engage with the production of new cinematic/visual forms that take on issues of personal, collective, and national memories. Enrollment restricted to graduate students Enrollment limited to 15. I. Lusztig

228. Moving Image Archives and the Frontiers of Information. S
Explores moving image archives in relation to social movements, technological change, and moving image use and reuse. Theories of memory, information, and technology provide a framework for discussions, site visits, and individual projects. Enrollment restricted to graduate students. Enrollment limited to 15. R. Prelinger

229. Topics in Documentary Studies. *

Examines the forms, discourses, and practices of documentary film, television, video, and other media in relation to cultural, social, and political history and theory. While the thematic focus varies from term to term, each edition of the course places critical thought and documentary work in conversation around issues central to forms of social knowledge and action. Enrollment restricted to graduate students. Enrollment limited to 15. J. Kahana

230. Expanded Documentary. *
Students explore the aesthetic, political, and ethical dimension of new and expanded forms of documentary practice including: new media; database-driven, interactive documentary; participatory media; social media; and documentation-based art practices. Enrollment restricted to graduate students. Enrollment limited to 15. S. Daniel

231. Topics in Postcolonial Theories, Film, and Media. *
Explores topics in postcolonial theories and film and media around themes such as colonialism, modernity, and institutions of cinema; colonial histories and national or transnational film and media; race, gender, sexuality and colonialism; the uneven implications, pitfalls, and possibilities of the term "postcolonial" in relation to film and media. Enrollment restricted to graduate students. Enrollment limited to 15. P. Limbrick

232. Audiovisual Ethnography. *
Students learn the technical and critical skills required for fieldwork-based ethnographic video and audio media production. The course is structured around cumulatively building filmmaking skills with an emphasis on critically informed nonfiction ethnographic observation. Enrollment restricted to graduate students in film, anthropology, or social documentation. Enrollment limited to 10. I. Lusztig

233. Studies and Practice for Social Documentation, Filmmaking, and New Media. W
This thematic, graduate-level, hybrid, production/critical studies course provides opportunities to learn specific technical skills while engaging in the analysis and critical interpretations of cinema, social documentary, animation, art, television, and new media. Technical topics may include animation; motion graphics; interactive web media; and installation, editing, cinematography, and sound. (Also offered as Social Documentation 293. Students cannot receive credit for both courses.) Enrollment restricted to graduate students in film and digital media. Graduate students from other programs may enroll by permission of the instructor. Enrollment limited to 15. J. Leanos, L. Andrews

234. Toward an Ethics of New Media. F
Investigates an ethics of new media. Using an intersectional approach, students read thematic units that consider issues of race, class, and gender as they crosscut questions of advanced technological tools and their implementation in modern society. Enrollment restricted to graduate students. Enrollment limited to 15. S. Murray

283. New Media Art and Digital Culture. *
A study of new media art in the context of digital culture. Electronic, digital and online technology art are set in critical relation to discourse on history, aesthetics, hypermedia, the interface, hacks, embodiment, robotics, artificial life and other topics. Students are billed a course materials fee. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

284. Film, Culture, and Modernity. W
Traces the rise of motion picture culture from the late 19th century through the end of the 1920s, looking at film's emerging visual and narrative grammar, its changing cultural status, and its engagement with shifting registers of class, ethnicity, gender, and sexuality. Enrollment restricted to graduate students. Enrollment limited to 15. S. Stamp

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to course-sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Either study related to a course being taken or a totally independent study. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. May be repeated for credit. The Staff

297F. Independent Study (2 credits). F,W,S

Students submit petition to course-sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to course sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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French

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Lower-Division Courses

1. First-Year French.
Introduction to French language and culture with practice in all four language skills: listening, speaking, reading, and writing. Intended for students with no previous study of French. (Formerly Instruction in the French Language.) The Staff

2. First-Year French.
Further development of cultural competence and basic French language skills, both written and spoken. Students learn past tenses in this course. (Formerly Instruction in the French Language.) Prerequisite(s): course 1 or placement by interview. The Staff

3. First-Year French.
Final quarter of first-year sequence. Students complete study of French language basics, including the future tense and the conditional and the subjunctive moods, while continuing to learn about French and Francophone cultures. (Formerly Instruction in the French Language.) Prerequisite(s): course 2 or placement by interview. The Staff

4. Second-Year French.
First course in intermediate sequence. Students review and expand upon their previous study of the language through short literary readings, vocabulary building, grammar study, composition, and discussions. (Formerly Intermediate French.) Prerequisite(s): course 3 or placement by interview. (General Education Code(s): CC, IH.) The Staff

5. Second-Year French.
Further development of intermediate-level oral and written skills through study of vocabulary and structures. Students also read and discuss a French or Francophone play. (Formerly Intermediate French.) Prerequisite(s): course 4 or placement by interview. (General Education Code(s): CC, IH.) The Staff

6. Second-Year French.
Final course of intermediate sequence includes grammar study, vocabulary building, extensive writing, and discussion. Reading of a French or Francophone novel is an integral part of course. (Formerly Intermediate French.) Prerequisite(s): course 5 or placement by interview. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation

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with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

108. French Cinema. F
Investigation of a variety of topics (historical, cultural, and linguistic) in France and the French-speaking world. Topics are explored through film. Conducted in English. (Formerly couse 80.) Enrollment limited to 40. May be repeated for credit. (General Education Code(s): IM.) The Staff

111. Stylistics. W
Intensive work in French composition with the aim of attaining fluency and accuracy of expression while developing literary appreciation. May be repeated for credit with consent of instructor. Prerequisite(s): course 6. Students interested in this course who have not taken the prerequisite should meet with the instructor prior to the first class meeting. May be repeated for credit. The Staff

114. French Phonetics. F
Introduction to the French sound system and basic phonetics. Extensive practice of French pronunciation and phonetic transcriptions of both written and spoken language samples. Prerequisite(s): course 6. Enrollment limited to 20. The Staff

125A. French Civilization: 19th Century. S
Survey of the important historical events, social changes, and artistic movements contributing to the development of French culture during the 19th century. Prerequisite(s): course 6. The Staff

125B. French Civilization: 20th Century. *
A survey of the important historical events, social changes, and artistic movements contributing to the development of French culture during the 20th century. Prerequisite(s): course 6. The Staff

136. La Francophonie. *
In-depth multidisciplinary study of one or more French-speaking regions of the world. Topics may include history, language, society, literature, and the arts. All coursework will be done in French. (Also offered as Cowell College 136. Students cannot receive credit for both courses.) Prerequisite(s): course 6. May be repeated for credit. A. Elsey

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
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German

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Lower-Division Courses

1. First-Year German. F
German 1, a beginning-level course, introduces the German language and culture for students with no previous knowledge of German. The course focuses on speaking, reading, writing, and listening. The first-year sequence (1-2-3) starts in fall quarter only. (An accelerated sequence, courses 1A-1B, begins in winter quarter.) (Formerly Instruction in the German Language.) The Staff

1A. Accelerated German. W
Accelerated course covers German 1 and part of German 2. It is designed for motivated beginning students. Students develop skills in speaking, reading, writing, and listening to real-life German. (Formerly Intensive Elementary German.) The Staff

1B. Accelerated German. S
Accelerated course part 2 covers part of German 2 and all of German 3. In this course, students who have successfully completed German 1A (or its equivalent) continue to develop competence in speaking, reading, writing, and understanding real-life German. (Formerly Intensive Elementary German.) Prerequisite(s): course 1A or 2 or placement by examination. For students completing course 2, course 3 is preferable. The Staff

2. First-Year German. W
German 2, a second-quarter course, is designed for students who have successfully completed German 1 (or its equivalent). Students continue to develop competence in speaking, reading, writing, and understanding in the context of real-life language use. (Formerly Instruction in the German Language.) Prerequisite(s): course 1 or 1A or placement by examination. The Staff

3. First-Year German. S
German 3 is designed for students who have successfully completed German 2 (or its equivalent; e.g., 2-3 years of high school German). Students continue to develop competence in speaking, reading, writing, and understanding real-life German. (Formerly Instruction in the German Language.) Prerequisite(s): course 2 or placement by examination. The Staff

4. Second-Year German. F
Intermediate composition and conversation based on the reading of selected prose and related cultural material. Speaking, reading, writing, and listening comprehension skills are

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developed by extensive use of media materials. Conducted entirely in German. (Formerly Intermediate Studies in German Language.) Prerequisite(s): course 1B or 3 or placement by examination. (General Education Code(s): CC, IH.) The Staff

5. Second-Year German. W
Intermediate composition and conversation based on the reading of selected prose and related cultural material. Speaking, reading, writing, and listening comprehension skills are developed by extensive use of media materials. Conducted entirely in German. (Formerly Intermediate Studies in German Language.) Prerequisite(s): course 4 or placement by examination. (General Education Code(s): CC, IH.) The Staff

6. Second-Year German. S
Intermediate composition and conversation based on the reading of selected prose and related cultural material. Speaking, reading, writing, and listening comprehension skills are developed by extensive use of media materials. Conducted entirely in German. (Formerly Intermediate Studies in German Language.) Prerequisite(s): course 5 or placement by examination. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

119. German Media.
This third-year language and culture course is designed for students who are comfortable speaking and writing German at the German 5 level or above. Using a variety of German media sources, students give oral presentations and write reports on contemporary issues. Taught in German. Prerequisite(s): course 5 or placement by examination. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): CC.) The Staff, Z. Abrams, W. Campbell

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
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Greek

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Lower-Division Courses

1. Elementary Ancient Greek. F
Instruction in the grammar of Attic Greek, together with readings from ancient authors, designed to prepare for the study of classical literature. The sequence begins in the fall quarter only. The Staff

2. Elementary Ancient Greek. W
Instruction in the grammar of Attic Greek, together with readings from ancient authors, designed to prepare for the study of classical literature. Prerequisite(s): course 1, or permission of instructor The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
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Hebrew

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Faculty | Program Statement

Lower-Division Courses

1. First-Year Hebrew. F
Speaking, listening comprehension, reading, and writing fundamentals. The use of Modern Hebrew is encouraged through classroom practice supplemented by work with computer tutorials. The first-year sequence (1-2-3) begins in fall quarter only. (Formerly Instruction in the Hebrew Language.) The Staff

2. First-Year Hebrew. W
Speaking, listening comprehension, reading, and writing fundamentals. The use of Modern Hebrew is encouraged through classroom practice supplemented by work with computer tutorials. (Formerly Instruction in the Hebrew Language.) Prerequisite(s): course 1 or by consent of instructor. The Staff

3. First-Year Hebrew. S
Speaking, listening comprehension, reading, and writing fundamentals. The use of Modern Hebrew is encouraged through classroom practice supplemented by work with computer tutorials. (Formerly Instruction in the Hebrew Language.) Prerequisite(s): course 2 or by consent of instructor. The Staff

4. Second-Year Hebrew. F
Development of the students' familiarity with the spoken and written language through grammar review, discussions, and vocabulary building. Varied readings on literary and cultural topics related to modern Israel. (Formerly Intermediate Hebrew.) Prerequisite(s): course 1B or 3 or by consent of instructor. (General Education Code(s): IH.) The Staff

5. Second-Year Hebrew. *
Development of the students' familiarity with the spoken and written language through grammar review, discussions, and vocabulary building. Varied readings on literary and cultural topics related to modern Israel. (Formerly Intermediate Hebrew.) Prerequisite(s): course 4 or by consent of instructor. (General Education Code(s): IH.) The Staff

80. Introduction to Biblical Hebrew. *
Introduces students to the basic lexicon and grammatical structures of biblical Hebrew, with an emphasis on the development of a set of useful translation strategies. Throughout the course, students will be applying their emergent skills to translating a variety of biblical texts. (General Education Code(s): T4-Humanities and Arts.) The Staff

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94. Group Tutorial. F,W,S
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99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. Enrollment limited to 10. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
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Lower-Division Courses

1. Theories of History/Theories of Society. *
European social thought understands society to be the product of the historical process. Readings from early-modern natural law thinkers (Hobbes, Lock, Rousseau), 19th-century theorists of the democratic and industrial revolutions (Tocqueville, Marx), and 20th-century social scientists (Weber, Braudel), explore the nature of this fertile connection. (General Education Code(s): TA, IH.) The Staff

2A. The World to 1500. *
Surveys the rise of complex societies: the formation of classical civilizations in Afroeurasia and the Americas, post-classical empires and cross-cultural exchange, technology and environmental change, the Mongol Empire, and oceanic voyages and the origins of the modern world. (General Education Code(s): CC, IH.) The Staff

2B. The World Since 1500. W
Examines major world issues over the past 500 years. Topics include European expansion and colonialism, the Muslim empires, East Asia from Ming to Qing, the Americas, Africa, the scientific-technological revolution, decolonization, and modern environmental problems. Designed primarily for first- and second-year students, it provides a time frame for understanding events within a global framework. (General Education Code(s): CC, IH.) G. O'Malley

5A. Early Muslim World. *
Surveys the history of the Muslim world from its beginnings through the Caliphal period. Islam is approached as a religious, social, political, and cultural phenomenon. Special emphasis on understanding Islam in the context of contemporary developments in the Near East, Europe, Africa, and Central Asia. (General Education Code(s): CC, IH, E.) The Staff

5B. Early Christianity: First to Fourth Century A.D.. *
Christianity from its origins as a Jewish messianic movement, its expansion in multiple forms in the Greco-Roman world and the East, to its transformation into the major religion of the Roman and Byzantine empires. (General Education Code(s): CC, IH.) The Staff

7. Archives and Public History. *
Through readings on local history topics and bi-weekly field expeditions, students discover different types of archives and historical repositories, the diversity of sources that they contain, and the varied uses to which they can be put. Course also explores the range of career opportunities open to history majors (sometimes loosely grouped together under the

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rubric "public history"). Students are billed a materials fee. Enrollment limited to 35. The Staff

9. Introduction to Native American Studies. S
Introduction to the interdisciplinary field of Native American Studies and the Indigenous experience. Topics include: history of United States–Indian relations; colonialism; sovereignty; identity; representation of Native Americans in popular culture; and contemporary efforts toward decolonization in indigenous communities. (General Education Code(s): ER.) A. Lonetree

10A. United States History to 1877. F
Focuses on the building of British American colonies and the establishment, disintegration, and reconstruction of the nation with an emphasis on how class, race, ethnicity, and gender impacted colonial development and structured the nation's agenda and the definition of citizenship. Satisfies American History and Institutions Requirement. (General Education Code(s): ER, IH.) C. Jones

10B. United States History, 1877 to 1977. S
Surveys the political, social, and cultural history of the United States from 1877 to 1977. Focuses on national politics with emphasis on how class, race, ethnicity, and gender changed the nation's agenda. Satisfies American History and Institutions Requirement. (General Education Code(s): ER, IH.) M. Lasar

11A. Latin America: Colonial Period. W
Introduces the social, cultural, economic, and political history of the New World through a close examination of the process of European "conquest" in the 16th century and its consequences for both native and settler peoples. Medieval and Renaissance European and African backgrounds; Inca, Maya, Aztec, plains, woodland, and tropical rainforest native American societies; processes of military and cultural conquest; epidemics and ecological changes; native resistance and the establishment of the fundamental institutions of colonial society. (General Education Code(s): CC, IH, E.) M. Diaz

11B. Latin America: National Period. F
An introduction to the study of Latin American history from the Independence Wars in the early 19th century to the present. Topics include changing economic models of development, U.S. role, rural and urban life, women, nationalisms, populism, revolution, the military in politics, and the problem of democracy. (General Education Code(s): CC, IH, E.) M. O'Hara

12. Introduction to Latino American History. S
Introduces students to the history of U.S. Latinos drawing on the experience of Central Americans, people of Mexican descent, Puerto Ricans, Dominican Americans, and Cuban Americans. Emphasizes international processes that fundamentally shape U.S. Latino communities. (General Education Code(s): ER.) The Staff

13. Introduction to American Religious Culture. F
Introduction to the many communities found within the American religious landscape, balancing extraordinary diversity characterizing American pluralism against the dominant religious culture. Proceeds historically, engaging major problems and developments including utopianism, the rise of evangelicalism, religion and reform, manifest destiny, secularization and modernity, and the intersection of politics and religion. (General Education Code(s): TA, IH.) M. Westerkamp

14. Race and Ethnicity in the U.S. *
An introductory course on the racial/ethnic history of the U.S. Of central concern are issues of race, ethnicity, oppression, resistance, mass migrations, city life in urban America, and power and protest in modern America. Priority enrollment to freshmen and sophomores. (General Education Code(s): ER, IH, E.) The Staff

20. Introduction to World Prehistory. *
Introduces the prehistory of humankind from the development of agriculture to social stratification and states. Emphasis is on the origins of civilization in ancient China, Egypt, Mesoamerica, Mesopotamia, and South America, as well as on the processes driving change. (General Education Code(s): CC.) The Staff

30. The Making of Modern Africa. *

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Examines the loss and reassumption of local and state autonomy in Africa during the 19th and 20th centuries. Delineates the modalities of the colonial state and society, modes of resistance to alien occupation, and the deformation of social, class, and gender relations. (General Education Code(s): CC, IH, E.) D. Anthony

40A. Early Modern East Asia. F
Surveys the history of East Asia from 1500 to 1894. Covers political, social, economic, and cultural histories of China, Japan, and Korea with the goal of perceiving a regional history that encompassed each society. (General Education Code(s): CC, IH, E.) M. Hu

40B. The Making of Modern East Asia. W
A broad introductory survey of the political, social, economic, philosophical, and religious heritage of modern China, Japan, and Korea. Emphasis on the historical foundations of modern nationalism, the colonial experience, and revolutionary movements. (Formerly course 40.) (General Education Code(s): CC, IH, E.) A. Christy

41. The Making of the Modern Middle East. F
History of the modern Middle East from 1800 to the present, with special reference to the 20th century and forces which have shaped the area. The impact of imperialism, nationalism, and revolution in the area, with particular attention to the history of four countries: Turkey, Iran, Egypt, Israel. (General Education Code(s): CC, IH, E.) J. Derr

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

43. Traditional India. *
A survey of the early histories of Indus Valley, Vedism, the epics, Buddhism, Jainism, with an exploration among original sources: archaeological, visual, ritual, literary, and epic texts. Thematic focus on communities, social systems, elite and popular cultures, and their mutual interaction. (Formerly Histories of Traditional India) (General Education Code(s): CC, IH, E.) The Staff

44. Modern South Asia, 1500 to Present. W
Provides an introductory survey of South Asian history and society from the beginning of the 16th Century until the dawn of the 21st Century. Students gain an understanding of major events and long transformations in society, economy, culture, and politics. J. Shaikh

45. Japanese Pop Culture. *
Introduction to Japanese popular culture from the Tokugawa era to the present. Pursues the role of mass media on Japanese society through analyses of popular movies, animation, comic books, music, and other artifacts in historical context. (General Education Code(s): CC, E.) N. Aso

50. Introduction to the History of Ancient Egypt. *
Introduces the political and social history of ancient Egyptian civilization from the Predynasitic through the end of the Pharaonic period. (General Education Code(s): CC.) E. Sullivan

61. Classical Mythology. *
Introduces the philosophy of myth, and surveys classical Greek mythology. Students explore the mythic mode of thinking and its distinguishing characteristics as well as the repertoire of Greek myths and their cultural contexts. C. Hedrick

62A. Classical World: Greece. *
An overview of Greek history from the beginnings through the Hellenistic period, with emphasis on the Archaic and Classical periods (ca. 800 B.C. through 323 B.C.). (General Education Code(s): CC, IH.) C. Hedrick

62B. Classical World: Rome. F
A lecture course offering an overview of Roman history and civilization from the legendary founding of Rome in 753 B.C. to the collapse of the Roman Empire's central administration in the West in 476 A.D. (General Education Code(s): CC, IH.) C. Hedrick

63. Women in the Ancient World. *
Examines the lives of women in the ancient Greco-Roman world. Most readings are from

primary texts (i.e., ancient sources), literary, historical, and documentary; material and artistic evidence also is considered. (General Education Code(s): CC.) J. Lynn

65A. Medieval Europe: 200–1000. F
A survey of Europe from the third through 10th centuries. Emphasizes cultural conflict and assimilation (Roman and Germanic, pagan and Christian, East and West). Topics include the rise of Christianity, Germanic migrations, Byzantium and Islam, the cult of saints and relics, Vikings, and gender roles. (General Education Code(s): CC, IH.) C. Polecritti

70A. Modern European History, 1500–1815. W
Surveys the economic, social, cultural, and political history of Europe since the late 15th century: 1500–1815. Course 70A is not a prerequisite to course 70B. (Formerly Modern European History, 1500–1789 .) (General Education Code(s): CC, IH.) K. Silver

70B. Modern European History, 1815–present. S
Surveys the political, social, and cultural history of Europe from the era of the Industrial Revolution to the beginning of the second millennium. Course 70A is not prerequisite to 70B. (Formerly Modern European History, 1789–1914.) (General Education Code(s): CC, IH.) B. Thompson

74. Introduction to Jewish History and Cultures. S
Surveys 3,000 years of Jewish history. Themes include origins of the Jews in the ancient world, formation and persistence of the Jewish diaspora, coherence and diversity of Jewish experience, Jewish narrative and textual traditions, interaction between Jews and other cultures, productive tensions between tradition and modernity in Jewish history and literature. (General Education Code(s): ER.) N. Deutsch

75. Film and the Holocaust. *
Examines a series of distinguished documentary and feature films about the destruction of European Jewry. Each film is placed in its historical context, and wherever possible, the readings include the original documents on which films were based. Emphasis is placed on the strategies the filmmakers used to address the problem of representing genocide without succumbing to mere melodrama. (General Education Code(s): ER, E.) B. Thompson

80H. Class, Gender, and Community in China, 1700–Present. *
Examines gender, sexuality, and family across classes in late imperial China, and the transformation of all three by revolution (and vice versa). Concentrates throughout on gender as a category of historical analysis that has remained largely invisible in the construction of conventional Chinese history. (General Education Code(s): CC, T4–Humanities and Arts, E.) G. Hershatter

80N. Gender, Labor, and Feminist Productions. *
Examines how constructions of gender and intersecting constructions of race, class, and sexuality define the power of women differentially in the world of work. Beginning with the history of emancipation, traces the broader constructions of paid and unpaid labor in the 20th-century U.S. Traces the specific histories of transgender women workers, specific regional and industrial histories, and those marked by the meaning given to African, Asian, Euro-, indigenous, and Mexican descent in the construction of gender and work. Uses feminist methodology and contemporaneous visual and written work by women artists and filmmakers. (Formerly "Topics in U.S. Women's History: Women at Work.") (General Education Code(s): CC, T4–Humanities and Arts.) L. Haas

80X. Civil Rights Movement: Grassroots Change and American Society. W
The civil rights movement of the 1950s–60s was one of the most important grassroots social movements in American history. Course examines this movement and its effects on American society, focusing especially on the experiences of rank-and-file participants. (Formerly Community Studies 80B) (General Education Code(s): ER, T3–Social Sciences, E.) D. Brundage

80Y. World War II Memories in the U.S. and Japan. S
Examines how the meaning of such issues as war origins, war responsibility, the atomic bomb, reparations, and racism have been subjects of contention in postwar U.S. and Japan. Students explore the relations between history, memory, and contemporary politics. (General Education Code(s): CC, T4–Humanities and Arts, E.) A. Christy, A. Yang

99. Tutorial. F,W,S

Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100. Historical Skills and Methods. S
Designed to train students in the fundamental skills required for advanced historical research. Students read historical theory and learn the basics of historical analysis, research, and disciplinary writing. Recommended to majors but open to all interested students. (General Education Code(s): TA.) C. Jones

100A. Digital History. W
Investigates questions relating to how new technologies are changing the way historians do research and interact with the public. This course has both a critical classroom component and a hands-on computer laboratory component. Enrollment restricted to junior and senior history, Jewish studies, German studies, and classical studies majors. Enrollment limited to 20. E. Sullivan

101A. The Making of the Modern World, 1400-1750. *
Focuses on the transformation of many different societies of Asia, Africa, and the Americas from 1400 to 1750 through case histories and the comparative study of European colonial hegemony, labor systems, global economic exchange, missions, and warfare. (General Education Code(s): CC, E.) The Staff

101B. The Making of the Modern World, 1750-1950. *
The history of the world from 1750. Focuses on the liberal project (the industrial and democratic revolutions) and its impact on the world—slavery and abolition, self-strengthening movements, race and class, imperialism, colonialism, and nationalism. (General Education Code(s): CC, E.) The Staff

101C. Oceans in World History. F
Oceans, human communities, and the variety of relations between societies have been linked closely in world history. This course focuses on the three most well-researched and, historically, most important oceanic worlds--those that developed to link the regions bordering the Mediterranean Sea, Indian Ocean, and Atlantic Ocean. (General Education Code(s): CC.) M. Matera

101D. Topics in the World History of Science. F,S
Detailed consideration of some specific topic or period in the history of science and technology with significant global implication. Topic varies from year to year. Examples include: Copernicanism, Darwinism, climate change, and military technology. (Formerly course 142, World History of Science) May be repeated for credit. (General Education Code(s): SI.) M. Hu

102A. The Crusades, 1000-1300. *
Examines history of Middle East and Latin Europe from 1000-1300, in particular, Latin Crusade and colonization and Muslim response. Format is chronological; topics such as acculturation, Holy War, and ethnicity examined through lectures and writing. (General Education Code(s): CC.) The Staff

102C. The Mediterranean in the Modern Era, 1730-1930. *
The cultural transformation of the Mediterranean region in comparative historical perspective from the rise of the Hapsburg and Ottoman empires to modern times. Topics include orientalism, political and economic transformations, social movements, cultural change, gender, colonialism, and imperialism. (General Education Code(s): CC.) The Staff

103. Medieval Spain, 600-1500. *
History of the Iberian Peninsula and Northwest Africa from the Visigoths through the reign of the Catholic Monarchs. Political and economic history form the basis, with special attention paid to religious and social history, particularly the interrelation between the peninsula's ethno-confessional groups . Prerequisite(s): one history course; course 65A and/or course 65B recommended. (General Education Code(s): CC.) The Staff

104C. Celluloid Natives: American Indian History on Film. S
Examines how American Indian history and culture has been portrayed in Hollywood films, with an emphasis on films that represent Native Americans over the broad spectrum of Native American/white relations. (Formerly American Studies 123M.) (General Education

Code(s): IM, E.) A. Lonetree

104D. Museums and the Representation of Native American History, Memory, and Culture. *

Provides an historical overview of the relationship between American Indians and museums. Current issues and practices in museums are explored, primarily those associated with ethics, collecting practices, exhibitions, education/interpretation, and administration/governance. (Formerly American Studies 136.) (General Education Code(s): ER, E.) A. Lonetree

105. Nations and Nationalism. S
Provides an historical, comparative, and theoretical exploration of the development of nations and nationalism. Emphases include the historical formation of nation-states, modernization, colonialism, decolonization, nations and globalization, and the intersections between ethnicity, race, religions, and nationalism. (General Education Code(s): CC.) K. Silver

106A. Vietnam War Memories. *
Compares memories and interpretations of war in Southeast Asia by diverse groups in France, America, and Vietnam. Topics include war origins, military strategies, propaganda, combat, civilians, media, activism, MIAs, refugees, mixed race children, memorials, textbooks, films, music, literature, and art. (General Education Code(s): CC, E.) A. Yang

106B. Asian and Asian American History, 1941-Present. *
Analyzes immigration, race relations, war, gender ideology, family life, acculturation, political activism, interracial marriage, multiracial identity, and cultural representations between 1941 and the present. Emphasis on discussion, writing, research, and group presentations. (General Education Code(s): ER, E.) The Staff

107. Religion and Modernity. *
Explores the impact of modernity on a variety of religious traditions. Examines the rise of secularism and the phenomenon of disenchantment; the "invention" of religion; and the emergence of fundamentalism in the modern period. (General Education Code(s): CC.) N. Deutsch

108. Social Movements in Historical Perspective. *
Readings examine 18th- through 20th-century social movements and related phenomena in Europe/America: examples include Tulipomania; revolutionary action in France; U.S. Civil Rights movement; and the environmental and feminist movements. Lectures focus on social science frameworks used to explore the social base, tactics, success or failure, and inter-relationships of social movements as a distinctive mode of social change. The Staff

109A. Race, Gender, and Power in the Antebellum South. *
Examines how ideologies of race and gender shaped the development of slavery and empire in the American South from European colonization to the eve of the American Civil War. (General Education Code(s): ER, E.) C. Jones

110A. Colonial America, 1500-1750. *
Explores the social, economic, cultural, and political development of British North America from the first European/Amerindian contacts in the late 16th century through the establishment of a provincial British colonial society. Course 110A is not a prerequisite to course 110B. Satisfies American History and Institutions Requirement. (General Education Code(s): ER.) M. Westerkamp

110B. Revolutionary America, 1740-1815. *
Explores the political, social, economic, and cultural development of British North America from the first stirrings of resistance to the establishment of the U.S. Course 110A is not a prerequisite to course 110B. Satisfies American History and Institutions Requirement. G. O'Malley

110D. The Civil War Era. *
Social, political, and economic history of the American Civil War and Reconstruction, focusing on the war's changing nature and significance, emancipation, and the postwar struggle over the future of the South and the nation. C. Jones

110E. What Is a Nation? The U.S. from 1877 to 1914. W

History of the U.S. during what was perhaps its most socially turbulent era, the period following Reconstruction through the First World War. What did it mean to be a nation in the post-Reconstruction era? How did a country that had only recently unified itself under one system of labor now resolve the question of national identity? Was America truly a nation by 1914? Satisfies American History and Institutions Requirement. M. Lasar

110F. Crossroads for American Capitalism: The U.S., 1914 to 1945. F
Between the First and Second World Wars, American society accepted the need for a regulatory state to save capitalism from itself. Takes an in-depth look at many aspects of U.S. politics and culture during these years. M. Lasar

110G. The U.S. After the Second World War. *
From the Good War to the Cold War, the Sixties to the rise of the New Right, the post-1945 American experience has been one of extremes. This survey course looks for evidence of commonality during those times. M. Lasar

110H. Greater Reconstruction: Race, Empire, and Citizenship in the Post-Civil War United States. F
Examines how the consolidation of United States sovereignty in North America and the establishment of an overseas empire during the period between the conclusion of the Civil War and the Phillippine-American War reshaped conceptions of race and citizenship. Satisfies American History and Institutions Requirement. (General Education Code(s): ER.) C. Jones

111. Popular Conceptions of Race in U.S. History, 1600-Present. *
Explores how race has been constructed and perceived, examining Americans' use of race to describe themselves and to label others. Particularly concerned with ordinary people and how and why their ideas of race have changed over time. (General Education Code(s): ER, E.) G. O'Malley

112. American Feminist Thought, 1750-1950. *
Traces history of feminist thought in the United States from the 18th century Enlightenment to the mid-20th century. Focusing on questions of social identity, gender difference, and legal/political status, examines writings of philosophers, activists, novelists, and ordinary women that challenged religious, political, and scientific beliefs underlying gender inequality. M. Westerkamp

113C. Women and American Religious Culture. W
Historical introduction to religious culture of U.S. as experienced and created by women. Explores religious ideas about women, the treatment of women by mainstream institutions and religio-social communities, and female religious leaders and followers. Takes an explicitly feminist analytical approach and uses a variety of "texts," including historical and literary scholarship, sacred texts, fiction, autobiography, material artifacts, visual art, and music. M. Westerkamp

114. Market Revolution in Antebellum U.S.. S
Examines the cultural, political, and environmental upheaval associated with antebellum market revolution. Topics include: markets and U.S. territorial expansion; reform movements that coalesced around disputes over what should, and should not be sold (e.g., antislavery activism; anti-prostitution reform movements). C. Jones

115A. U.S. Labor History to 1919. *
Explores the history of work, working-class people, and the labor movement in the U.S., with attention to race and gender dynamics as well as to the development of workers' organizations. (Formerly U.S. Labor History, Colonial Period to 1919 .) Satisfies American History and Institutions Requirement. (General Education Code(s): ER.) D. Frank

115B. U.S. Labor History, 1919 to the Present. F
Explores the history of work, working-class people, and the labor movement in the U.S. in global perspective with attention to race and gender dynamics and political-economic changes. Satisfies American History and Institutions Requirement. (General Education Code(s): ER.) D. Frank

115C. Learning from the U.S. Great Depression. W
Examines U.S. society, politics, and culture during the 1930s, with emphasis on the relationship between social movements and public policy, and dynamics of race, ethnicity,

immigration, and gender, and dynamics between labor, business, and the state. D. Frank

116. Slavery Across the Americas. *
Examines the exploitation of African people as slaves throughout European colonies in the Americas. How did slavery affect slaves, enslavers, and their societies? Emphasizes the diversity of slave regimes and their importance for shaping American life for all. Satisfies American History and Institutions Requirement. (General Education Code(s): ER.) G. O'Malley

117. Wired Nation: Broadcasting & Telecommunications in the US from the Telegraph to the Internet. *
Explores the history of telecommunications systems in the US starting with the telegraph, the telephone, wireless telegraph, radio, television and the Internet. Students learn about the development of these systems and the cultures that they foster. M. Lasar

117A. From the Player Piano to Pandora. F
Explores the history, culture, and politics of the distribution of recorded and live sound from the 1870s through the present. M. Lasar

118. The Global Cold War, 1945–1991. W
Explores the history of the Cold War from a global, multinational perspective. Begins with the opening salvos between the United States and the Soviet Union in 1945, and concludes with the collapse of the latter empire in 1991. M. Lasar

121A. African American History to 1877. *
A survey of pre-contact Africa, indigenous social structures, class relations, the encounter with Europe, forced migration, seasoning, resistance, Africa's gift to America, slavery and its opponents, industrialization, emigration vs. assimilation, stratification, Convention Movement, Black feminism, Civil War, and Reconstruction. (General Education Code(s): ER, E.) D. Anthony

121B. African American History: 1877 to the Present. *
A survey of the period from 1877 to present, highlighting Jim Crow, Militarism, Black feminism, WWI, New Negro, Garveyism, Harlem Renaissance, Black Radicalism, Pan Africanism, Depression, WWII, Desegregation Movement, Black Power, 1960s, Reaganism. Cultural and economic emphases. (General Education Code(s): ER, E.) D. Anthony

122A. Jazz and United States Cultural History, 1900–1945. *
Explores the meaning of jazz in United States society and as a U.S.-based art form in other societies. Examines the social and cultural forces that have produced different jazz styles and the various ways that social conflicts and ideals have been displaced onto the music. (General Education Code(s): IM.) E. Porter

122B. Jazz and United States Cultural History, 1945 to the Present. F
Explores the meaning of jazz in United States society and as a U.S.-based art form in other societies since 1945. Examines the social and cultural forces producing jazz movements and the social transformations, conflicts, and ideals read into the music. (General Education Code(s): IM.) E. Porter

123. Immigrants and Immigration in U.S. History. *
Introduces U.S. immigration history from the colonial era to the present, with emphasis on the recent past. Particular attention given to changing immigration patterns; the character of the immigrant experience; and the range of responses to immigration, including nativism. (General Education Code(s): ER.) D. Brundage

124. American Empire. *
Examines U.S. expansion and subsequent ascent to global power. In tracing the presence of the U.S. in different areas of the world during the 20th century, course considers the ideas, politics, gender, and social relations that have influenced imperial aspirations. L. Haas

125. California History. *
California had a multi-ethnic indigenous society for centuries. Course traces the persistent multi-ethnic quality of the region as it became part of the Spanish empire, Mexico, and the United States. Considers the many diasporas that have shaped California's steady connection to the world, especially to Mexico and other nations that border the Pacific. (Formerly California History.) (General Education Code(s): ER.) L. Haas

126. From Indigenous Colonial Borderlands to the U.S.-Mexico Border. *

Examines the interactions and integration of indigenous people and settlers in the Southwest U.S. and Northern Mexico from a region defined by its indigenous colonial borderlands to national borders. Explores the connections between the U.S. and Mexico. Within the deeply cross-cultural region studied, also examines the particular histories of states, indigenous peoples, and Mexican-origin groups and regions. (Formerly History of the Southwest: Colonial Period to 1920.) (General Education Code(s): ER, E.) L. Haas

127. Race and the American City. *
History of racial and ethnic minorities in the American city in the 19th and 20th centuries. Examines the experiences of several non-white groups, with analyses of race, class, culture, gender, acculturation, and implications for social policy in the urban environment. Satisfies American History and Institutions Requirement. (General Education Code(s): ER, E.) The Staff

128. Chicana/Chicano History. F
A survey course on the social history of the Mexican (Chicana/o) community and people in the U.S. through the 20th century. Themes include resistance, migration, labor, urbanization, culture and politics. Satisfies American History and Institutions Requirement. (General Education Code(s): ER, E.) G. Delgado

129. History and Public Policy. *
Helps students better understand the various social/economic/political issues of public policy by providing a historical perspective analysis. Each student is required to participate in a public history/public service internship. Satisfies American History and Institutions Requirement. (General Education Code(s): PR-S.) The Staff

130. History of Modern Cuba. S
Covers from the Cuban sugar revolution (late 18th century) to the socialist revolution and its aftermath (1959-present). It is intended to be not only a modern history of Cuba but also a broader history of Latin America through the case of Cuba. (General Education Code(s): E.) M. Diaz

131. Women in Colonial Latin America. W
Introduction to the social history of Latin America through a focus on the inflections of class and ethnicity on gender in this region. First six weeks focuses on the colonial period. The last three weeks covers the 19th and 20th centuries. (Formerly Women in Latin America .) M. Diaz

132. History of the Caribbean: Colonial Period. *
A study of the Caribbean from the conquest to the abolition of slavery in the 19th century. Focus on the Greater Antilles, particularly the Spanish Caribbean. Emphasis on economic and social issues such as colonialism and the role of sugar production, slavery, and race/ethnicity in these multicultural societies. (General Education Code(s): E.) M. Diaz

133. Topics in Colonial Latin American History, Early and Middle Period. *
Studies Pre-18th century colonial Latin America, with particular emphasis on Peru and Mexico. Topics include: strategies of colonization; cities and urban life; and knowledge, technology, and the professions (ethnographic projects, indigenous intellectuals, schools and universities, medicine and hospitals, the law and the courts). (General Education Code(s): E.) M. Diaz

134A. Colonial Mexico. S
Covers the social, cultural, economic, and political history of colonial Mexico (New Spain). Special attention paid to colonial identity formation, religion, and labor systems. Begins by examining indigenous societies prior to the arrival of Europeans and concludes with Mexico's independence movement in the early 19th century. (Formerly History of Mexico, 1500-1850 .) (General Education Code(s): ER, E.) M. O'Hara

134B. History of Mexico, 1850 to Present. *
Social, cultural, economic, and political history from the triumph of Liberalism to the present day, focusing on four key periods: the dictatorship of Porfirio Diaz (1900-1910), the armed phase of the Revolution (1910-1920), the consolidation of revolutionary programs and a "single-party democracy" (1920-1940), and the developmentalist counter-revolution since 1940. Provides background for understanding the Mexican diaspora to the U.S. (General Education Code(s): CC, E.) M. O'Hara

135A. Brazil to 1889. *
Exploration of the social history of colonial and imperial Brazil. Material progresses chronologically and thematically from the pre-contact indigenous societies that were encountered in South America to the colonization of Brazil through independence to the 19th-Century empire that ended in 1889. The Staff

135B. Brazil Since 1889. S
Exploration of the social history of the Brazilian republic. Course passes chronologically and thematically from the end of the Empire in 1889 to present-day Brazilian films, texts, and lectures. The Staff

137A. Africa to 1800. F
Introduction to history of Africa. Topics include states and "stateless" societies, culture, society and economy in the pre-modern era, stratification, oral traditions, long distance trade, the coming of Islam, and the evolution of the South Atlantic system and its social, political, and other consequences. Some background knowledge of Africa helpful. (General Education Code(s): CC, E.) D. Anthony

137B. Africa from 1800 to the Present. W
How Africa lost its continental, regional, and local autonomy in the era of European imperialism. The components of European hegemony, Christian proselytization, comparative colonial strategies and structures, nationalism, decolonization and independence and the disengagement from neo-colonial patterns and the colonial legacy. Case studies from northern and subsaharan Africa. Some background knowledge of Africa helpful. (General Education Code(s): CC, E.) D. Anthony

137C. African Cinema. S
Historical study of modern African cinematography from the emergence of film as a tool of social control in the imperial and colonial periods to its theoretical and practical transformation by African cineastes in the post-independence era. Films and videos from northern, eastern, western, central/equatorial, and southern Africa viewed. Prerequisite(s): course 30 or 137A or 137B, or by permision of instructor. (General Education Code(s): CC, E.) D. Anthony

140B. History of Qing China, 1644-1911. *
Introduces students to how Qing China arose, expanded, and struggled to enter the modern world. Focuses on what the Qing empire had in common with other agrarian empires across Eurasia, commercialization and communication networks, elite mobility and peasant revolts, political legitimacy of the alien rule, maintaining social order (such as merchants' control and gender segregation), massive population growth and internal migration, as well as its conflicts with the industrial West. (General Education Code(s): CC.) M. Hu

140C. Revolutionary China 1895-1960. F
Explores history of China from the late 19th century to the early years of the People's Republic, focusing on the end of imperial rule, the sources and development of revolution, and early attempts at at socialist transformation. (General Education Code(s): CC, E.) E. Honig

140D. Recent Chinese History. W
Explores history of China from establishment of the People's Republic of China to the present, focusing on competing strategies of socialist transformation, urban/rural relations, and the effects of the post-Mao economic reforms. (General Education Code(s): CC, E.) G. Hershatter

140E. Women in China's Long 20th Century. S
Introduces changes in Chinese women's lives--and changes in shared social ideas about what women should do and be--from the mid-19th century to the present. When we foreground gender as a category of analysis, how does history look different? (General Education Code(s): CC.) G. Hershatter

141A. Classical Chinese Culture and Literature, 10th Century B.C.E. through Sixth Century C.E. *
Survey of writing and culture from the 10th century B.C.E. through the sixth century C.E., focusing on poetry, philosophical and historical writing, supernatural fiction,

Buddhist/Taoist texts in contexts of fragmentation, empire building, dynastic collapse, rebellion, eremitism, and courtly society. Satisfies the Pre- and Early Modern and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. (Also offered as World Lit & Cultural Studies 135. Students cannot receive credit for both courses.) (General Education Code(s): E.) C. Connery

141B. Classical Chinese Culture and Literature, Sixth Century through 16th Century. *
Survey of writing and culture from the Tang through early Ming dynasties (sixth century C.E. through 16th century C.E.). Themes include literary, religious, and philosophical innovation; courtly life; cultural contacts with non-Chinese people; and transformations of state and society. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. (Also offered as World Lit & Cultural Studies 136. Students cannot receive credit for both courses.) (General Education Code(s): E.) C. Connery

144A. Modern Korea: History, Literature, and Culture. *
Studies the making of modern Korea through history, literature, and culture. Beginning with the period of Korea's opening, covers topics like Japanese colonialism, national division, the Cold War, North Korea, and South Korean globalization. The Staff

144B. Gender in Korea. *
Studies the history of gender relations and women's writings in Korea from the Choson era to contemporary Korea. Topics include new women, women as proletarians, revolutionary womanhood, masculinity and militarism, camptown culture, and motherhood. The Staff

145. Gender, Colonialism, and Third-World Feminisms. *
Introduces the history of feminism in the third world, focusing on the ways in which colonialism (and post-colonialism) has shaped gender relations and on the feminist movements that have emerged in response to the impact of colonialism. (General Education Code(s): E.) E. Honig

146A. Colonial South Asia 1750-1947. *
Introduces key transformations--political, economic, social, and cultural--in colonial Indian history. The focus is on the processes, institutions, and ideas that shaped colonial power and resisted it. J. Shaikh

147A. History of Premodern India. *
A study of religions (Vaisnavism, Tantrism, Islam, Sikhism), art, literature, and social movements in their historical contexts from 1000 A.D. to 1800. (General Education Code(s): CC, E.) The Staff

147B. Political and Social History of Modern South Asia. *
Social, political, and religious movements in the colonial and postcolonial contexts of the 19th and 20th centuries in modern and contemporary South Asia. (General Education Code(s): CC, E.) The Staff

148. Cinema and History: Film Author Satyajit Ray. *
Satyajit Ray is widely acclaimed as a master of world cinema. Course considers his work to examine "authorship" at multiple levels: the cultural, historical, social, and familial contexts and the relationship of his film to fiction, the politics and poetics of his vision, and its relationship to colonial, nationalist, and postcolonial India. Also studies the question of gender and the underclass. (General Education Code(s): E.) The Staff

150A. Ancient Japan. W
Surveys the history of the peoples of the Japanese islands from prehistorical migrations through the 15th century. Emphases include examination of social structures, political formations, cultural production, and religion. (General Education Code(s): CC.) N. Aso

150B. Tokugawa Japan. S
Surveys the history of the peoples of the Japanese islands from the middle of the 15th century to the middle of the 19th century. Focus is on the era of civil war, the formation of the early modern federated state, social structure, and cultural production. A. Christy

150C. Modern Japan. *
Surveys the history of the peoples of the modern Japanese nation from the Meiji Restoration to the present. Focuses on the formation of the modern state, empire, social

movements, and cultural production. (General Education Code(s): CC, E.) N. Aso

150D. The Japanese Empire, 1868–1945. *
Examines the history of the Japanese colonial empire from 1868 to 1945, including the colonies of Taiwan, Korea, Micronesia, and Manchuria. Considers how the colonies were ruled and what the legacies of the empire have been. A. Christy, N. Aso

152. Trade and Travel on the Silk Roads. *
Introduction to two millennia of history along the ancient trade routes popularly known as the "Silk Road." These routes carried precious goods between Asia and Europe, while also serving as important conduits for the flow of people and ideas. (General Education Code(s): CC.) M. Peterson

154A. Classic Islamic Civilization. *
The civilization of Islam to 1258 A.D. Origins and early florescence, an international civilization, the coming of the steppe peoples. (Formerly course 161.) Enrollment limited to 35. (General Education Code(s): E.) The Staff

155. History of Modern Israel. *
The conflict between Israelis and Palestinians is one of the most intractable disputes in our troubled world. Course begins with a glimpse of Palestine in the late 19th and early 20th centuries, surveys the rise and fall of utopian Zionism, pays especially close attention to the events of 1948 and 1967, and concludes by analyzing the collapse of hopes for peace after Oslo and Camp David meetings. (General Education Code(s): CC, E.) B. Thompson

156. Interrogating Politics in the Post-Colonial Middle East. S
Explores the political trajectory of the post-colonial Middle East. Topics include: the Cold War and rise of Third Worldism; women's movements; political Islam; Arab-Israeli conflict; Lebanese Civil War; impact of oil production; Iranian Revolution; rise of the Arabian Gulf. (General Education Code(s): CC.) J. Derr

157. The Ottoman Empire. *
Explores the history of the Ottoman Empire with emphasis on its Arabic-speaking provinces. In addition to critically considering the political trajectory of the empire, we interrogate a wide range of topics relating to community organization, economic networks, international affairs, and the significance of religion within the Ottoman realm. (General Education Code(s): CC.) J. Derr

159A. Greco-Roman Egypt. *
Examines the political, social, religious, and material culture of ancient Egypt during these periods of intense interaction with the ancient Near East and Mediterranean, from the period of Alexander (332 BCE) through the beginning of Coptic Christianity (3rd century CE). (General Education Code(s): CC.) E. Sullivan

159B. Women and Gender in Ancient Egypt. *
Explores sex and gender in ancient Egypt with a specific focus on women. Artistic representations, texts, objects of daily life, and burials are used to examine the practices that encoded gender in this ancient culture. (General Education Code(s): CC.) The Staff

160A. Athenian Democracy. *
Athenian democracy from foundation to the fourth century B.C., with emphasis on its practices and ideologies. Readings from ancient sources and modern theory. Topics to include foundations and development; Athenian concepts of freedom, equality, law, citizenship. Lectures and discussion. (General Education Code(s): CC.) C. Hedrick

160C. Topics in Greek History. *
Detailed consideration of some specific topic or period in Greek history, varying from year to year. Examples include Greek religion, Alexander, the Hellenistic world, the ancient Greek economy, and Greece and India; Thucydides and the Peloponnesian War; Greek art and archaeology. Enrollment restricted to history and classical studies majors. May be repeated for credit. (General Education Code(s): CC.) The Staff

161B. Topics in Roman History. W
Detailed consideration of some specific topic or period in Roman history, varying from year to year. Examples include Roman religion, Augustus and the Roman Empire, Julio-Claudian emperors and the principate, Roman slavery, and Christianity and Rome. Enrollment

restricted to history and classical studies majors or minors, or by permission of instructor. May be repeated for credit. C. Hedrick

161C. Age of Augustus. *
Surveys Rome's transition from Republic to Empire, and the politics, people, and literary and material culture of the principate. Enrollment restricted to history and classical studies majors and minors, or by permission of instructor. J. Lynn

162. Canaan, Israel, and Palestine from Polytheism to Monotheism. *
This social and cultural history of Israel begins with the rise of the Israelite monarchy and ends in the early Roman period. Economy, political organization, and religious practices and beliefs such as polytheism and monotheism are compared with those of neighboring peoples. Priority given to history majors. The Staff

163A. A History of Sin. *
Ancient and modern conceptions of sin, and remedies offered for it. Course is not a theology of sin and redemption, but an invitation to reflect on ways sin and fault have been imagined and formulated. (Formerly course 163.) The Staff

163B. Genesis: A History. *
Introduction to historical, textual, source, and redaction criticism of the book of Genesis and to exegesis as science and ideology. Texts, history, and iconography of neighboring traditions (Mesopotamian, Ugaritic, Egyptian, Greek) are also studied when appropriate. Course 44, Literature 80A, or some basis in Hebrew or Greek is strongly suggested. (General Education Code(s): CC.) The Staff

164A. Late-Medieval Italy, c. 1200–1400. W
Italy from the birth of the commune to the early Renaissance in Florence. Topics include urban life and social conflict, gender roles, St. Francis, the Black Death, female mystics, Dante, Boccaccio, humanism, artistic developments from Giotto through Donatello. Requires viewing several films outside of class. C. Polecritti

164B. Renaissance Italy, c. 1400–1600. S
Italy from the Florentine Renaissance through the Reformation. Topics include social change and political consolidation, the rise of the papacy, court life, witch hunting, Machiavelli, artistic developments from Donatello through late Venetian Renaissance. Requires viewing several films outside of class. Course 164A recommended as preparation. C. Polecritti

165. The Power of Writing: Books and Libraries 600–1500. *
Surveys how books were made and used in Europe from 600–1500. Focuses on the relationship between book production and the development of libraries. Meets in Special Collections, McHenry Library. Exhibition as class project. Enrollment limited to 25. E. Remak-Honnef

166. Northern Ireland: Communities in Conflict. F
Introduction to the so-called "troubles" in Northern Ireland, from the 1960s to the present. Examination of the historical background to the conflict, the patterns of conflict in the 1970s and 1980s, and the emergence of a peace process in the 1990s. (Formerly Community Studies 136.) (General Education Code(s): CC.) D. Brundage

167A. The First World War. F
An intensive analysis of the First World War from multiple perspectives: military, diplomatic, political, economic, technological, global, and cultural. The emphasis is on the transformative impact of the war on European societies, international relations, and modern culture. The Staff

168. Rise of the Dutch Republic. *
Focuses on the origin of the Republic in the revolt against Spanish overlordship, and its political, social, and economic development in the 16th and 17th centuries. The Staff

169. Dutch and Belgian History, 1500 to Present. *
The political, social, economic, and cultural history of the modern Netherlands and Belgium from 1500 to the present day. E. Kehler

170A. French History: Old Regime and Revolution. F
French history from the Middle Ages through the Revolution. Focus on the rise and fall of

"absolute" monarchy, the nature of Old Regime society, the causes and significance of the French Revolution. Attention to those who endured as well as to those who made events. K. Silver

170B. French History: The 19th Century. *
Social, political, and cultural history of France from the Revolution to WWI. Focus on the Revolutionary tradition, the Napoleonic myth, the transformation of Paris, and the integration of the peasantry into the national community. Readings may include novels by Stendhal and Balzac. The Staff

171. Revolutions in France. *
Examines the political/social upheaval in 1789, 1830, and 1848 in light of the sweeping changes brought to 19th-century France by those other great "revolutions" of the age, the democratic and the industrial. Students' written work focuses on the comparative analysis of revolution. Offered in alternate academic years. The Staff

172A. German History. S
The development of German civilization, including philosophy and literature as well as politics and diplomacy in the nineteenth and twentieth centuries. The Staff

172B. German Film, 1919–1945. *
Introduction to German films from 1919 to 1945. Through combination of movies and documentaries, gain insight into political, economic, social, and cultural conditions of Weimar and Nazi Germany. The Staff

173A. Medieval Russia. *
Topics include Russia's relations with Scandinavia, Byzantium, and the Mongols; Orthodoxy; and the roles of women. Materials include chronicles, letters, law codes, household manuals, travelogues, epics, art, architecture, and maps. Also explores the continuing relevance of Russia's medieval past through operas and film. (Formerly course 175A.) (General Education Code(s): CC.) M. Peterson

173B. Imperial Russia, 1696–1917. *
Russian history from Peter the Great through the collapse of the Russian Empire. Explores the relationship between state and subjects (both Russian and non-Russian), alongside the role that geography played in an expanding empire in an increasingly globalizing world. (General Education Code(s): CC.) M. Peterson

173C. History of the Soviet Union. F
Covers Soviet history from the late imperial period through the Soviet collapse. Explores the nature of the Soviet state, relationships between state and society, the role of the Soviet Union in the Cold War, and experiences of everyday life. (Formerly course 175B, Modern Russian History.) (General Education Code(s): CC.) M. Peterson

174. Spies: History and Culture of Espionage. *
Analyzes the roles of espionage and intelligence in modern European history with emphasis on major conflicts from the Franco-Prussian War through the Cold War and beyond. Also examines images of spies in popular culture from the early 20th century to the present. (Formerly course 80K.) (General Education Code(s): CC.) B. Thompson

175D. History of Soviet Film. *
Does not stress questions of aesthetics or technical aspects of film making, but the changing ideology inherent in Soviet films. The goal of examining cinema is to enrich our understanding of Soviet history. Readings include works of famous directors and theorists —Eisenstein, Vertov, Pudovkin, and Kuleshov—in addition to secondary works by Denise Youngblood, Richard Taylor, Josephine Woll, and Anna Lawton. The Staff

176. Eastern Europe, 1848–2000. *
Examines the political and social history of modern Eastern Europe, excluding the Balkans and Baltic States, from 1848 to the present. Focuses on the development of nationalism, war, occupation, ethnic strife, communism, and democratic reform in this region. (General Education Code(s): CC.) The Staff

177. Smoke, Smallpox, and the Sublime: Thinking about the Environment in the 19th Century. F
Examines ways in which Europeans and others thought about the environment and nature

in the 19th century and how their concerns about issues such as climate change, pollution, and conservation were both similar to and different from environmentalist thinking today. (General Education Code(s): PE-E.) M. Peterson

178A. European Intellectual History: The Enlightenment. *
Study of European thought and literature from Hobbes and Swift to Rousseau and Goethe. Focuses on relation of ideas to their social and cultural context. Special attention to traditions of religious conflict and criticism rising from the Protestant Reformation; to the discovery of the world beyond Europe; and to the intellectual and cultural roots of the French Revolution. (Formerly European Intellectual History .) N. Deutsch

178B. European Intellectual History: The 19th Century. W
Study of European thought and literature from Blake to Nietzsche. Focuses on relation of ideas to their social and cultural context. Special attention to the rise and fall of the Romantic movement, to changing conceptions of history, and to the development of socialist and aesthetic critiques of industrial civilization. (Formerly European Intellectual History .) The Staff

178C. European Intellectual History, 1870-1970. *
Drawing on experiments in autobiography, the arts, and social theory, this course focuses on ideas and images of modernity in European culture. It also highlights the role of the intellectual as politically engaged or disillusioned witness in a violent century. Offered in alternate academic years. (General Education Code(s): CC.) B. Thompson

178D. Russian Intellectual History. *
Focus on the emergence in 19th-century Russia of a westernized intelligentsia; its effort both to assimilate western ideas and to define the destinies of Russia; the shaping of the Russian revolutionary movement. Readings in Dostoyevsky, Turgenev, Herzen, and representative Russian Slavophils, Populists, and Nihilists. The Staff

178E. Modern Jewish Intellectual History. S
Surveys European Jewish intellectual history from the Enlightenment to the present. Major themes include emancipation and assimilation, the flowering of Yiddish literature, the rise of Zionism, new variations on the messianic idea, and Jewish contributions to the culture of urban modernism. Offered in alternate academic years. (General Education Code(s): ER.) B. Thompson

180A. English History. *
Emphasis on the interaction between social, economic, religious, and political developments. An attempt to place these phenomena in the context of the wider European and world scene. The period from 1485 to 1689. The Staff

180B. English History. *
Considers how Britain became the pacemaker of modernity in the 18th and 19th centuries; how national, regional, class, and gender identities formed and altered; and how Britain coped with loss of global power in the 20th century. The Staff

181. Modern Britain and the British Empire. *
Examines the history of the British Isles and the British Empire from the late 17th century to the present. Traces the expansion, transformation, and dissolution of the British Empire as well as the changing meanings of "Englishness" and "Britishness" over this period. (General Education Code(s): CC.) M. Matera

183A. Nineteenth-Century Italy. *
Italian politics, culture, and society from the Napoleonic era through early leftist movements. Central emphasis on the Risorgimento and Unification. Other topics include: north-south conflict; banditry; urban change; growth of tourism; popular religion; family structures and gender; visual arts and opera. C. Polecritti

183B. Fascism and Resistance in Italy. *
Examines Italian politics, society, and culture (c. 1900-1950), emphasizing the Fascist regime; interdisciplinary focus emphasizing history, literature, and film. Course 183A recommended as preparation. (Formerly course 183.) C. Polecritti

185A. Conflict of Interest: War, Holocaust, and Industry in the Lodz Ghetto. *
Examines how Nazi war machine exploited Jewish slave labor in the Lodz ghetto industrial

complex while a state apparatus systematically exterminated the workers. Includes a visit from a survivor of ghetto factories and graphics from ghetto workshops. Prerequisite(s): one upper-division history course. Enrollment restricted to juniors and seniors. (General Education Code(s): ER, E.) The Staff

185B. Rethinking the Holocaust: Bioscience, Race Theory, and Genocide. *
Traces the Nazi "Superstate" project from its origins at the conjunction of bioscientific theory and racialist ideology to its conclusion in the Holocaust, providing a historical perspective for social and political dilemmas raised by contemporary biomedical advances. (General Education Code(s): ER, E.) The Staff

185D. Jewish Social Movements. *
Jewish social movements of the late 19th and 20th centuries, in Europe (Eastern and Western) and the U.S.: the confrontation between Hasidism and Haskahah, tensions between socialism and Zionism, between religiosity and secularism, the mutual influences among these tendencies. (Also offered as History of Consciousness 118. Students cannot receive credit for both courses.) Enrollment restricted to juniors and seniors. Enrollment limited to 20. (General Education Code(s): E.) B. Epstein

185E. The Historiography of the Holocaust. *
Offers a comprehensive historiography of the Holocaust, distinct from the narrowly focused perspectives generally presented in Holocaust studies, to familiarize students with the origins, evolution, and major developments in the Nazi genocide and its historical consequences. Enrollment restricted to juniors and seniors. (General Education Code(s): ER, E.) The Staff

185F. Private Lives, Family Histories, and the Holocaust Experience. *
Holocaust historiography has surveyed the broad landscape of genocide or focused narrowly on individual experience. Course examines the middle ground of family and its role in resistance during the destruction of communal existence and survival in the aftermath. (Formerly course 196Q.) Prerequisite(s): two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history, German studies, and classical studies majors. Enrollment limited to 20. (General Education Code(s): ER, E.) The Staff

185H. Women, Gender, and Jewish Modernity (1800-Present). W
Explores the impact of modernization upon women and the concepts of gender, both feminine and masculine, in Jewish societies across Europe, the Middle East, and India. N. Deutsch

185I. Latin American Jewish History in the Modern Period. *
Explores Jewish immigration settlement and identity negotiation in Latin America from the mid-19th Century to the present. The Staff

185J. The Modern Jewish Experience. *
Historical comparative overview of the political, socio-cultural, and intellectual transformation of Jewish societies in Europe and the Middle East from the late 18th Century to the present. The Staff

185K. Jewish Life in Eastern Mediterranean Port Cities. *
Overview of the Jewish experience in important cities in the age of empire. Istanbul, Beirut, Alexandria, and Salonica were home to thriving, culturally diverse Jewish populations. Course explores these urban Jewish cultures, the institutions, and intellectual production. The Staff

185L. Where Civilizations Met--Jews, Judaism, and the Iberian Peninsula. S
Surveys Jewish life in the Iberian Peninsula from Roman times to the present, and explores offshoot Hispanic Jewish societies in the aftermath of the 1492 expulsion. P. Daccarett

190. Advanced Research and Reading Seminars. *
An opportunity for advanced students to focus on specific research problems resulting in a substantial research paper of 25 pages, or discussion of assigned readings resulting in a series of short papers totaling 25 pages. Courses must be taken in area of concentration in order to count towards the major. The Staff

190A. Slavery and Race in Latin America. S

Covers comparative history of slavery in Latin America with questions of race in the colonial and national periods and key moments and debates in the historiography of slavery and its relation to ideologies of the past and the nations. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) M. Diaz

190B. Race and the Nation in Latin America. *
Focuses on the ways in which nation and race have been thought about in Latin America throughout the 19th and 20th centuries. These concepts were closely intertwined, albeit in differing and changing ways, since the wars of independence from Spain and Portugal (1810-1825). Compares the ways in which "black," "Indian," and "racially mixed" ("mulatto" or "mestizo") have been socially constructed, ideologized, and contended in different countries, including Brazil, the Spanish-speaking Caribbean, Mexico, Peru, and Argentina. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) M. Diaz

190C. 9/11 in Historical Perspective. *
Explores how scholars and other observers have tried to make sense of the events of and following September 11, 2001, through analysis and other invocations of historical precedent. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) E. Porter

190D. Asian and Latino Immigration Since 1875. F
Examines Asian and Latino immigration into the United States since 1875. Students explore the relationship between U.S. foreign policies and immigration policies, transnational ties and homeland connections, and the cultural and political influences they have on American society. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. G. Delgado

190E. Topics in Chicana/o History. *
A seminar on the history of Chicanos/Mexicans in the United States, 1848 to the present. Topics include Chicana/o labor, family, social, urban, cultural, and political history. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) The Staff

190F. Research Seminar in the Americas. F
Students learn how to conduct research and write history. Primary and secondary sources are extensively read. Research sources include a rich array of government documents, newspapers, memories and diaries, visual material and film. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors Enrollment limited to 20. (General Education Code(s): W.) A. Lonetree

190G. History and Theory. *
Each year students study one or more theorists or schools of philosophy and history. Themes vary by year and include: Walter Benjamin, Hayden White, Agnes Heller, the Frankfurt School, and the Subaltern School. Prerequisite(s): two upper-division history courses and satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) L. Haas

190H. History of Time. W
Writing-intensive seminar on the experience, manipulation, and representation of time in history. Students pursue advanced research using primary and secondary sources. Prerequisite(s): two upper-division history courses and satisfaction of the

Entry Level Writing and Composition requirements. Enrollment limited to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. O'Hara

190I. California and the Borderlands. S
Complete original research in California and borderlands history in this senior research seminar. Focus on selected problems and themes. Assignments and discussions help students frame their research and edit their writing. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) L. Haas

190J. Diaspora and Migration in World History. *
Diaspora studies recently have included a range of movements and people in colonial, post-colonial, and national dilemmas. Diaspora studies share historical themes with migration studies, and include the study of forced exile and situations of genocide and femicide experienced by indigenous and national minorities. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. L. Haas

190K. Wired Planet: Readings on the Global History of Broadcasting and Telecommunications. *
Locates common themes in the history of broadcasting and telecommunications throughout the world. Why do certain strategies for developing broadcasting and telecommunications systems succeed or fail? Why do some nations outstrip other nations of comparable development in the growth of their communications systems? Why do national or regional communication systems suddenly become more or less open—or more or less centralized? Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Lasar

190L. Personal Politics in the New South. *
Examines the tensions between movements for political reform and reaction in the southern United States between Reconstruction and the second world war. Students develop a research paper grounded in primary research that addresses these questions. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) C. Jones

190M. History of Children and Culture of Childhood in the 19th Century. W
Explores the lives of children and the functions of the literary figure of the child in the cultural politics of the 19th century in the United States. Examines the historically contingent nature of childhood through historical, literary, and visual sources. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) C. Jones

190N. Topics in African History. *
Examines contemporary crises in Africa: the new South Africa, refugees, HIV/AIDS, children of war, blood or conflict diamonds, civil war, and genocide in Rwanda. Seminar format where students will be prepared to undertake studies on specific subjects and two rounds of 15-20 page papers. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) D. Anthony

190O. African American Historiography. S
Major themes in contemporary African American historiography on a topical basis. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education

Code(s): W, E.) D. Anthony

190P. Early American Society and Culture. *
Explores subjects and themes in the political, social, and cultural history of early U.S. history from the colonial period through 1850. Includes critical reading of current scholarship and research in primary texts. The focus of this course is the production of a 25-page research paper. Recommended for senior history majors. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Westerkamp

190Q. The Novel and History. *
Explores novels and novelists in relation to the writing of historical scholarship. Breaking down the simplistic genre division between fiction and nonfiction, provides opportunities for students to read novels as historical evidence, novels as editorial commentary, and novels as analytical narrative. Students produce a series of papers that culminate in a 25-page research project. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Westerkamp

190R. Research in the History of American Religions. *
Readings and research in the history of religions in the United States. Readings focus on topics including the rise of evangelicalism; gender and religion; class, race, and religious diversity; and modernity. Students produce papers that culminate in a 25-page research project. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements and two upper division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) M. Westerkamp

190S. Women and Social Movements in the U.S. *
Examines history of women and social movements in the U.S., such as abolitionism, anti-lynching, Chinese and Jewish garment workers, Chicana farm labor activism, the American Indian Movement, the Ku Klux Klan, and the Civil Rights movement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) D. Frank

190T. Latin America in the Cold War. *
Writing-intensive seminar on Latin America during the Cold War. Particular attention given to U.S.-Latin American relations, including moments of covert or direct interventions. Students pursue advanced research using primary and secondary sources. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. O'Hara

190U. Power, Culture, and the Federal Bureau of Investigation. F
In this research seminar, students explore F.B.I. files obtained under the Freedom of Information Act on a prominent citizen of the United States of America. (Formerly Power and Cutlure in the U.S.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Lasar

190W. Topics in U.S. Civil War and Reconstruction. *
Students read historiographically significant works in the history of the U.S. Civil War and Reconstruction. Students develop research projects grounded in primary source material on a related topic of their choosing. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) C. Jones

190X. History of the Atlantic World, 1492–1824. W
Explores the transatlantic societies created by Europeans' colonization of the Americas, and their exploitation of African slaves. Questions whether the cultural, economic, and political links across the ocean integrated the adjacent lands into a fundamentally "Atlantic World." Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) G. O'Malley

190Y. The Atlantic Slave Trade. *
Before 1800, far more Africans than Europeans colonized the Americas, arriving unwillingly in the slave trade. Course examines the captives' experiences; the trade's organization and significance in the Atlantic economy; and the eventual movement to abolish the traffic. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) G. O'Malley

190Z. The Long Civil Rights Movement. *
Explores the concept of the "long civil rights movement" as a framework for understanding a wide range of social, economic, and political developments in the African American freedom struggle, in both North and South, from the 1930s through the 1980s. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) D. Brundage

192. Directed Student Teaching.
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. The Staff

193. Field Study.
To allow promising, well-qualified undergraduates to pursue directed programs of archival or archaeological study in the field under supervision of the UCSC history faculty, concentrating their work within a single given quarter. Students may take two or three courses concurrently. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Advanced Research and Reading Seminars. *
An opportunity for advanced students to focus on specific research problems resulting in a substantial research paper of 25 pages, or discussion of assigned readings resulting in a series of short papers totaling 25 pages. Courses must be taken in area of concentration in order to count toward the major. The Staff

194A. Gender, Class, and Sex in Shanghai. *
Focusing on Shanghai, course examines issues of gender, class, and sex in modern urban Chinese history. Given Shanghai's history as a treaty port, particular attention paid to ways in which its semi-colonial status inflected the articulation of gender identities, class formations and issues of sexuality (particularly sexual labor). Also looks at Shanghai during the Maoist period and in the context of more contemporary economic reforms. (Also offered as Feminist Studies 194N. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and course 140C, or 140D, or 140E, or permission of instructor. Restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) E. Honig

194B. Okinawan History. F
Examines the history of Okinawa with particular attention paid to the modern era. The goal is to give students a solid foundation in the historiography of major themes in the study of Okinawan society. (Formerly course 196X.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements two upper-division history courses, or permission of instructor. Enrollment limited to 20. (General Education Code(s): W.) A. Christy

194D. Topics in Korean History. *

Overview of Korean history with emphasis on international relations from tributary links with China through colonization by Japan to postwar division between patron states, the USSR and U.S. History of women in Korea also a major theme. (Formerly course 196Q.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

194E. Women in Japanese History. *
Examines through both primary and secondary sources such issues as work, sexuality, education, class, and ethnicity in relation to constructions of female gender in Japanese society over the past several centuries, particularly focusing on the modern era. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) N. Aso

194F. Jewish Shanghai. W
Explores the migration of the more than 10,000 Jewish refugees who fled Europe during World War II and settled in Shanghai. Examines the different Jewish populations that fled to Shanghai, the "Shanghai ghetto," and the recovery of this piece of history from the 1980s through the present. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. E. Honig

194G. China Since the Cultural Revolution: Histories of the Present. *
Explores the rapid and often destabilizing shifts that have taken place in China since the late 1970s (the "reform era"), tracing the effects of China's earlier experiment with revolutionary socialism on the market-driven present. Examines how various meanings of reform are negotiated; changes in rural and urban environments; and class, gender, and ethnic differences. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) G. Hershatter

194H. Gender, Family, and State in China: 1600-Present. *
Explores gender, family, and state power in China from 1600 to present, examining gendered norms, education, political movements, revolutionary practice, sexuality and sex work, and state interventions in contemporary families. Responses to reading and a research paper required. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) G. Hershatter

194M. Literati, Samurai, and Yangban: Comparative History of State and Elite in East Asia, 1600-1900. F
Critically examines the formation of political elites in East Asia. Compares literati in Ming and Qing, China; samurai in Tokugawa, Japan; and yangban in Joeson, Korea. Each group occupied specific roles and functions in their state and society but differed in scale and character. Students cannot receive credit for this course and course 294M. Prerequisite(s): course 40A or 140B, and one additional upper-division history course or permission of instructor, and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Hu

194N. Comparative Studies in Modern Asian History. *
Seminar on cultural and social changes in Asia, mainly in the 19th and 20th centuries. Topics include colonial encounters, cities, narratives of ordinary persons, nationalism and identity, visual cultures, and Orientalism. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) The Staff

194O. South Asia in the Twentieth Century. *

Introduces students to key ideas and ideologues of the Indian nation and the practices of the late-colonial and post-colonial Indian State. In the process, students become familiar with themes like modernity, gender, state formation, space, nationalism, democracy, and development. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. J. Shaikh

194Q. Making Space in the Colonial and Post-Colonial World. *
Explores the production and experience of new forms of space in the colonial and post-colonial world through historical, political, and anthropological case studies with an emphasis on the Middle East and Africa. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) J. Derr

194R. Cairo: The City Victorious, 1750-2000. *
The modernization of a world city from 1750 to the present. Cairo's social and cultural history (literature, film, music) against the background of its changing political and economic contexts. Topics include: orientalism, nationalism, imperialism, minorities, women, migration, urbanism, popular culture, tourism. Prerequisite(s): Two upper-division history courses; and course 41 or 101A or 101B; and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

194S. Comparative Studies in World History. *
Explores a broad topic in world history (varies from year to year) such as settler colonial nationalism, mission, involuntary labor, pre-political resistance, or defensive modernization in comparative historical perspective. (Formerly course 196W.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): W.) The Staff

194U. The Cold War and East Asia. *
Considers through primary and secondary sources the events and aftermath of the Cold War in East Asia in terms of state formation, domestic and foreign policy, and protest movements in China, Taiwan, Korea, and Japan with reference to Vietnam. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) N. Aso

194X. The Cold War in the Mediterranean, 1942-1991. *
Writing-intensive course on the Mediterranean. Topics include: U.S. relations with the region (including direct and indirect intervention), local responses, and cultural transformations. Students pursue advanced research using primary and secondary sources. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

194Y. Memories of WWII in the U.S. and Japan. S
Research seminar comparing U.S. and Japanese memories of World War II. Topics include war origins, total war, the atomic bomb, war responsibility, reparations, memorials, museums, and monuments. Primary work devoted to research in original texts and documents. Prerequisite(s): two upper-division history courses or permission of instructor; satisfaction of the Entry Level Writing and Composition requirements; course 80Y recommended. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W, E.) A. Yang

195A. Thesis Research.
Prerequisite(s): petition on file with sponsoring agency (students should have completed two upper-division courses, preferably in their area of concentration). The Staff

195B. Thesis Writing.
Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; petition on file with sponsoring agency (students should have completed two upper-division courses, preferably in their area of concentration). (General Education Code(s): W.) The Staff

196. Advanced Research and Reading Seminars.
An opportunity for advanced students to focus on specific research problems resulting in a substantial research paper of 25 pages, or discussion of assigned readings resulting in a series of short papers totaling 25 pages. Courses must be taken in area of concentration in order to count towards the major. The Staff

196A. Global 1930s. F
Explores the turbulent 1930s from a global perspective. Students consider the great events of the decade--the Great Depression, the consolidation of communism, and the rise of fascism--within the context of global connections and forces, including those fostered by imperialism and various forms of internationalism. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. M. Matera

196B. Social Protests in Late Medieval and Early Modern England. *
Explores the social, cultural, economic, and political context of popular protest in England from 1347 through 1631. An important dimension of that exploration is an examination of official government responses to riot and rebellion. Two courses in medieval or early modern European history recommended as preparation. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196C. Modern Italian Culture. *
Developments in Italian culture and society from the postwar to the present. Topics include north-south divisions, family and gender, cinema and modernity, urbanization, mafia, and terrorism. Prerequisite(s): course 164A or 164B or 183A or 183B, or permission of instructor and one upper-division history course; and satisfaction of the Entry Level Writing Requirement. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) C. Polecritti

196D. City of Rome. W
Explores the long-term urban history or Rome from its founding through the modern tourist city. Emphasizes the cityscape and geographical centers of political power, culture, and religion, as well as the everyday life of neighborhoods. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history, classical studies, and Italian studies majors. Enrollment limited to 20. (General Education Code(s): W.) C. Polecritti

196E. Modern Irish History. *
Aims to illuminate major themes and turning points of modern Irish history: the causes and consequences of the famine; the development of Irish nationalism; revolution, civil war, and partition; and the recent economic boom. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) B. Thompson

196F. European Environmental History. *
Examines interactions between human societies and the natural world in Europe. Topics include: impact of European imperialism; changing attitudes toward the natural world; the Industrial Revolution in ecological perspective; the beginnings of preservationist and conservationist movements; the evolution of 20th-century environmentalism; and the historical context of contemporary environmental problems. Prerequisite(s): satisfaction of the Entry Level Writing and Composition

requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) B. Thompson

196G. Modern Germany and Europe. *
A senior reading and research seminar that explores the major historiographic debates in German history during the 19th and 20th centuries. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history, German studies, and Jewish studies majors. Enrollment limited to 20. (General Education Code(s): W.) M. Cioc

196H. Sex and the City--The History of Sexuality in Urban Areas Around the Globe. *
Focuses on the history of sexuality in major urban areas globally. Topics include: sexual identities and race, class, and gender; sex work, policing, and urban spaces; gay, lesbian, and transgender communities; race, gender, and sexuality within the context of colonialism. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses, or by permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Matera

196I. The French Revolution. *
Students conduct original research on the French Revolution of 1789 based on mix of primary and secondary courses. Classroom discussions focus on interpreting contemporary documents and addressing historiographical issues. Seminar format with significant written requirements. Presumes familiarity with the period. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 70B and one upper-division history course; or course 170A or 171. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196J. Autobiography and History. *
Students prepare research papers using a combination of sources, both primary (the autobiographies, diaries, or memoirs of historically relevant figures) and secondary (chronologically and thematically appropriate works of synthesis that help contextualize the lives of their subjects). Seminar format with significant written requirements. Prerequisite(s): satisfaction of the Entry Level Writing requirement; Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196K. Studies in European Intellectual History. *
Topics in European intellectual history from the French Revolution to World War I. Readings exemplifying approaches from history of ideas and intellectual biography to recent studies of rhetoric and political culture. Preparation and presentation of research paper. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196M. Shtetl: Eastern European Jewish Life. *
For several centuries, the shtetl functioned as the center of Jewish life in Eastern Europe. Alternately mythologized and pathologized, the shtetl continues to exist as an imaginary space that defines and distorts the historical image of Eastern European Jewish life. Students cannot receive credit for this course and course 257. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and two upper-division history courses. Enrollment restricted to junior and senior history and Jewish studies majors. Enrollment limited to 20. (General Education Code(s): W.) N. Deutsch

196N. Eastern European Jewish Social History. W
Study of 19th- and 20th-century Eastern European and Russian Jewish social history. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history, German studies, and Jewish studies majors. Enrollment limited to 20. (General Education Code(s): W, E.) The Staff

196O. Russian Revolution, 1917–1932. *
Study of the major political, social, and intellectual conflicts and transformations of the period. Topics include February and October revolutions, Civil War, NEP, rise of Stalinism, and collectivization. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196P. Hitler and Stalin. *
A discussion of 20th-century totalitarianism. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history, German studies, and Jewish studies majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196Q. Europe and the World During the Cold War. S
Explores European history from the end of World War II through the fall of the Soviet Union. Examines how Europe evolved from a fragmented, polarized array of colonial rivals to a more economically and culturally integrated place. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Lasar

196R. Social World of Roman Palestine. *
Inquiry into the structures of Roman Palestine on the basis of parables from the synoptic Gospels, the Dead Sea Scrolls, Josephus, inscriptions, and archaeological discoveries. Physical, social, economic, and ideological conditions are researched in an ethnographic fashion. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses. Enrollment restricted to junior and senior history, classical studies, and Jewish studies majors. Enrollment limited to 20. (General Education Code(s): W.) The Staff

196S. Special Topics in Ancient History. F,S
Seminar focuses on different topics in ancient history. In addition to assigned readings, the student is expected to do additional research that culminates in a 20-page paper on a topic of the student's choice. General topics for the course will vary from year to year. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors and classical studies majors. Enrollment limited to 20. (General Education Code(s): W.) E. Sullivan, C. Hedrick

196U. Topics in Medieval History. *
Addresses contemporary and modern interpretations of the events relation to medieval history. Through critical discussion and debate, assesses the value and limitations of various historical sources, as well as developing skills in reserach, presentation-making, and writing. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 102A or 103, and one upper-division history course, or by permission. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): W.) The Staff

196V. The Soviet Experience. S
Uses memoirs, diaries, novels, films, oral interviews and histories, and scholarly works to explore everyday life in the Soviet Union, and the extent to which the Soviet Union represented a totalitarian society. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment is restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Peterson

196W. Brave New World? Scientific & Technological Visions of Utopia and Dystopia in Russia/Soviet Union. *
Focuses on the role of scientific and technological developments in creating the kinds

of social, economic, and ecological change that inspired utopian thinking--as well as utopia's counterpart, dystopia--in Russia in the late 19th and 20th centuries. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, two upper-division history courses, or permission of instructor. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Peterson

196X. National Socialism and the Third Reich. F
A senior reading and research seminar that explores the major historiographic debates in German history during the Nazi period. Students conduct original research on the Third Reich using primary and secondary sources. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and two upper-division history courses, or by instructor permission. Enrollment restricted to junior and senior history, Jewish studies, and German studies majors. Enrollment limited to 20. E. Kehler

196Y. Saints and Holiness in Medieval Europe. *
Examines popular religious belief and practice, including conversion, the cult of the saints, relics, pilgrimage, miracles and visions. Emphasis on Medieval Europe, but some attention also paid to modern patterns of devotion. Prerequisite(s): two upper-division history courses; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) C. Polecritti

196Z. Europe From the Margins: Outside Influences on Modern European Thought and Culture. *
Europe's engagement with the outside world, which ranged from cultural and intellectual borrowings to relations of domination and colonialism, shaped its modern history and culture. This course examines the cultural and intellectual history of modern Europe by focusing on the ways in which European thinkers and cultural producers drew upon or were influenced by non-European sources. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; two upper-division history courses. Enrollment restricted to junior and senior history majors. Enrollment limited to 20. (General Education Code(s): W.) M. Matera

198. Independent Field Study.
Student's supervision is conducted by a regularly appointed officer of instruction by means other than the usual supervision in person (e.g., by correspondence) or student is doing all or most of the course work off campus. May be repeated for credit. The Staff

199. Tutorial.
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits).
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Methods and Theories of History. F
An overview of theories, methods, and philosophies concerning the nature and production of history. Topics vary with instructor. Enrollment restricted to graduate history students and others by permission of instructor. Enrollment limited to 20. M. Cioc

201. Directed Research Colloquium. W
Having already prepared a bibliography and research prospectus in a graduate research seminar, students will undertake further research on their projects, write a 25-30 page research paper, and present their work to their fellow students. Prerequisite(s): history graduate research seminar. Enrollment restricted to graduate history students. Enrollment limited to 15. D. Frank

202. Practicing World History. F
Because world history surfaces in curriculums at all educational levels, this seminar interrogates its value. Why do historians advocate world (and transnational) history? How do historians actually practice it? What are the pitfalls? Can global perspectives apply to localized subjects? Enrollment restricted to graduate students. Enrollment limited to 15. G. O'Malley

204A. History of Gender Research Seminar. W
Introduction to theories and methods employed in gendered historical research. Readings are drawn from a range of chronological, national, and thematic fields and explore the intersection of gender analysis with such historical problems as the body and sexuality, modernity, national identity, and production/consumption. Enrollment restricted to graduate students. Enrollment limited to 15. M. Westerkamp

204B. Approaches to Social and Cultural History. *
Graduate reading course focusing on both classic and contemporary approaches to social and cultural history. Readings induce: Bakhtin, Benjamin, Foucault, Auerbach, and Berlin, and a variety of more recent studies in social, cultural, and intellectual history. Course not limited to graduate students in History.(Formerly Society and Culture Research Seminar .) Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

204C. Colonialism, Nationalism and Race Research Seminar. *
Research seminar introducing theories and methods of the comparative histories of race, ethnicity, colonialism, and nationalism. Enrollment restricted to graduate students. Enrollment limited to 15. M. O'Hara

204E. Transnationalism, Borderlands, and History. S
Graduate seminar exploring the history of Canada-United States-Mexico borderlands. Approaches and arguments compare nation-state centered histories with narratives that construct the North American borderlands as places wrought from a multiplicity of overlapping indigenous, imperial, national, transnational, and global forces. Prerequisite(s): Enrollment restricted to graduate students. Enrollment limited to 15. G. Delgado

205. Diaspora and World History. *
Examines the histories and historiography concerning diaspora. This area of study includes populations from Asia, Africa, Europe, and the Americas. Students study the histories of diasporic populations, and the questions, theory, and methods that scholars use to approach the subject. Enrollment restricted to graduate students. Enrollment limited to 10. L. Haas

206. Empire in World History. S
Introduces the study of empire (as opposed to nations, regions, or continents) as an approach to world history and to recent historiographical trends in the history of empires. Enrollment restricted to graduate students, Enrollment limited to 15. M. Matera

210A. Readings in U.S. History.
Introduction to major themes and controversies in the interpretation of U.S. history. Readings cover both chronological eras and topical subjects, often in a comparative context: colonial and early national periods. Enrollment restricted to graduate students. Enrollment limited to 15. G. O'Malley

210B. Readings in U.S. History. S
Introduction to major themes and controversies in the interpretation of U.S. history. Readings cover both chronological eras and topical subjects, often in a comparative context: 19th century. Enrollment restricted to graduate students. Enrollment limited to 15. D. Frank

211A. Research Seminar in Early American History. *
First quarter of a two-quarter introduction to research in early American history (1550-1820). Readings include both historiographically definitive texts as well as recent scholarship reflecting the field's developments. Students complete analyses of historical sources, brief critical essays, and a significant research project. Course A is not a prerequisite to course B. Enrollment restricted to graduate students. Enrollment limited to 20. G. O'Malley, M. Westerkamp

211B. Research Seminar in Early American History. *
Second quarter of a two-quarter introduction to research in early American history (1550-1820). Readings include both historiographically definitive texts as well as recent scholarship reflecting the field's developments. Students complete analyses of historical sources, brief critical essays, and a significant research project. Course A is not a prerequisite to course B. Enrollment restricted to graduate students. Enrollment limited to 20. G. O'Malley, M. Westerkamp

212A. Citizenship in U.S. History. *
A reading-intensive graduate seminar in United States history that examines citizenship and its exclusions, grounded in race, gender, sexuality, age, and disability. This seminar also explores how forms of belonging intersected with evolving understandings of nationalism and sovereignty. Enrollment restricted to graduate students. Enrollment limited to 15. C. Jones

212B. Citizenship in United States History. *
A reading-intensive graduate seminar in United States history examining citizenship and its exclusions, grounded in race, gender, sexuality, age, and disability. The course also explores how forms of belonging intersected with evolving understandings of nationalism and sovereignty. Enrollment restricted to history graduate students. Enrollment limited to 15. C. Jones

215A. Topics in American History: U.S. Labor and Working Class History. *
Addresses topics in history of working people, the labor movement broadly defined, and political-economic change in the U.S. Topics include race, ethnic and gender dynamics, and U.S. labor and working-class history in global context. Enrollment limited to graduate students. Enrollment limited to 15. D. Frank

215B. Visions of Progress. *
Explores the emergence of the welfare/regulatory state in the United States from the 1870s to World War I, examining different schools of historical thought about this period. Enrollment restricted to graduate students. Enrollment limited to 15. M. Lasar

215C. U.S. Immigration and Ethnic History. F
Introduces key issues and debates in United States immigration and ethnic history. Topics include causes of immigration; constructions of race, gender and ethnicity; assimilation; transnationalism; and forces shaping immigration policy. Enrollment restricted to graduate students. Enrollment limited to 10. D. Brundage

216. Readings in the History of American Religions. *
Research in the history of religions in the United States. Addresses topics, such as the rise of evangelicalism; class, race, and religious diversity; gender and power; modernity; and civil religion through analyses of visual and literary texts, iconography, ritual, theology, and praxis. Enrollment restricted to graduate students. Enrollment limited to 15. M. Westerkamp

217. Critical Conversations in Native American History. F
Overview of key historical texts focusing on the Native American experience, with particular focus on scholarship that seeks to decolonize Western methodologies and research practices. Readings explore such topics as decolonization, indigenous identity, sovereignty, repatriation efforts, gender and sexuality, and historical memory. The format consists of discussions of readings. Students give oral presentations on the readings, and write book reviews and a final historiographical paper. (Formerly American Studies 224.) Enrollment restricted to graduate students. Enrollment limited to 10. A. Lonetree

220. The Atlantic World, 1500-1800. *
Explores the economic, social, and cultural history of early America in terms of its Atlantic connections and intersection with the cultures of early modern Europe, Africa, and Latin America. Builds upon previous work in early America and early modern Europe, challenging students both to work comparatively and to break out of traditional geographic models. (Formerly Topics in American History: The Atlantic World 1500-1800 .) Enrollment restricted to graduate students. Enrollment limited to 15. M. Westerkamp

221. Empires and New Nations in the Americas. *
Compares the history of the colonial and 19th-century Americans through a world-history perspective. Focuses on the interrelated themes of indigenous histories, slavery and other forms of servitude, commodity production, and the meaning of equality and freedom in new nations. Enrollment restricted to graduate students. Enrollment limited to 15. L. Haas

225. Spanish Colonialism. *
Reading-intensive graduate seminar with emphasis on theoretical and historiographical questions regarding the field of Spanish colonialism in the Americas. Students encouraged to engage in discussions of comparative colonialisms. Enrollment restricted to graduate

students. Enrollment limited to 10. M. Diaz

227. Gender and Colonialism. *
Explores the relationship between colonialism and gender. Examines the construction of gender categories (in conjunction with race) in the context of colonial conquest and rule; contested definitions of motherhood, domesticity, and citizenship; and regulation of sexuality. Enrollment restricted to graduate students. E. Honig

230A. Readings in Late Imperial China. *
Survey of the major works on and historiographical controversies about Qing Dynasty (1644–1911) China. Enrollment restricted to graduate students. Enrollment limited to 20. M. Hu

230B. Engendering China. *
Reading seminar on the history of Chinese gender, focusing on the Qing dynasty (1644–1911) to the present. Topics include marriage and family, sexuality, work, the gendered language of politics, and major reform movements. Enrollment restricted to graduate students. Enrollment limited to 20. G. Hershatter

230C. Readings in 20th-Century China. *
A survey of major Western-language works and historiographical controversies in Chinese history from 1900 to the present. Weekly readings emphasize particular social and political movements as well as long-term changes in urban and rural society. Enrollment restricted to graduate students. Enrollment limited to 20. E. Honig

231. Historicizing the People's Republic of China. F
An overview of the scholarly literature on the People's Republic of China. Readings include works by historians as well as by social scientists. Students consider what kinds of questions historians have and can ask. Enrollment is restricted to graduate students. Enrollment limited to 15. E. Honig

238A. Research Methods: China. *
An introduction for graduate students to the use of major research tools and sources in Chinese history since 1600, with a focus on 20th-century materials. Students complete a series of bibliographical exercises and prepare a research prospectus. (Formerly course 228A.) Enrollment restricted to graduate students. Enrollment limited to 20. G. Hershatter

238B. Research Methods: China. *
Building on the research and bibliographic skills developed in course 228A, students develop a research topic and write a paper of 20–30 pages using primary sources as appropriate in English, Chinese, and/or Japanese. (Formerly course 228B.) Enrollment restricted to graduate students. Enrollment limited to 20. G. Hershatter

242. Readings in Modern Japan. W
A graduate course intended to give students a fundamental understanding of the major themes in the study of modern Japanese history. Central themes include modernity and modernization, colonialism, postwar recovery, gender, race, and nationalism. (Formerly course 210.) Enrollment restricted to graduate students. Enrollment limited to 15. N. Aso

243. Transnational Japan. *
Examines how "Japanese" history has been forged across, outside, and beyond the boundaries of the modern nation-state of Japan. Considers how Japan has transformed the world. Students debate how the world made Japan and how Japan re-made the world. Enrollment restricted to graduate students. Enrollment limited to 10. A. Christy

244. Gender and Japanese History. *
Examines—through primary and secondary sources—constructions of gender (masculine, feminine, and transgender) in Japanese society over the past several centuries, focusing on the modern era. Enrollment restricted to graduate students. Enrollment limited to 15. A. Christy

250A. Readings in European Social and Cultural History. *
A readings seminar that introduces beginning graduate students to some of the major conceptual and methodological approaches to early modern European social and cultural history, 1400–1789. (Formerly course 205A.) Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

250B. Readings in European Social and Cultural History. *
A readings seminar that introduces beginning graduate students to some of the major problems in modern European social and cultural history, 1789 to the present. (Formerly course 205B.) Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

256. Nationalism, Anti-Semitism, and Jewish Resistance in World War II. *
Jewish resistance to Nazism during World War II, in Eastern Europe, and its historical context. Includes the pre-war rise in nationalism and anti-Semitism in Poland and Lithuania, Jewish integration in the Soviet Union, and the consequences for wartime resistance. (Also offered as History of Consciousness 243A. Students cannot receive credit for both courses.) Enrollment restricted to seniors and graduate students. Enrollment limited to 15. B. Epstein

257. Shtetl: Eastern European Jewish Life. *
For several centuries, the shtetl functioned as the center of Jewish life in Eastern Europe. Alternately mythologized and pathologized, the shtetl continues to exist as an imaginary space that defines and distorts the historical image of Eastern European Jewish life. Students cannot receive credit for this course and course 196M. Enrollment restricted to graduate students. Enrollment limited to 20. N. Deutsch

260. History and the Spatial Turn: Making Space, Place, and Geography in History. *
Explores the making of space, place, and geography in a body of recent historical work. Explores key theoretical work interrogating the significance of space as a critical element of social theory and historical consideration. Proceeds through three thematic units: questions of colonial economy in South Asia; spaces of empires and its end in the Eastern Mediterranean; and histories of infrastructure. Enrollment restricted to graduate students. Enrollment limited to 20. J. Derr

280A. History Graduate Proseminar: Teaching Pedagogy (2 credits). F
Devoted to professionalism and socialization of history graduate students. Includes formal and informal meetings with faculty and other graduate students. Topics include TAships, designing course syllabi, pedagogy, teaching technologies, and teaching in different venues. This course is required for first-year students; however, it is open to all other graduate students as needed. Enrollment restricted to graduate students . May be repeated for credit. N. Aso

280B. History Graduate Proseminar: Research Presentations and Grant Writing (2 credits). *
Devoted to professionalism and socialization of history graduate students. Topics include discussion of researching grants; effective CV writing; successful grant applications and publication proposals; and conference paper and panel proposals. Required for first-year graduate students; however, open to all history graduate students as needed. This course is required for first-year students; however, it is open to all other graduate students as needed. Enrollment restricted to graduate students . May be repeated for credit. G. O'Malley

280C. History Graduate Proseminar: Job Market (2 credits). F
Devoted to professionalism and socialization of history graduate students. Includes formal and informal meetings with faculty and other graduate students. Topics include researching position; preparing a CV and the job-application letter; preparing for an interview; practice interview; preparing a job talk and/or teaching presentation; and practice job talk. This course is required for first-year students; however, it is open to all other graduate students as needed. Enrollment restricted to graduate students . May be repeated for credit. N. Aso

283. Foreign Language Preparation (2 credits). F,W,S
Independent study course in which history graduate student reads selected texts to fulfill foreign language requirement. Student meets with instructor to discuss readings, deepening his knowledge of the foreign language. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

284. Qualifying Examination Preparation (2 credits). F,W,S
Independent study course designed to help students prepare for qualifying exams. Students meet on regular basis with one or more members of qualifying examination committee to monitor preparation for exam. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

285. Readings in Research Field (2 credits). F,W,S
Independent study focusing on selected texts or authors in history or historical theory. Students meet on regular basis with instructor to discuss readings and deepen their knowledge of a particular author or historical theory. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

286. Research Colloquium on Colonialism, Nationalism, and Race (2 credits). F,W,S
Acquaints students with the department's thematic research clusters in their field to coordinate training in historical research. Students meet on a regular basis with a faculty member of a particular cluster to discuss most important readings in the field. Enrollment restricted to graduate students. Enrollment restricted to graduate students. May be repeated for credit. The Staff

287. Research Colloquium on Gender (2 credits). F,W,S
Acquaints students with the department's thematic research clusters in their field to coordinate training in historical research. Students meet on a regular basis with a faculty member of this cluster to discuss most important readings in their field. Enrollment restricted to graduate students. Enrollment restricted to graduate students. May be repeated for credit. The Staff

288. Teaching Assistant Preparation (2 credits). F,W,S
Independent study designed to help history graduate students prepare to teach in an area of history outside their specialization. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

289. History Colloquium (2 credits). F,W,S
Independent study designed to foster departmental and cross-disciplinary participation in campus talks, colloquia, conferences, and events. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

294M. Literati, Samurai, and Yangban: A Comparative History of State. *
Critically examines the formation of political elites in East Asia. Compares literati in Ming and Qing China; samurai in Tokugawa, Japan; and yangban in Joeson, Korea. Each group occupied specific roles and functions in their state and society but differed in scale and character. Students cannot receive credit for this course and course 194M. Enrollment restricted to graduate students. Enrollment limited to 20. M. Hu

297. Independent Study.
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research.
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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History of Art and Visual Culture

2014-15 General Catalog

D-201 Porter College
(831) 459-4564
havc@ucsc.edu
http://havc.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

10. Introduction to African Visual Culture. S
An interdisciplinary approach to the study of the basic structures (gender, art within political sphere, and spiritual aspects of visual culture) and cultural institutions (initiations, closed associations, kingship, title association, etc.) around which the study of African visual culture revolves. (General Education Code(s): CC.) E. Cameron

20. Visual Cultures of Asia. *
An introduction to the art and architecture of East Asia, including China, India, Southeast Asia, and Japan. In order to achieve a fuller understanding of the arts of these countries a historical, cultural, and religious context is provided. (Formerly course 10D, Presence and Power in the Visual Cultures of Asia.) (General Education Code(s): CC, IH, A.) The Staff

22. Religion and Visual Culture in China. *
Introduction to the study of religious currents and practices in China and their visual expression. In addition to "religious art," topics include such pivotal matters as body concepts and practices, representations of the natural world, and logics of the built environment. (Formerly course 80G.) (General Education Code(s): CC, A, E.) R. Birnbaum

24. Southeast Asia Visual Culture. *
Introduces the visual cultures of Southeast Asia. Topics include indigenous megalithic art, textiles, and jewelry, as well as Hindu and Buddhist art and architecture. Also considers shadow play and dance performance as alternative lenses to looking at ritual and visual narratives rendered on stone temples. (Formerly course 10C.) (General Education Code(s): CC, IH, A, E.) B. Ly

27. Image and Ideology in Indian Art. *
Examination of the ways social, religious, and political patronage have affected the production and reception of art in the Indian subcontinent. The course is designed as a series of case studies from different periods of Indian history. (Formerly course 80N, Indian Art: Image and Ideology.) (General Education Code(s): IM, A, E.) K. Thangavelu

30. Introduction to European Visual Culture. W
An introduction to the European tradition in visual culture, from antiquity to the present, but not in chronological order. All media, including the fine arts, architecture, film, video,

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
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- Ocean Sciences
- Physical Education
- Physics
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- Portuguese
- Psychology
- Russian
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- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

and installation and performance work are incorporated. Presents the major visual regimes of representation while it probes the meanings and limits of Europe and the European tradition in the context of the visual. (Formerly course 10G, Europe.) (General Education Code(s): IM, IH, A.) A. Langdale

31. The Nude in the Western Tradition. S
The human body without clothing in European and European-American art and visual culture from ancient Greece to the present day. Among the themes to be addressed: gender, youth and age, sexuality and sexual preference, fecundity and potency, erotic art and pornography, primitivism and the naked body of the non-European. (Formerly course 10F.) (General Education Code(s): IM, IH, A.) D. Hunter

40. Museum Cultures: The Politics of Display. W
Explores the history of collecting and displaying art (museums, galleries, fairs) since the mid-19th century and the effect of institutional changes on aesthetic conventions. Follows the history from the origins of museums and collections to contemporary critiques of institutional exclusion and misrepresentation. (Formerly course 80D.) (General Education Code(s): IM, A.) J. Gonzalez, The Staff

41. Modern Art in Context. *
Examines the social, economic, and political significance of European and U.S. modernist art and architecture, moving from French realism to American minimalism. Provides the historical background and theoretical frameworks needed to make sense of modernist art and culture. (Formerly course 80V.) (General Education Code(s): IM, A.) M. Berger

43. History of Modern Architecture. F
Examines the origins and development of modern architecture, from the Enlightenment and the Industrial Revolution to the 20th Century and beyond. Buildings, urban plans, and works of art and design are discussed in relation to political, social, and cultural currents. (Formerly course 46.) (General Education Code(s): IM, IH, A.) The Staff

45. Photography Now. W
Explores recent methods and approaches in photography. Surveys significant aesthetic, conceptual, and theoretical shifts occurring in the photographic medium and related discourses. Special attention given to the "current" landscape of contemporary photography (1980-present). (General Education Code(s): IM.) D. Murray

46. Introduction to U.S. Art and Visual Culture. F
Overview of U.S. art and visual culture from the late 18th Century to the present. Examines art as evidence for understanding evolving beliefs and values of Americans. Explores the social and political meanings of art, and pays particular attention to how artists, patrons, and audiences have constructed nationalism, race, class, sexuality, and gender. (General Education Code(s): ER.) M. Berger, The Staff

50. Ancient Mediterranean Visual Cultures. *
The role that ancient art and visual culture play in constructing social identities, sustaining political agendas, and representing various cultural, ritual, and mythological practices in Mesopotamia, Egypt, Greece, and Rome, including the sociology of ancient cultures, mythology, religious studies, gender studies and history. (Formerly course 80E.) (General Education Code(s): IM, A.) The Staff

51. Greek Eyes: Visual Culture and Power in the Ancient Greek World. *
The central role of visual communication in ancient Greek civilization: examines the construction of cultural, social, political, religious, and gender identities through material objects and rituals. Includes discussions of images of the public and private sphere, athletic and theatrical performances, mythology, pilgrimage, and magic. (Formerly course 80X, Greek Eyes: Visual Culture and Power in the Ancient Greek.) (General Education Code(s): IM, A.) M. Evangelatou

58. Gardens of Delight: Fifteen Centuries of Islamic Visual Culture. S
Examines some of the most representative creations of Islamic visual culture from the 7th Century to the present in order to appreciate the richness of this tradition and its extensive influence on other cultures. Focuses on the social, political, and religious role of a variety of materials, from mosques, palaces, and gardens to visual narratives, ceremonies, dance, and contemporary films. (Formerly course 180.) (General Education Code(s): CC, A, E.) M.

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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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Evangelatou

60. Indigenous American Visual Culture. F
Selected aspects of art and architecture of the first peoples of the Americas, north, central, and south, from ca. 2000 B.C.E. to present. Societies to be considered may include Anasazi, Aztec, Inca, Northwest Coast, Maya, Navajo, Plains, and others. (Formerly course 80M.) (General Education Code(s): ER, A, E.) C. Dean

70. Visual Cultures of the Pacific Islands. F
Interdisciplinary course examines visual cultures of Australia, Melanesia, Micronesia, and Polynesia from the archaeological past through contemporary periods. (Formerly course 105P.) (General Education Code(s): CC, A, E.) S. Kamehiro, The Staff

80. Colonial Histories and Legacies: Africa, Oceania, and the Indigenous Americas. *
A comparative study of the arts of selected cultures which developed outside the spheres of influence of the major European and Asian civilizations. Emphasis is on the function of the arts in these disparate geographic regions. Students cannot receive credit for this course and course 100E. (Formerly course 10E, Africa, Oceania, and the Americas.) (General Education Code(s): CC, IH, A, E.) E. Cameron

99. Tutorial. F,W,S
Supervised study for undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

100A. Approaches to Visual Studies. W
Introduction to major issues of method and critique in study of art and visual culture. Focuses on understanding disciplinary and critical modes of scholarly inquiry in the visual arts, including role of historical research. Emphasizes intensive reading, discussion, and writing. Course 100A is a prerequisite for all History of Art and Visual Culture seminars. (Formerly Methods in History of Art and Visual Culture) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to sophomore, junior, and senior History of Art and Visual Culture majors and minors. (General Education Code(s): W,A.) D. Hunter

110. Visual Cultures of West Africa. *
Explores visual cultures of West Africa through time (Nok to present). Attention paid to relationships between peoples and impact of European/Arab presence on visual cultures. Prerequisite(s): course 10 or 80 recommended. (Formerly course 107B, West Africa.) (General Education Code(s): CC, A, E.) E. Cameron

111. Visual Cultures of Central Africa. *
Examination of visual cultures of Central Africa within a historical sequence from the Sanga archaeological excavations to contemporary easel painting. (Formerly course 107A, Central Africa) Prerequisite(s): course 80 suggested. Enrollment restricted to sophomores, juniors and seniors (recommended). (General Education Code(s): CC, A, E.) E. Cameron

115. Gender in African Visual Culture. *
In Africa, relationships exist between gender and visual culture. Course examines where categories come from, differences in men's and women's visual cultures, and how visual cultures teach, reinforce, and negotiate gender definitions. When are male/female boundaries crossed, and why? (Formerly course 185B, Gender.) (General Education Code(s): A, E.) E. Cameron

116. African Architecture. F
Study of the built environment in Africa. Focusing in depth on 10 major architectural forms or sites, this course explores the diversity of architectural types and how gender, politics, religion, and culture shape and are shaped by architectural spaces. (General Education Code(s): PE-E.) E. Cameron

117. Contemporary Art of Africa. *
Examines contemporary arts in post-colonial Africa, 1960-present, including new popular cultural forms; arts resulting from new class and national structures; commodification of culture; Pan-Africanism; exhibitionism; and questions of destiny. (Formerly course 185D.) Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): IM,

A, E.) The Staff

118. Art of the Contemporary African Diaspora. *
Considers contemporary art by African artists operating in metropolitan centers, as well as Afro-British, Afro-Caribbean, and African-American production. Topics are organized thematically and address constructing and deconstructing the idea of Africa; cultural authenticity; diaspora; Creolité and creolization; hybridity; cosmopolitanism; post-black; and globalism in the arts. (Formerly course 189Y.) Recommended: background in art history. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): A.) D. Murray

122. Visual Cultures of China.
The Staff

122A. Sacred Geography of China. *
An examination of the close relationship of religious traditions and the natural world in China, and its expression in visual representation. Particular emphasis on the ways in which competing groups sought to define or re-envision an understanding of the terrain. (Formerly course 154A.) Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): CC, A.) R. Birnbaum

122B. Constructing Lives in China: Biographies and Portraits. *
Consideration of biographies and portraits in China as representations of human types and individuals, and the use of these representations as models for constructing lives. Attention to historical and social contexts, early times to present. Special focus on Chinese Buddhist traditions. A previous course that focuses on traditional China or Buddhist studies strongly recommended. (Formerly course 155.) (General Education Code(s): CC, A, E.) R. Birnbaum

122C. Writing in China. *
Examines material and conceptual phenomena of writing in Chinese visual culture. Focuses on the intersections of places and practices of writing through various inscribed sites, ranging from oracle bones, seals, and mountain facades to hand scrolls, architecture, and contemporary art. (Formerly course 159D.) (General Education Code(s): A.) The Staff

122D. Chinese Landscape Painting. *
Examines the history and significance of the subjects most prominent in Chinese painting during the past one thousand years, focusing on the cultural factors that made landspace a fundamental value in the Chinese tradition and the methods whereby painters created pictorial equivalents. (Formerly course 159B.) (General Education Code(s): IM, A.) The Staff

123. Visual Cultures of South Asia.
The Staff

123A. Modernity and Nationalism in the Arts in India. *
Deals with artistic responses to the forces of modernity, colonialism, industrialization and globalization in India during the 19th and 20th centuries. Addresses the complex and often painful climb toward re-establishing a truly Indian artistic identity. (Formerly course 189D.) (General Education Code(s): A, E.) K. Thangavelu

123B. Religions and Visual Culture of South Asia. F
South Asia is the home of many religions (Hinduism, Buddhism, Jainism, Islam, and Sikhism). Introduces the role images (painting, sculpture, architecture, photography, film) play in shaping these diverse religious traditions. (Formerly course 106A.) Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): CC, A, E.) B. Ly

124. Visual Cultures of Southeast Asia.
The Staff

124A. Arts of Ancient Southeast Asia. F
Focuses on Hindu and Buddhist arts of ancient Southeast Asia (Indonesia, Cambodia, Vietnam, and Thailand). Materials covered include indigenous megalithic arts, stone sculptures, and monumental temple architecture such as Angkor Wat, Borobudur, Prambanan, and the Bayon. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): CC.) B. Ly

124B. History of Photography in Southeast Asia. S
Examines how photography was used in Southeast Asia to document the racial difference

and the exotic "Others" under the regime of colonialism. Considers the role photography played in "documenting" the Vietnam-American War and how contemporary Southeast Asian-American artists challenge this photographic history in their art. Enrollment restricted to sophomores, juniors and seniors. (General Education Code(s): CC.) B. Ly

124C. Arts and Politics in Theravada Traditions. *
Consideration of the arts and architecture in Theravada Buddhist traditions in Sri Lanka and Southeast Asia. Topics and themes include ritual, relics, visual narrative, mural painting, contemporary art, mass-meditation movement, and political protest. (Formerly course 163B.) Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): CC, A.) B. Ly

124D. Contemporary Art of Southeast Asia and its Diaspora. *
Examines the respective national notions of modernity in the region through a comparative lens. How global capital flow and transnational cultural exchanges impact the production of arts of Southeast Asia and its diaspora. Themes and issues include: colonialism and art education; nationalism; identity politics; memory; trauma; gender; race; sexuality; and the body. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): CC.) B. Ly

127. Topics in Cross-Regional Studies in Visual Cultures of Asia.
The Staff

127A. Buddhist Visual Worlds. W
Introduction to the study of Buddhist visual traditions, from their beginnings to the present day. Case studies examined with careful attention to historical, social and cultural contexts; particular emphasis on the relation of visual traditions to Buddhist practices. (Formerly course 114.) Enrollment restricted to sophomore, junior, and senior students. (General Education Code(s): CC, A.) R. Birnbaum

127B. Buddhist Pure Lands. S
Conceptions of "pure lands" have engaged the imaginations of Mahayana Buddhists for more than two millennia. Course considers literary and visual representations of pure lands and their inhabitants, as well as related practice traditions. Special emphasis on Chinese traditions. Previous courses in Asian visual cultures and/or Buddhist studies recommended. (Formerly course 154D.) (General Education Code(s): CC, A.) R. Birnbaum

127C. Ritual in Asian Religious Art. *
Examination of interaction between image and ritual in Asian religious art. Case studies from different historical periods and geographical locations (e.g., China, Tibet, Japan, Indonesia, India). Examples include mandalas, ritual bronzes, tankas, sacred caves, temples, tea ceremonies, and calligraphy. (Formerly course 105E.) (General Education Code(s): IM, A, E.) The Staff

127D. Storytelling in Asian Art. *
Combination of theoretical perspectives on narrative from literary criticism, rhetoric, folklore, and film theory with art historical focus on images (cave temples, stone reliefs on stupas, scrolls, dance-drama, etc.) from India, Pakistan, China, Japan, Cambodia, and Indonesia. (Formerly course 160.) (General Education Code(s): A, E.) The Staff

127E. Modern/Contemporary Architecture of the Asia Pacific. *
Examines 20th- and 21st-century architecture in China, Japan, Korea, Australia, New Zealand, Papua New Guinea, Hawaii, Samoa, and the Philippines. Examines how aesthetic, socio-political, economic, and technological networks have contributed to Asia Pacific's dynamic and experimental approaches to contemporary architecture. (General Education Code(s): IM.) The Staff

133A. Themes in the Study of Medieval Visual Culture. *
Many issues associated with contemporary artistic production and visual culture originated in the Middle Ages. Themes to be considered: role of secular art; women as artists and patrons; aesthetic attitudes; relationship between cultures in holy war, crusade, and pilgrimage. (Formerly course 129.) (General Education Code(s): IM, A.) The Staff

135. History of Art and Visual Culture in Europe.
The Staff

135B. German Art, 1905–1945. *
Expressionism, agitprop, the Bauhaus, New Objectivity, attacks on modernism, National Socialist realism. Painting, sculpture, graphic art, and some architecture and film, studied in the context of political events from the eve of World War I to the end of World War II. (Formerly course 136.) (General Education Code(s): IM, A.) D. Hunter

135D. French Painting, 1780–1855. *
The art of David, Gros, Ingres, Gericault, Delacroix, the Barbizon School, and Courbet studied in relation to the changing status of the art and the political events from 1789 to 1848. (General Education Code(s): IM, A.) D. Hunter

135E. Jewish Identity and Visual Representation. *
An exploration of the theoretical and practical or experiential applications of Jewish identity in European visual representation. Brief background on pre-emancipation textual and cultural issues followed by study of the Jewish subject and Jewish subjectivities in modernity. (Formerly course 172.) Enrollment restricted to juniors and seniors. (General Education Code(s): IM, A, E.) The Staff

135F. History of the Book. *
History of book production and use in the West from antiquity to modern times. Development from roll to codex and from script to print. Emphasis on the relationship between text and image. Class conducted in Special Collections, McHenry. Exhibition as class project. (Formerly course 153.) (General Education Code(s): A.) E. Remak-Honnef

135H. Topics in European and Euro-American Visual Culture. *
Consideration of how and why Europeans in Europe and Europeans and European-Americans in North America blended nature and human response between 1600 and the present in a variety of media and practices (painting, maps, photography, tourism, film, scouting, artist colonies). May be repeated for credit. (General Education Code(s): IM.) D. Hunter

135P. Paris, "Capital of the 19th Century". *
Examines the places, spaces, practices, and representations of Paris in the 19th century. Tracing the changing face(s) of Paris by way of its literary and visual representations, students consider the experiences and constructions of the modern city. (General Education Code(s): IM.) The Staff

137. Renaissance.
The Staff

137A. Northern Renaissance Art. *
Considers the painting and prints produced in Northern Europe in the 15th and 16th centuries. Major issues include the status of realism and classicism, the role of religion and religious reform, and the rise of popular imagery. (Formerly course 105R.) (General Education Code(s): A.) The Staff

137B. Italian Renaissance: Art and Architecture. *
Lives of Italian Renaissance people from birth to death, examining the nature and roles of the institutions which defined human existence in this period. Uses visual arts both illustratively and to study how institutions fashioned their images through art and architecture. (Formerly "Italian Renaissance: Representation and Institutions.") (General Education Code(s): IM, A.) A. Langdale

137C. High Renaissance. *
An investigation of the High Renaissance as a period and stylistic concept, using the major artists and monuments of the period 1480–1525 to discuss issues of theory, history, and art. Artists considered include Leonardo da Vinci, Michelangelo, and Raphael. (Formerly course 168.) (General Education Code(s): IM, A.) The Staff

137D. Art of the Venetian Renaissance. W
Considers Venetian art in the 15th and 16th centuries. Topics include major artists (the Bellini, Carpaccio, Titian, Tintoretto, Veronese, Palladio) and the relationship of the city to outside forces (Byzantine Empire, Turkish Empires) and other Italian cities. (Formerly course 189V.) (General Education Code(s): IM, A.) A. Langdale

137E. Renaissance Prints. *

Examines the issues surrounding the technology and uses of printed images from the early Renaissance through the end of the early modern period. Topics may include the political, religious, and satirical uses of prints and the representation of women in prints. (General Education Code(s): IM, A.) The Staff

140. History of Art and Visual Culture in the U.S..
The Staff

140A. America in Art. *
Introduction to American visual arts: architecture, painting, photography, sculpture, and performance art, from the nineteenth through the twenty-first century. Explore social and political meanings of art and what art reveals about our nation's values and beliefs, in particular, gender and race. (Formerly course 126.) (General Education Code(s): IM, A.) M. Berger

140B. Victorian America. F
Examines how American writers and artists negotiated complexities of U.S. society during the 19th century. Emphasis on issues ranging from women's rights to laissez-faire capitalism, and from Reconstruction to manifest destiny. Considers how the era's cultural products provided artists, patrons, and audiences with metaphorical coping strategies to counteract what Victorians perceived to be the period's overwhelming social and political changes. (Formerly course 178A.) (General Education Code(s): ER, A.) M. Berger, The Staff

140C. Race and American Visual Arts. *
Investigation of the role played by visual arts in fashioning the racial identities of European-Americans, African Americans, Asian Americans, Native Americans, and Latinos in the United States. (General Education Code(s): ER, A, E.) M. Berger

140D. Chicano/Chicana Art: 1970-Present. *
Taking the terms "Chicano" and "Chicana" as a critical framework, addresses cultural and conceptual themes in visual art production since 1970. Questions concerning aesthetics, identity, gender, and activism in painting, photography, murals, and installation art explored. (Formerly course 182.) (General Education Code(s): ER, A, E.) J. Gonzalez

140P. Pop Culture as High Art. *
Examines how Pop Art and popular culture in the Untied States were (re)formulated into public icons that challenged the visual and ideological associations between "high" and "low" art. (Formerly Pop and Popular Culture.) (General Education Code(s): IM.) The Staff

141. Modern Art and Visual Culture in Europe and the Americas.
The Staff

141A. Modern Art: Realism to Cubism. F
Modern art in Europe and America, 1848-1914. Consideration of painting, graphic arts, and sculpture in Realism, Impressionism, Post-Impressionism (Symbolism) Art Nouveau, Fauvism, and Cubism as well as exploration of photography's changing status and influence. (General Education Code(s): IM, A.) D. Hunter, The Staff

141B. Modern Art: Cubism to Pop. W
From Paris to New York, cubism to conceptual art, an introduction to visual arts and theories of representation produced in the U.S. and Western Europe between 1910 and the 1960s, with attention to the social and political role of the art market, criticism, and censorship. Students cannot receive credit for this course and Digital Arts New Media 241B. (General Education Code(s): IM, A.) J. Gonzalez

141C. Modern Art: Pop to Present. S
Surveys major art forms and critical ideas that have shaped artistic practice from the 1950s to the present, including an overview of the socio-political, economic, and cultural forces that inspire artists to articulate human experience in visual form. (General Education Code(s): IM.) D. Murray, The Staff

141E. Histories of Photography. *
Introduction to the histories of photography and the critical debates around different photographic genres such as medical photography, art photography, and political photography. Students will develop a critical language in order to analyze photographs while considering the importance of social and institutional contexts. (Formerly course

149A.) (General Education Code(s): IM, A.) J. Gonzalez, The Staff

141F. The Camera and the Body. *
Through the study of historical and contemporary visual texts (from ethnography and portraiture to advertising and erotica), this course explores how photographic images of the body, while masquerading as "natural," "self-evident," or "scientific," participate in highly coded sign systems that influence who looks at whom, how, when, and why. (Formerly course 180.) (General Education Code(s): IM, A.) J. Gonzalez

141H. Media History and Theory. *
An introductory examination of the writing about the issue of "medium" and media theory in visual culture. Technologies, discourses, and practices from all periods that use the comparison of media as a major approach to understanding the problems of the visual are highlighted. New media, film, television, video, traditional arts are also treated. (Formerly course 131.) (General Education Code(s): IM, A.) The Staff

141I. Environments, Installations, and Sites. *
A study of conceptual and formal issues that have informed the production of temporary, site-specific art works since 1960. Works that seek to transform the role of the audience, to escape or remake museum and gallery spaces, to introduce environmental concerns, or to situate art in "the land" or in "the street" serve as a focus. (Formerly course 181.) Enrollment limited to 35. (General Education Code(s): IM, A.) J. Gonzalez

141J. Critical Issues in Contemporary Art and Visual Culture. W
Considers the relationship between art, cinema, and postmodernism. Specific, thematically oriented topics are considered including: the impact of cinema aesthetics on contemporary art; film and digital technology; cinematic structure as cultural critique; and filmic strategies as an ideological tool. (General Education Code(s): IM.) D. Murray

141K. Activist Art Since 1960: Art, Technology, Activism. *
Students explore art and technology produced for social change since 1960 within the context of major historical ruptures, such as the Vietnam War, the women's movement, environmental protection, AIDS activism, anti-capitalist, and international human rights movements. (Formerly course 141C.) (General Education Code(s): IM, A, E.) The Staff

143. Architecture.
The Staff

143A. Contemporary Architecture and Critical Debates. *
Examination of practitioners, projects, issues, and theories in contemporary architecture circa 1968 to the present. Topics include the architecture of aftermath, the ethics of memory and memorialization, the corporatization of museums, the role of criticism and exhibitions, and the cult of the brand-name architect. (Formerly course 124.) (General Education Code(s): IM, A.) The Staff

143B. History of Urban Design. *
Examines urban design from the Renaissance to the present, including Latin American colonial cities, Utopian plans, and sites such as Brasilia and Chandigarh. The course focuses on social justice, diversity, and the role of art and architecture. Enrollment restricted to juniors and seniors. (General Education Code(s): IM.) The Staff

143C. Latin American Modern Architecture. *
Presents Latin America's modern architecture with relation to colonization; the influence of immigrants from Europe, Africa, and Asia; the presence of indigenous cultures; and the search for autonomy. Case studies include Argentina, Brazil, Chile, Mexico, Venezuela, and Uruguay. (General Education Code(s): CC, A, E.) The Staff

143D. Architecture and the City in Modern and Contemporary Visual Culture. *
Examines the modern and contemporary depictions of cities in visual and material culture, from paintings and photographs to logotypes and souvenirs. Also examines the roles of narrative in spatial representations, including literature, film, and television productions. Enrollment restricted to juniors and seniors. (General Education Code(s): IM.) The Staff

143F. Constructing Memory and Place in Postwar Architecture. *
How have architects engaged memory and place in architectural projects and built landscapes since World War II? Examines memorializing, memory, and erasure of place in

reconstruction of cities, creation of memorials, and design of buildings. (Formerly course 174C.) Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 35. (General Education Code(s): A.) The Staff

151. Greek Myths Antiquity to the Present. *
Myths dominated the culture and visual production of the ancient Greek world, and their presence is still strong today. How did they codify social, political, and religious realities and needs? How were they perceived in different time periods? In addition to ancient Greek and Roman and later European sculptures and paintings, this course considers less conventional sources, such as modern films, comics, and advertisements. Course 51 recommended as preparation.. (Formerly course 106I, Myth in Greek and Roman Art.) (General Education Code(s): IM, A.) M. Evangelatou

154. Byzantine Visual Culture: Politics and Religion in the Empire of Constantinople, 330-1453 A. C.. W
Centered on the capital city of Constantinople (modern Istanbul), the Hellenized and Christianized Roman Empire of the Easter Mediterranean today known as Byzantium played a major, yet often overlooked, role in European history for more than a millennium. This course examines its visual production and relation to politics and religion in court and church ceremonial, expressions of Christian faith, and cultural interactions with Western Europe, Islam, and the Slavic world. (Formerly course 104A, Byzantine Visual Culture: Politics and Religion in New Rome, 300-1453 A. D.) (General Education Code(s): IM, A.) M. Evangelatou

155. Constructing Cleopatra: Power, Sexuality, and Femininity Across the Ages. S
The construction of female identity and the "production" of history through the myth of Cleopatra. Critical analysis of archeological data and ancient sources, later sculptures and paintings, and contemporary films, movies posters, Internet sites, advertisements, comics, games, dolls, and household objects. (General Education Code(s): IM.) M. Evangelatou

160. Topics in Pre-Hispanic Visual Culture.
The Staff

160A. Pre-Hispanic Visual Culture: Mexico. W
Art and architecture of selected pre-Hispanic cultures from the gulf coast, central, western, and southern Mexico including the Olmec, Zapotec, Toltec, Mixtec, Mexica (Aztec), and others. (General Education Code(s): CC, A.) C. Dean, The Staff

160B. Pre-Hispanic Visual Culture: The Andes. *
The art of selected pre-hispanic cultures of Colombia, Ecuador, Peru, and Bolivia including the Nazca, Moche, Chimu, and Inca. (Formerly Pre-Hispanic Andes.) (General Education Code(s): IM, A.) C. Dean

162. Advanced Studies in Pre-Hispanic Visual Culture.
The Staff

162A. The Maya. *
The art and architecture of the Maya of southern Mesoamerica from the first century C.E. to ca. 1500. Courses 80, 60, or 160A recommended as preparation. (Formerly course 150A) (General Education Code(s): CC, A.) C. Dean

162B. The Inka. *
The visual culture of the Inka of the Andean region of western South America including textiles, metalwork, and the built environment. Courses 80 (formerly 10E) or 60 (formerly 80M) recommended as preparation. (General Education Code(s): CC.) C. Dean

163. The Native in Colonial Spanish America. *
Indigenous contributions to colonial Spanish American visual culture including architecture, manuscripts, sculpture, painting, textiles, feather-work, and metallurgy. Focus on colonial Mexico, the Andes, and California. (Formerly course 151A.) (General Education Code(s): ER.) C. Dean

170. Art of the Body in Oceania. S
Explores "art of the body," defined broadly, from various perspectives. Examines colonial representations of Oceanic bodies, self-representation through bodily adornment and display (including tattoo, scarification, body painting, ornament, and dress), and bodily

metaphors in Oceanic visual cultures. (General Education Code(s): ER, A, E.) S. Kamehiro

172. Textile Traditions of Oceania. *
Investigates how textiles contribute to cultural fabric of Oceania. Explores women's roles in socioeconomic exchanges and cultural production; gender issues regarding production and function of Oceanic textiles; and history of processes, functions, and aesthetics. Prerequisite: Prior coursework related to Oceania recommended. (Formerly course 187A.) (General Education Code(s): CC, A, E.) S. Kamehiro

179. Topics in Oceanic Visual Culture. F
Examines selected and changing topics in the study of oceanic visual culture. The specific topic varies with each offering in order to keep up with recent directions in scholarship. Possible topics include: archaeological material and visual cultures; colonial-era images, objects, and spaces; architecture and environments; performance; gender; race and ethnicity; modern/contemporary art and visual culture; and/or a regional focus. May be repeated for credit. (General Education Code(s): CC.) S. Kamehiro, The Staff

180A. Global Contemporary Art. F
Examines selected and changing topics in the study of contemporary art in a globalized world but outside of Europe and Euro-America where contemporary arts forms move across discrete geographical areas along newly developing networks. The specific topic varies with each offering to keep up with recent directions in scholarship. May be repeated for credit. (General Education Code(s): CC.) The Staff

190. Seminars in the History of Art and Visual Culture.
The Staff

190A. African Art and Visual Culture. *
Advanced seminar requiring intensive research and writing on changing topics related to a specific area of African art and/or visual culture chosen to demonstrate critical mastery of this subject. (Formerly course 191O.) Prerequisite(s): courses 100A, and 80 or 10. Enrollment restricted to history of art and visual culture majors or minors or by permission of instructor. May be repeated for credit. (General Education Code(s): A, E.) E. Cameron

190B. Play and Ritual in Visual Cultures. *
Compares how play and ritual construct worlds and regulate visual cultures—from dolls to "ritual" objects and performances. Attention given to areas where play and ritual overlap and the visual cultures that result. (Formerly course 191F.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A, E.) E. Cameron

190C. The Mediterranean from the Rise of Christianity to the Rise of Islam. *
Examines the visual culture of the Mediterranean from the 3rd to the 7th centuries A.D., focusing on the historical and cultural developments which led to the survival of the Eastern Roman Empire and its transformation to what we call Byzantium. (Formerly course 153.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): IM, A.) M. Evangelatou

190D. The World of the Lotus Sutra. *
Close study of the principal text of East Asian Buddhism as a self-enclosed vision of reality, with careful consideration of the forms and functions of the world of visual and aural representation that it has inspired. Prerequisite(s): course 100A and 127A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) R. Birnbaum

190E. Huayan Visions. *
Explores the distinctive conceptual world of the Buddhist Huayanjing (Avatamsaka-sutra) and its expression in visual forms. This long text, composed in Sanskrit and later translated into Chinese, is a principal scripture of the international Mahayana Buddhist traditions of Asia. (Formerly course 190I.) Prerequisite(s): course 100A; course 127A. An upper-division course in Buddhist studies is recommended. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) R. Birnbaum

190F. Chan Texts and Images. *

Examines selected issues in history of Chan (Zen) Buddhist traditions in China from medieval times to the present day. Concepts, methods, and visual expression of Chan practice situated through study of texts and visual materials. (Formerly course 191H.) Prerequisite(s): course 100A, and course 127A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) R. Birnbaum

190G. Buddhist Wisdom Traditions. *
Careful study of Mahayana Buddhist perfection-of-wisdom traditions--texts and related material culture, including visual imagery and illustrated books--with focus on the particular vision of reality that they aim to produce or reveal. (Formerly course 191Z.) Prerequisite(s): courses 100A and 127A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) R. Birnbaum

190J. Visual Cultures of the Vietnam-American War. S
Examines the visual culture of the Vietnam-American war and its legacy in contemporary art of Southeast Asia. Considers representations in different media: painting, drawing, photography, film, novels, and material cultures. Issues addressed include memory, trauma, identity politics, body, race, gender, pornography, and prostitution. (Formerly course 191A.) Prerequisite(s): course 100A or permission of the instructor. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor . (General Education Code(s): ER, A, E.) B. Ly

190K. Thematic Approach to Visual Cultures of Southeast Asia. *
Undergraduate seminar that takes topical and thematic approach to looking at ancient or modern and contemporary arts of Southeast Asia (e.g., textile, water in arts and architecture, comparative modernity, race, gender, and sexuality). The specific topic and theme varies from year to year. Prerequisite(s): course 100A, or by permission of instructor. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. Enrollment limited to 18. B. Ly

190M. Representations of Women in Indian Art. *
Deals with representations of the female divinity in Indian religious imagery, and of women in secular and courtly paintings. Also examines roles women play in the production of art in the Indian subcontinent. (Formerly course 190U.) Prerequisite(s): course 100A. Enrollment restricted to junior and senior history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A, E.) K. Thangavelu

190O. Berlin: History and the Built Environment. *
Explores Berlin's urban and architectural history through themes: the meaning of memory in architecture; the political and cultural implications of preservation, globalization, and tourism. Because these questions are relevant beyond Berlin, course draws comparisons with other cities. Prerequisite(s): course 100A. Enrollment restricted to junior and senior history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) The Staff

190P. Death and Patriotism: The Case of the French Revolution. *
What are the relations between the mortal body and politics in times of crisis? What purposes can death, or the threat of death, serve? Examines representations of executions, assassinations, and funerals during the French Revolution, with an emphasis on the Terror. Prerequisite(s): course 100A. Enrollment restricted to junior and senior history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) D. Hunter

190Q. Portraiture: Europe and America, 1400-1990. *
Western portraiture and self-portraiture at certain key moments (early modern Italy, 16th-century Germany, 17th-century Holland, France from the reign of Louis XIV to the Revolution, contemporary U.S.) are explored by reading 20th-century interpretations and some primary sources. This course can be taken for senior exit credit only by permission of the instructor. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) D. Hunter

190S. New Directions in Contemporary Art. *

Explores how critical theory illuminates forms of cultural production, from art and cinema to popular culture. Considers how scholars, artists, and filmmakers use critical theory both creatively and in the study of aesthetic objects and experiences. (Formerly Critical Issues in Contemporary Art and Visual Culture.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. D. Murray

190T. Topics in Pre- and Post-Columbian Visual Culture. W
Seminar on changing topics related to the current scholarship on pre-Hispanic and colonial Spanish American visual culture. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors or by permission of instructor. May be repeated for credit. The Staff

190U. Word and Image in Illuminated Byzantine Manuscripts. *
Religious, scientific, and secular manuscripts of Byzantium: examines how words and images interacted to express and promote central concepts of Byzantine culture; serve liturgical needs of private devotion; reflect imperial ideals; diffuse moral values and knowledge; and proclaim social status and cultural affiliations. (Formerly course 190R.) Prerequisite(s): course 100A, and course 154 or permission of instructor. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) M. Evangelatou

190V. Cult of Mary in Byzantium. *
Why did the cult of the Virgin Mary become so important in Byzantine culture? Examines historical, cultural, theological, political, and social reasons for this development, seen through the interaction of Byzantine visual culture and literature. (Formerly course 191X.) Prerequisite(s): courses 100A and 154. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) M. Evangelatou

190W. Art and Culture Contact in Oceania. *
Examines impact of culture contact on Oceanic and Euro-American visual cultures in context of "discovery," colonialism, and "postcolonialism." Topics include 18th-century visual culture, colonial identities, primitivism, syncretism, impact of Christianity, contemporary art/market, media, tourism, transnationalism, and globalization. (Formerly course 190O.) Prerequisite(s): course 100A; prior course work related to Oceania recommended. Enrollment restricted to history of art and visual culture majors and minors, or by permission of instructor. (General Education Code(s): A, E.) S. Kamehiro

190X. Art and Identity in Oceania. S
Theoretical discussions and Pacific Basin case studies on 1) definitions of cultural, ethnic, and national identities; 2) relationship between art, museums, and construction of historical and cultural narratives; 3) ways "tradition" defined in art practices and used by groups to assert an identity in their present. Participants first develop a theoretical framework and vocabulary for analyzing artistic production in a variety of cultures. Through specific case studies, will explore how art, architecture, and museums actively contribute to define and challenge ethnic and national identities. (Formerly course 191P, Art and Identity in the Pacific: Creating and Challenging Ethnic and National Identities.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors, or by permission of instructor. (General Education Code(s): ER, A, E.) S. Kamehiro, The Staff

191. Seminars in the History of Art and Visual Culture.
The Staff

191A. Iconoclasm. *
What happens when, to control an object, it is destroyed? Examines destruction of art as a way of ending the object's life cycle, as a device of social tension/change, and as a colonial and post-colonial mechanism of religious/political control. (Formerly course 191C.) Prerequisite(s): course 100A; and course 80 or permission of instructor. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A, E.) E. Cameron

191B. The Virgin of Guadalupe: Images and Symbolism in Spain, Mexico, and the U.S. *
Focus on the histories of miraculous images of La Virgen de Guadalupe de Extremadura

(Spain) and La Virgen de Guadalupe de Tepeyac (Mexico). The foundations and growth of the cult of the Mexican Guadalupe during the colonial period is examined along with the multivalent symbolism of her image. Considers contemporary "appearances" of the Virgin of Guadalupe, from the miraculous images on a tree in central California and the compositions of Chicano artists, to mass-produced kitsch. (Formerly course 190B.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A, E.) C. Dean, The Staff

191C. Subalternatives: Representing Others. *
Explores how visual representation (in fine art, popular art, film, and television) encodes difference in selected cultural and historical contexts. Considers (post)colonial image-making both as a strategy of domination as well as resistance. (Formerly course 190C.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): ER, A, E.) C. Dean

191D. Semiotics and Visual Culture. *
How can visual culture be understood as the production, circulation, and recirculation of signs? This course offers a history of semiotics and its methodological application in the analysis of images in popular culture and within the discipline of art history. (Formerly course 190S.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) J. Gonzalez

191E. Feminist Theory and Art Production. *
A close reading of works of art and theoretical texts by feminists working from 1970 to the present. The course encourages debate around the past, present, and future relevance of feminist theories to visual cultural studies, paying particular attention to issues of cultural and ethnic difference. (Formerly course 190T.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. Enrollment limited to 18. (General Education Code(s): A.) J. Gonzalez

191F. Image and Gender. F
Examines what visual representations (feminine and masculine) reveal of gender in 19th- and 20th-century European and American culture; how images reflect norms of gender; and how we are conditioned to read images in gendered terms. Explores how femininity and masculinity were conceived during historical periods and how gender ideals changed in response to social, political, and economic pressures. Students encouraged to consider the fluid nature of 21st-century notions of ideal femininity and and masculinity and possible alternatives. (Formerly course 190Y.) Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. (General Education Code(s): A.) M. Berger, The Staff

191G. Art, Cinema, and the Postmodern. F
Explores how theory can illuminate various forms of cultural production from art and cinema to popular and material cultures. Considers how scholars and visual producers utilize theory creatively and in the study of aesthetic objects and experiences. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. D. Murray

191H. History and Theories of Architectural Preservation. *
Examines the meanings of architectural preservation with relation to memory, identity, tourism, gentrification, and urban disasters. Combines the study of theories and concepts of preservation with examples of buildings and urban sites from the whole world. Prerequisite(s): course 100A; and one of the following or permission of instructor: course 43, 143B, 143C, or 143D. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. The Staff

191I. Topics in Architecture and Urban History. *
Focuses on selected topics in the history of art and visual culture. Topics vary depending on instructor. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. May be repeated for credit. The Staff

191M. Museum Exhibitions. *
Students create and install and exhibition. Students take the roles of museum departments, moving the project from concept to installation.The impact exhibitions make in culture and society is examined throughout each step of the process. Prerequisite(s): courses 100A and 141M. Enrollment restricted to History of Art and Visual Culture majors and minors. Enrollment by instructor permission. E. Cameron

191N. Topics in Renaissance Art and Visual Culture. *
Seminar on changing topics related to the current scholarship on the art and visual culture of the Renaissance. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. May be repeated for credit. The Staff

191O. Seminar Topics in Oceanic Visual Culture. *
Seminar on current scholarship on Oceanic visual culture. Topics include pre-colonial, colonial, and post-colonial visualities; place and the built environment; performance; race; gender; travel and tourism; cultural institutions. Enrollment restricted to history of art and visual culture majors and minors. (General Education Code(s): CC.) S. Kamehiro

191P. Topics in Contemporary Art. *
Addresses changing topics in contemporary art. The specific topic varies with each offering to keep up with new directions in scholarship. Prerequisite(s): course 100A. Enrollment restricted to history of art and visual culture majors and minors or by permission of instructor. May be repeated for credit. (General Education Code(s): IM.) The Staff

195. Senior Thesis. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Independent field study away from the campus. Students submit petition to sponsoring agency. The Staff

198F. Independent Field Study (2 credits). F,W,S
Independent field study away from the campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

201. Introduction to Visual Studies. F
Introduces the visual studies discipline and the History of Art and Visual Culture Department, providing students with an overview of the field's development, its issues of central concern, and its dominant research methods. Features intensive readings, student-led discussions, and exposure to some of the primary texts instrumental in the development of the field. Required seminar for all first-year visual studies graduate students. Enrollment restricted to graduate students. J. Gonzalez

202. Theories of the Visual. W
Offers detailed theoretical readings to familiarize students with the methodological frameworks and debates that laid the groundwork for the field as well as those that have proven productive for practitioners of visual studies. (Formerly Critical Theory.) Enrollment restricted to graduate students. E. Cameron

203. Theories and Histories of Seeing. S
Provides an in-depth case study of the visual practices and culture of a specific society. Builds on the foundation established by courses 201 and 202, offering sustained application of the general methods and theories to which students were previously introduced. The society under consideration rotates each year depending on the research interest of the faculty member teaching the course in any given spring. Prerequisite(s):

courses 201 and 202. Enrollment restricted to graduate students. May be repeated for credit. D. Hunter

204. Grant Writing (2 credits). *
Devoted entirely to writing grant proposals. Students work on grants for educational support, their doctoral dissertation grants, or both. (Also offered as Film and Digital Media 204. Students cannot receive credit for both courses.) Enrollment restricted to visual studies and film and digital media graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

212. Yoruba Visualities and Aesthetics. *
Yoruba conceptions of visuality are explored and compared to seeing through Western eyes. Critical reading focuses on Western and Yoruba scholars' work on visualities and complementary theoretical writings on Yoruba aesthetics and philosophy. Enrollment restricted to graduate students. E. Cameron

213. Theories and Visual Cultures of Iconoclasm. *
Examines theories that attempt to explain iconoclasm, the willful destruction of religious or political objects, by applying the theory to various case studies. The universal aspect of iconoclasm and the differences in understanding and practice are explored. Enrollment restricted to graduate students. E. Cameron

220. Topics in Asian Visual Studies. *
Examines selected and changing topics in the visual studies of Asia. The specific topic varies with each offering to keep up with recent directions in scholarship. Enrollment restricted to graduate students. May be repeated for credit. B. Ly

222. The Image of Arhat in China. *
Indian Buddhist sage-monks (arhats) are portrayed in China in ways that represent a remarkable variety of visual/historical/practice traditions. This seminar examines these depictions and explores the ranges of means and functions attached to this theme. Enrollment restricted to graduate students. R. Birnbaum

224. Engaged Buddhism and Visual Culture. *
Begins with an analysis of photography and films capturing the Gandhian and Dalit movement in India. Students then read key Buddhist texts on engaged Buddhism, and look at the rise of engaged Buddhism in Southeast Asia in the 1960s and how it impacted modern and contemporary art in Southeast Asia and its diaspora. Enrollment restricted to graduate students. B. Ly

232. The Monument Since 1750 in Relation to Nationhood and the Experience of War. *
Investigates modern monuments (1750 to present) and the creation or maintenance of a nation, especially in terms of war and its immediate aftermath. Destruction or alteration of monuments and production of anti- or counter-monuments are also examined. Enrollment restricted to graduate students. D. Hunter

233. Topics in Contemporary Art and Visual Culture. *
Examines selected and changing topics in the contemporary art and visual culture. The specific topic varies with each offering to keep up with recent directions in scholarship. Enrollment restricted to graduate students. May be repeated for credit. The Staff

235. Photography and History. *
Investigates the complex relationship between photography and history. Considers the evolving perceptions of photography's capacity to capture reality, the discursive means by which photographic "truths" are produced, and the utility of photographs as primary evidence. Enrollment restricted to graduate students. The Staff

240. Seeing Race. *
Investigates how discursive systems racialized the sight of various racial and ethnic groups in 19th- and 20th-century U.S. society. Focuses on the construction and maintenance of racial values systems and on the historically specific ways in which an eclectic assortment of visual artifacts have been read by groups over time. Considers the visual and material implications of race-based sight. Enrollment restricted to graduate students. M. Berger

243. Alternative Architecture. *
Focuses on what is commonly left out of architectural history: the ephemeral, informal,

illegal, and uncertain. Topics include: anonymous and collective architecture; temporary interventions; everyday urbanism; and vestigial urban spaces. These topics are understood through theories of space as socially produced (Henri Lefebvre, Michel de Certeau, among others), and through cultural movements and manifestoes (Situationist International, Aesthetics of Hunger, etc.) Enrollment restricted to graduate students. The Staff

245. Race and Representation. *
Explores how human subjects come to be visually defined and marked by "race" discourse. Covers diverse theoretical literatures on the topic, primarily in visual studies, but also in cultural studies, post-colonial studies, and psychoanalysis. (Also offered as Feminist Studies 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. J. Gonzalez

250. The Cult of Mary in Byzantium: Visualities of Political, Religions, and Gender Constructs. W
Through the study of the Byzantine cult of Mary, we examine diverse modalities in the construction and interaction of political, religious, and gender values, and we investigate the interrelated role of images, rituals, and text in human experience, expression, and communication. (Formerly The Cult of Mary in Byzantium.) Enrollment restricted to graduate students. M. Evangelatou

260. Visual Literacy in Spanish America, 1500-1800. *
Visual literacy is considered as a particular predicament of colonial societies. Students consider the legibility of artifacts in colonial Spanish American contexts given its culturally diverse audiences and examine specific instances of (mis)interpreted images and transcultured representations. Enrollment restricted to graduate students. C. Dean

270. Colonial Cultures of Collecting and Display. *
Examines collections and exhibitions of colonized people, places, and objects through primary sources, theoretical texts, and analytical case studies (with some emphasis on Oceania). Focuses on visual discourses of race, science, religious conversion, colonial settlement, nation-building, education, and entertainment. Enrollment restricted to graduate students. S. Kamehiro

280. Visual Studies Issues. S
Examines selected and changing issues in visual studies. The specific issue varies with each offering to keep pace with recent directions in scholarship. Enrollment restricted to graduate students. May be repeated for credit. C. Dean

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to course-sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study or research for graduate students. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study (2 credits). F,W,S
Students submit petition to course-sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to course sponsoring agency. Enrollment restricted to graduate students. The Staff

* Not offered in 2014-15

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History of Consciousness

2014-15 General Catalog

415 Humanities 1
(831) 459-2757
http://histcon.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

12. Historical Introduction to Philosophy. *
Focuses on moral, metaphysical, and epistemological issues using classical texts along with some contemporary readings on related philosophical problems. Plato, Kant, and Sartre provide the central readings on ethics, while Descartes, Hume, Kant (again), and Wittgenstein provide the central metaphysical and epistemological discussions. Issues of philosophy of language and method are highlighted throughout. (General Education Code(s): TA, IH.) J. Neu

80U. Modernity and Its Discontents. W
Offers an introduction to the idea of modernity from Kant to Freud, Niezsche to Fanon. (General Education Code(s): T4-Humanities and Arts.) D. Marriott

85. Politics and Religion. F
Considers both the religious sources of political ideas and the political sources of religious ideas, addressing topics, such as sovereignty, justice, love, reason, revelation, sacrifice, victimhood, evil, racism, rebellion, reconciliation, and human rights. (Formerly course 114.) R. Meister

Upper-Division Courses

102. Philosophy and Poetics. *
Introduction to the relationship between philosophy and poetics in some major 19th- and 20th-century poets and thinkers. Enrollment restricted to juniors and seniors. Enrollment limited to 30. D. Marriott

111. States, War, Capitalism. *
Survey of seminal work on ancient origins of the state, diverse geo-political systems of war and diplomacy, and consequences of the formation of the world market on the evolution of geo-political systems up to and beyond the wars of today. Enrollment restricted to juniors and seniors. Enrollment limited to 35. G. Balakrishnan

112. Foundations in Critical Theory. *
Concentrates on the Marxist tradition of critical theory, centering on classical texts by Marx and by writers in the Marxist tradition up to the present. Enrollment limited to 150. (General Education Code(s): TA.) G. Balakrishnan

115. Comedy and the Question of the Comic. S

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- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
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- Technology and Information

Introduces the concept of the comic; how the concept of the comic has been theorized at times, from antiquity to the 20th century; forms the comic has taken and how it structures our experiences; and theories of the comic. (General Education Code(s): TA.) M. Holohan

118. Jewish Social Movements. *
Jewish social movements of the late 19th and 20th centuries, in Europe (Eastern and Western) and the U.S.: the confrontation between Hasidism and Haskahah, tensions between socialism and Zionism, between religiosity and secularism, the mutual influences among these tendencies. (Also offered as History 185D. Students cannot receive credit for both courses.) Enrollment restricted to juniors and seniors. Enrollment limited to 20. (General Education Code(s): E.) The Staff

119. Politics of Recognition. *
Course touches on the philosophical roots of Hegel's text, starting from the pre-World War II rereading of Hegel's master/slave dialectic that became the kernel of postwar thought arising from struggles over capitalism, communism, fascism, racism, colonialism, and feminism. R. Meister

125. Queerness and Race. *
Gives students a grasp of different definitions and uses of the concept queerness in its relationship to race and how it's tied to the politics of lesbian, gay, bisexual, and transgender (LGBT) identity. Enrollment limited to 25. The Staff

139A. Market Crises and the Future of Capitalism. F
Examines the development and role of late 20th- and early 21st-century financial technologies in modern market crises. Enrollment limited to 40. The Staff

139B. Materialism and Financial Markets. S
Continuation of course 139A. Examines the development and role of late 20th- and early 21st-century financial technologies in modern market crises. Enrollment limited to 40. The Staff

146. Philosophy of Law. *
Exploration of selected problems in jurisprudence: "legal reasoning" and social policy, rules and individual cases, the mental element in the law, punishment and responsibility, causation and fault, liberty and paternalism, etc. (Formerly Philosophy 146.) (Also offered as Legal Studies 146. Students cannot receive credit for both courses.) J. Neu

180. The Emotions. *
Analysis of particular emotions (e.g., jealousy, boredom, regret) and exploration of general theoretical issues (e.g., expression, control) with emphasis on moral psychology. Admission by interview with instructor. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 23. J. Neu

185A. Special Topics: Modern Political-Economic Thought and the European Enlightenment. F
Examines the European Enlightenment alongside contemporary and 20th-Century scholarship that is concerned with reading texts as indices of the development of the "modern world" as a new political-economic landscape distinguished by the emergence of "civil society" as an imaginary political community of formally equal individuals under law. (General Education Code(s): TA.) P. Madden

190A. Jewish Socialism in Eastern Europe, 1880-1953. *
Looks at the ongoing debate in Jewish resistance during the Second World War and ends by addressing the status of Jews and Jewish movements in the Soviet Union and Poland after the war. (Also offered as Jewish Studies 190A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 25. B. Epstein

199. Tutorial. F,W,S
A program of individual study arranged between an undergraduate student and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

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- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

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203A. Approaches to History of Consciousness. F
An introduction to history of consciousness required of all incoming students. The seminar concentrates on theory, methods, and research techniques. Major interpretive approaches drawn from cultural and political analysis are discussed in their application to specific problems in the history of consciousness. Prerequisite(s): first-year standing in the program. See the department office for more information. (Formerly course 203.) G. Balakrishnan

203B. Approaches to History of Consciousness. S
Writing-intensive course based on readings in course 203A. Prerequisite(s): course 203A. Enrollment restricted to graduate students. Enrollment limited to 9. The Staff

210A. Cultural and Historical Studies of Race and Ethnicity. *
Explores the historical construction of racial and ethnic categories in the Americas, especially the U.S., in interaction with gender, sexuality, class, and nationality. Intended to introduce current work by UCSC faculty and Bay Area scholars and to stimulate graduate student research projects, the course is organized by intensive reading around key questions, followed by presentations by invited scholars. Emphasizes research resources and methodologies. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

210B. Cultural and Historical Studies of Race and Ethnicity. *
Writing intensive course based on readings in course 210A. Prerequisite(s): course 210A. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

211A. French Hegel. F
Introduces the "return to Hegel" in the work of some major 20th-century French thinkers. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

216. Critical Race/Ethnic Studies. *
Explores foundational and emergent theoretical and methodological approaches to the study of race. Issues examined include the production of race within and across various spheres of human activity and how race has shaped notions of difference and commonality in the past and present. Enrollment restricted to graduate students. Enrollment limited to 15. E. Porter

222B. Theories of Late Capitalism. *
Writing intensive course based on readings in course 222A. (Formerly Theories of Late Capitalism, Nationalism, and the Politics of Identity.) Prerequisite(s): course 222A. Enrollment restricted to graduate students. Enrollment limited to 15. B. Epstein

230A. Poetry, Language, Thought. W
Introduces the relation between philosophy and poetics in some major 20th-century poets and thinkers. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

230B. Poetry, Language, Thought. F
Writing-intensive course based on readings in course 230A. Prerequisite(s): course 230A, or permission of instructor. Enrollment limited to 15. D. Marriott

236. On Insults. *
What is the role of insult in social and legal life (from play to jokes to ritual to war and from blasphemy to defamation to hate speech)? Emphasizes philosophical, anthropological, psychoanalytic, and legal approaches to the issues. Enrollment restricted to graduate students and by permission of instructor. (Formerly Philosophy 290Y.) (Also offered as Anthropology 236. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. J. Neu

237A. Historical Materialism. F
Students read landmark works of classical and contemporary Marxism. Writings from Marx, Lenin, Trotsky, Lukacs, Gramsci, Adorno, Benjamin, Sartre, Althusser, Anderson, Jameson, and Zizek are addressed. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. G. Balakrishnan

237B. Historical Materialism. *
Writing-intensive seminar based on course 237A. Students read landmark works of

classical and contemporary Marxism. Writings from Marx, Lenin, Trotsky, Lukacs, Gramsci, Adorno, Benjamin, Sartre, Althusser, Anderson, Jameson, and Zizek are discussed. Enrollment restricted to graduate students. Enrollment limited to 10. May be repeated for credit. G. Balakrishnan

240. Basic Principles of University-Level Pedagogy (1 credit). F
Provides training for graduate students in university-level pedagogy in general. Under the supervision of the department chair, coordinated by a graduate student with substantial experience as a teaching assistant. Enrollment restricted to graduate students. May be repeated for credit. The Staff

242A. Violence and Phenomenology: Fanon/Hegel/Sartre. *
Study of the work and influence of Frantz Fanon from a range of viewpoints: existential, phenomenological, psychoanalytic, and political; a variety of genres: film, literature, case history, and critique; and a set of institutional histories: clinical, cultural, and intellectual. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

242B. Violence and Phenomenology: Fanon/Hegel/Sartre. *
Writing intensive course based on readings in course 242A. Prerequisite: course 242A. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

243A. Nationalism, Anti-Semitism, and Jewish Resistance in World War II. *
Jewish resistance to Nazism during World War II, in Eastern Europe, and its historical context. Includes the pre-war rise in nationalism and anti-Semitism in Poland and Lithuania, Jewish integration in the Soviet Union, and the consequences for wartime resistance. (Also offered as History 256. Students cannot receive credit for both courses.) Enrollment restricted to seniors and graduate students. Enrollment limited to 15. B. Epstein

245. Race and Representation. *
Explores how human subjects come to be visually defined and marked by "race" discourse. Covers diverse theoretical literatures on the topic, primarily in visual studies, but also in cultural studies, post-colonial studies, and psychoanalysis. (Also offered as Feminist Studies 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. J. Gonzalez

252. Poststructuralism. *
French poststructuralism, with particular attention to the main philosophical texts of Jacques Derrida and Michel Foucault. Other representative theorists as well as critics of poststructuralism are studied as time permits. (Also offered as Philosophy 252. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. May be repeated for credit. The Staff

256A. Theories of the Visual. *
Study of psychoanalytic theories of the visual including the emergence of psychoanalysis and cinema as parallel discourses and the mobilization of key psychoanalytic concepts—scopophilia, voyeurism, fetishism—in Freudian and Lacanian understandings of the gaze so central to film and photographic theory. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

256B. Theories of the Visual. *
Writing intensive course based on readings in course 256A. Prerequisite: course 256A. Enrollment restricted to graduate students. Enrollment limited to 15. D. Marriott

261. Modern Intellectural History. W
Survey of 19th- and 20th-century intellectual history that focuses on a cross-section of major works from Hegel to Levi-Strauss. Enrollment restricted to graduate students. Enrollment limited to 15. G. Balakrishnan

262. Critical Theory After Habermas. S
Examines key works of Frankfurt School theorist Jurgen Habermas, his followers, and critics, on topics such as the public sphere, the theory of communicative action, power and domination, and religion and secularism. Prerequisite(s): Enrollment restricted to graduate students. T. Miller

264. The Idea of Africa. *
Examines the position of Africa in cultural studies and the simultaneous processes of over-

and under-representation of the continent that mark enunciations of the global and the local. Themes include defining diaspora, the West as philosophy, and Africa in the global economy. (Also offered as Feminist Studies 264. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. G. Dent

268A. Rethinking Capitalism. F
Readings include works by speakers at UCSC's "Rethinking Capitalism Initiative." Topics are: (1) financialization versus commodification (how options-theory has changed capitalism); (2) material markets (how this theory performs); and (3) valuation and contingency (how economies make worlds). (Also offered as Anthropology 268A. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. R. Meister

268B. Rethinking Capitalism. W
Course 268A addressed changes in the theory and practice of capitalism as derivatives markets have become increasingly central to it. This course, which can be regarded as either background or sequel, concerns questions that surround recent debates about derivatives from the standpoint of broader developments in law, culture, politics, ethics, ontology, and theology. What would it mean to see questions of contingency and value as a challenge to late-modern understandings of these modes of thought? (Also offered as Anthropology 268B. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. R. Meister

291. Advising (2 credits). F,W,S
Independent study formalizing the advisee-adviser relationship. Regular meetings to plan, assess and monitor academic progress, and to evaluate course work as necessary. May be used to develop general bibliography of background reading and trajectory of study in preparation for the qualifying examination. May be repeated for credit. The Staff

292. Practicum in Composition. *
A practicum in the genres of scholarly writing, for graduate students working on the composition of their qualifying essay or doctoral dissertation. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

293. Field Study. F,W,S
Research carried out in field settings, based on a project approved by the responsible faculty. The student must file a prospectus with the department office before undertaking the research and a final report of activities upon return. May be repeated for credit. The Staff

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. The Staff

295. Directed Reading. F,W,S
Systematic working through a prearranged bibliography which is filed as a final report at the end of the quarter with the signature of the instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
A seminar study group for graduate students focusing each quarter on various problems in the history of consciousness. A statement and evaluation of the work done in the course will be provided each quarter by the students who have participated in the course for that quarter, and reviewed by the responsible faculty. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study and research under faculty supervision. Students submit petition to sponsoring agency. The Staff

298. Doctoral Colloquium. S
Under the supervision of a History of Consciousness faculty member, students finishing their dissertation meet weekly or bi-weekly to read and discuss selected draft chapters, design difficulties and composition problems. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Prerequisite(s): advancement to candidacy. May be repeated for credit. The Staff * Not offered in 2014-15

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Italian

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. First-Year Italian. F
During the first quarter of this first-year sequence, students learn to introduce themselves, to talk about their daily activities and hobbies, to describe themselves and their friends/families, and to recount past events. The first-year sequence (1-2-3) begins in fall quarter. (Formerly Instruction in the Italian Language.) The Staff

1A. Accelerated Italian. W
The first quarter of accelerated instruction in elementary Italian language. The accelerated pace allows a rapid mastery of grammar and vocabulary, giving students a basic knowledge of Italian in only two quarters. Completion of the sequence is equivalent to the completion of the 1-2-3 sequence. This sequence starts once a year in the winter quarter. (Formerly Intensive Elementary Italian.) The Staff

1B. Accelerated Italian. S
The second quarter of accelerated instruction in elementary Italian language. The accelerated pace allows a rapid mastery of grammar and vocabulary, giving students a basic knowledge of Italian in only two quarters. Completion of the sequence is equivalent to the completion of the 1-2-3 sequence. (Formerly Intensive Elementary Italian.) Prerequisite(s): course 1A or 2 or placement by examination. For students completing course 2, course 3 is preferable. The Staff

2. First-Year Italian. W
During the second quarter of this first-year sequence, students learn to tell a story in the past, to make plans about their future, and to express commands and requests. The sequence starts once a year in the fall quarter. (Formerly Instruction in the Italian Language.) Prerequisite(s): course 1 or placement by examination. The Staff

3. First-Year Italian. S
During the third quarter of this first-year sequence, students learn to talk about historical events, to formulate hypothetical scenarios, to express wishes, desires, doubts, and opinions, and to discuss more abstract topics (e.g., immigration, work, politics). (Formerly Instruction in the Italian Language.) Prerequisite(s): course 2 or placement by examination. The Staff

4. Second-Year Italian. F
Short stories, articles, films, and newsclips are used as the basis for studying intermediate-

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
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- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
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- Latin American and Latino Studies
- Legal Studies
- Linguistics
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- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

level conversation and composition. Laboratory assignments involve use of the World Wide Web, conversations with native speakers, films and video clips. Students interested in this course who have not taken the prerequisite at UCSC should meet with the instructor, preferably prior to the first class meeting, and take the placement examination. (Formerly Intermediate Italian.) Prerequisite(s): course 1B or 3 or placement by examination. (General Education Code(s): CC, IH.) The Staff

5. Second-Year Italian. W
Reading of Italian short stories and a play are used as basis for further study and refinement of oral and written skills at the intermediate level. Particular emphasis is placed on oral/written discussion of abstract ideas and topics, and on the study of different language registers/contexts. Laboratory work is regularly assigned. Students interested in this course who have not taken the prerequisite at UCSC should meet with the instructor, preferably prior to the first class meeting and take the placement examination. (Formerly Intermediate Italian.) Prerequisite(s): course 4 or placement by examination. (General Education Code(s): CC, IH.) The Staff

6. Second-Year Italian. S
Reading of first novel in the language and weekly viewing of Italian films serve as basis for oral reports and discussions on various aspects of Italian culture and civilization. Weekly assignments, three essays, and a paper on topics derived from or related to the text. Students interested in this course who have not taken the prerequisite at UCSC should meet with the instructor, preferably prior to the first class meeting, and take the placement examination. (Formerly Intermediate-Advanced Italian.) Prerequisite(s): course 5 or placement by examination. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

106. Italian Culture Through Film. S
Film is used as a medium through which images of Italians and their culture are disseminated, perpetuated, and crystallized. Students focus on pivotal issues in Italian culture, society, history, and politics, and develop an informed opinion on relevant issues in Italian studies. The course is taught in English with a mandatory enhancement section in Italian. The enhancement section meets once a week and is designed to give students who are already familiar with the language the opportunity to discuss the films in Italian and to read/view additional material in the language. Students cannot receive credit for this course and Languages 80D. Prerequisite(s): course 6. May be repeated for credit. (General Education Code(s): CC.) G. Centineo

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Japanese

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Faculty | Program Statement

Lower-Division Courses

1. First-Year Japanese. F
Students carry out beginning-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write Japanese scripts (hiragana, katakana, and about 40 kanji). (Formerly Instruction in the Japanese Language.) The Staff

2. First-Year Japanese. W
Students carry out beginning-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 70 additional kanji. (Formerly Instruction in the Japanese Language.) Prerequisite(s): course 1 or by consent of instructor. The Staff

3. First-Year Japanese. S
Students carry out beginning-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 70 additional kanji. (Formerly Instruction in the Japanese Language.) Prerequisite(s): course 2 or by consent of instructor. The Staff

4. Second-Year Japanese. F
Students carry out intermediate-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 70 additional kanji. (Formerly Intermediate Japanese.) Prerequisite(s): course 3 or by consent of instructor. (General Education Code(s): IH.) The Staff

5. Second-Year Japanese. W
Students carry out intermediate-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 70 additional kanji. (Formerly Intermediate Japanese.) Prerequisite(s): course 4 or by consent of instructor. (General Education Code(s): IH.) The Staff

6. Second-Year Japanese. S
Students carry out intermediate-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 100 additional kanji. Emphasis is placed on developing the student's cultural knowledge relevant to inter-cultural communication. (Formerly Intermediate Japanese.) Prerequisite(s): course 5 or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation

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- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
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with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

103. Advanced Japanese. F
Students carry out advanced-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 100 additional kanji. Emphasis placed on developing the student's cultural knowledge about Japan as well as knowledge relevant to inter-cultural communication. Prerequisite(s): course 6 or by consent of instructor. The Staff

104. Advanced Japanese. W
Students carry out advanced-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 100 additional kanji. Emphasis placed on developing the student's cultural knowledge about Japan as well as knowledge relevant to inter-cultural communication. Prerequisite(s): course 103 or by consent of instructor. The Staff

105. Advanced Japanese. S
Students carry out advanced-level tasks that involve listening, speaking, reading, and/or writing, and learn how to read and write 100 additional kanji. Further development of cultural knowledge and understanding through critical examination of authentic Japanese materials in a variety of genres, including literary work, expository writing, and films. May be repeated for credit with consent of instructor. Prerequisite(s): course 104 or by consent of instructor. (General Education Code(s): TA.) The Staff

109. Japanese Language, Culture, and Society. *
Studies the social and cultural aspects of the Japanese language. Topics include language planning; writing-system reform; standard Japanese; regional variation; honorifics; gender norms and practices; age variation; communication styles; loanwords and English; and minority languages and their speakers. Readings are in Japanese. Prerequisite(s): Japanese 6 or by consent of instructor. Enrollment limited to 25. S. Okamoto

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Jewish Studies

2014-15 General Catalog

Department of History
201 Humanities
(831) 459-2982
http://jewishstudies.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Jewish Studies: Methods and Approaches. *
Examines scholarship about Jewish cultures, communities, and intellectual through the prisms of a variety of disciplines: history, anthropology, literature, feminist studies, biblical commentary, art history, philosophy, and music. Seeks to equipment students with a sophisticated understanding of the methods scholars have used to illuminate both the coherence and the diversity of Jewish experience from antiquity through the 20th Century. Enrollment limited to 20. (General Education Code(s): CC.) The Staff

190A. Jewish Socialism in Eastern Europe, 1880-1953. *
Looks at the ongoing debate in Jewish resistance during the Second World War and ends by addressing the status of Jews and Jewish movements in the Soviet Union and Poland after the war. (Also offered as History of Consciousness 190A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 25. The Staff

195A. Thesis Research. S
Devoted to independent research under the guidance of a primary thesis adviser. Students are expected to meet with their thesis adviser every two weeks to report on research progress and receive advice and criticism. Enrollment restricted to junior and senior Jewish studies majors. Students submit petition to sponsoring agency. The Staff

195B. Thesis Writing. S
Devoted to independent writing under the guidance of the primary and secondary thesis faculty advisers. Completed theses must be a minimum of 40 pages in length. Student are required to meet regular with their faculty advisers and to submit at least two drafts for detailed criticism. Prerequisite(s): Satisfaction of the Entry Level Writing and Composition requirement. Enrollment restricted to junior and senior Jewish studies majors. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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199F. Tutorial (2 credits). F,W,S

Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Kresge College

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College Office
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http://kresge.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

12A. Service Learning (3 credits). F
Students find a volunteer position with the instructor's assistance and perform community service in non-profit organizations, schools, unions, or local government agencies. Students meet weekly, keep a journal, and write a "social action witnessing" report of their experience. Enrollment restricted to college members. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): PR-S.) F. Williams

12B. Service Learning (2 credits). S
Students find a volunteer position with the instructor's assistance and perform community service in non-profit organizations, schools, unions, or local government agencies. Students meet weekly, keep a journal, and write a "social action witnessing" report of their experience. Enrollment restricted to college members. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): PR-S.) F. Williams

12C. Service Learning: Introduction to National Service/Introduction to Grant Writing (3 credits). W
A fast-paced and academically rigorous exercise in four main sections. First and foremost, participants must locate and support a community-service site for three hours each week. Each student's service commitment requires the student to attend class regularly and share community-service experience with classmates. Students are introduced to the basic requirements of a variety of national service agencies including AmeriCorp, the Peace Corp, City Year, Teach for America, and City Service. Students are required to do community-service work with a member of one of these agencies locally for four hours during the quarter. The last major section of this course teaches students the basics of grant writing and research. (Also offered as Porter College 13C. Students cannot receive credit for both courses.) Enrollment restricted to college members. (General Education Code(s): PR-S.) F. Williams

15A. The Writer as Witness (3 credits). *
Students are involved in a community service project to produce a portfolio of social-action writing that situates the writer as witness in the community. Enrollment restricted to college members. Enrollment limited to 20. W. Cooper

15B. The Writer as Witness (2 credits). W
Students are involved in a community-service project to produce a portfolio of social-action writing that situates the writer as witness in the community. Enrollment restricted to

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college members. Enrollment limited to 20. W. Cooper

16. The Rise of Capitalism and Its Consequences. *
Explores the rise and consequences of capitalism. How has capitalism affected how humans understand and act in the world? How do oppressions along lines of race, gender, sexuality, and nation intersect with capitalism? Is resistance desirable and/or possible? Enrollment restricted to Kresge, Cowell, or Crown honors students. (General Education Code(s): TA.) D. Gould

24. Imagining Utopias (3 credits). *
Explores possible futures by studying several utopian visions, projects, and manifestos. Students imagine a future by writing a manifesto and other creative non-fiction pieces that embrace a utopian imagination. Enrollment restricted to college members. Enrollment limited to 20. W. Cooper

25. Successful Transfer to the Research University (2 credits). F
Provides first-quarter, community college transfers with an understanding of the workings of a research university with emphasis on advanced academic expectations. Encourages development of educational plans reflecting effective academic strategies, short- and long-term goals, research and/or internship experiences, and graduate programs. Enrollment restricted to first-quarter transfer students. Enrollment limited to 25. The Staff

42. Student-Directed Seminar (no credit). F,W,S
Seminar taught by upper-division Kresge students under Kresge faculty supervision. (See course 192.) Students submit petition to sponsoring agency. The Staff

60C. Prison Narratives (3 credits). *
Seeks to ask hard questions about the role of the prison, its increasing use in our nation, and the use of torture by the U.S. government in Guantanamo, Abu Ghraib, and other prisons. Readings include J. James's Imprisoned Intellectuals , Alexander Berkman's Prison Memoirs of an Anarchist , and other writings by American prisoners. Eve Ensler's What I Want My Words to Do to You is shown. Course is primarily reading and discussion; students are asked to keep a reading journal and to write a critical/creative essay at the end of the quarter. (Formerly Language of the Prison House .) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to college members. Enrollment limited to 20. W. Cooper

60F. Writer's Read (2 credits). *
Students attend weekly creative writing readings by fiction writers and poets, read excerpts from the writers' works, participate in question and answer sessions, and write short, creative and/or analytical responses to the readings and writings. Enrollment restricted to Kresge and Porter college members. Enrollment limited to 35. May be repeated for credit. M. Perks

60K. The Art of Comedy: Literature and Performance (3 credits). *
Students analyze comedic writing and practice writing comedy. Students develop pieces to be delivered in a performance at the end of the quarter. Enrollment restricted to college members. Enrollment limited to 22. E. McKenzie

62. Transformative Action. W
Introduces key skills for effective transformation agents including: creativity and innovation; transformative communication; servant leadership; optimism and resilience, risk taking, initiative; luck; failure; and relationship building. Students create their own portfolio and commit to weekly civic engagement projects. Enrollment limited to 75. C. King

62A. Transformative Action (2 credits). *
Addresses the most effective methods of social change. Examines principles and strategies of transformative action and case studies of leaders solving world problems. Empowers students to be innovators in real-life community projects. Integrates nonviolence, psychology, sustainability, and social justice. The Staff

62B. Transformative Action Seminar (2 credits). *
For students who enrolled in the winter quarter Transformative Action course, to further investigate, research, and refine their Big Idea. Opportunity given to deepen and integrate Transformative Action principles into projects. Enrollment by instructor permission only. C.

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63. Kresge Garden Cooperative (2 credits). *
Offers hands-on gardening skills within a student-run space. Focuses on developing a strong cooperative garden on campus, with special attention to the documentation of this process. Enrollment by instructor approval through application (available in the Kresge College office). Enrollment limited to college members. Enrollment limited to 24. May be repeated for credit. D. Shaw

64. Tools for World Changers (2 credits). *
Develops life skills that support you and help you support others. Implement effective methods for personal productivity (managing your to-dos, calendar, and inbox), interpersonal communication, meeting facilitation, event hosting, collaboration, and regenerative community design. D. Shaw

65. Power and Representation Lab. *
Enrollment limited to 20. The Staff

65A. Power and Representation: Food and Community (2 credits). *
Explores core themes of power and representation through the mediums of food, nature awareness, community, personal empowerment and sustainable living. Students will develop meaningful final projects in collaboration with Kresge Food Co-op, Kresge Garden Co-op, Kresge World Cafe, and projects of their own design. (Formerly Power and Representations: Food Systems.) Concurrent enrollment in course 80A or 80B is required. Enrollment limited to 20. D. Shaw

65B. Power and Representation: Photography (2 credits). *
Focuses on creating a final project individually, or in collaboration with others, that engages issues of power and representation through the medium of photography. Concurrent enrollment in course 80A or 80B is required. Enrollment limited to 20. S. Graham

65C. Power and Representation: Creative Writing (2 credits). *
For students who wish to supplement their core experience with creative writing. Students do in-class and out-of-class writing assignments; read and discuss texts; and work to develop their final project. Concurrent enrollment in course 80A or 80B is required. Enrollment limited to 20. The Staff

65D. Power and Representation: Art and Visual Performance (2 credits). *
Students investigate the themes presented in the core course to arrive at a final creative project in pairs, groups, or individually. Concurrent enrollment in course 80A or 80B is required. Enrollment limited to 20. The Staff

67. Transformative Justice Seminar (3 credits). S
Examines the principles and processes of restorative justice juxtaposed to current practices in the judicial and educational systems of contemporary society. Students study leading restorative justice practices and their implication for individual and community transformation. This seminar is a continuation of the concepts taught in course 62, Transformative Action. Enrollment by instructor consent. Priority given to students who have taken course 62. Enrollment restricted to frosh, sophomores, and juniors. Enrollment limited to 25. C. King

68. Transformative Communication (2 credits). S
Based on Nonviolent Communication (NVC), this experiential course offers skills in intra- and inter-personal conflict transformation by aligning with core values; understanding what motivates self and others; cultivating compassion, even under difficult circumstances; and bringing greater peace into our world. Enrollment restricted to frosh, sophomores, and juniors by permission of instructor. Priority given to students enrolled in course 67, Transformative Justice. Enrollment limited to 25. C. King

69. Practical Application of Restorative Practices (2 credits). F
This second seminar supports students in deepening and fine-tuning their Restorative Circle facilitation along with exploring the question "What are the components of a restorative life?" Students participate in the Kresge College Restorative Justice Initiative, and, during the fall quarter, offer Restorative Circles to student groups in conflict. Prerequisite(s): course 67. Enrollment restricted to sophomores, juniors, and seniors. May

be repeated for credit. C. King

72. Collaborative Learning: The Great Turning (2 credits). F

Collaborative learning in service of transitioning from industrial growth society to a life-sustaining society. Students deepen their connection with nature, themselves, and community through guest lectures, intergenerational dialogue to discover collective and wise action, and engagement with long-term projects. (General Education Code(s): PR-E.) D. Shaw

75. Sustainable Food Systems. *

Introduces students to fundamental food-system issues and opportunities. Topics include: hunger, environmental sustainability, race and gender, food and agricultural policy, local food systems, gardening and farming models, social movements, and approaches for analysis and change. Enrollment limited to 55. S. Gillon

76. Social Documentary Photography. *

History of social documentary photography with its practice. Includes analysis of historical and contemporary images from social documentary work; camera, darkroom, and digital skill development; an individual student documentary project; and collective project discussion. Enrollment restricted to Kresge College members. Enrollment limited to 20. The Staff

77. Food Memoir (2 credits). *

Workshop in writing memoir that connects to issues of multiculturalism, gender, and environment. Designed to hone skills in creative writing through stories that students will unify into a larger memoir. Enrollment restricted to Kresge and College Eight members or by permission of instructor. R. Somers

80A. Introduction to University Discourse: Power and Representation. F

Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Explores relationships between individuals and their communities—communities as small as families and friends, colleges and cities; communities as large as nations and the world. Examines ways we constitute ourselves as individuals in relation to communities, focusing on representations of class, ethnicity, sexual orientation, gender, and race in several genres—critical theory, film, art, fiction, non-fiction, and theater. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C1.) The Staff

80B. Rhetoric and Inquiry: Power and Representation. F

Explores the intersections of investigations, interpretation, and persuasion, and hones strategies for writing and research. Explores relationships between individuals and their communities—communities as small as families and friends, colleges and cities; communities as large as nations and the world. Examines ways we constitute ourselves as individuals in relation to communities, focusing on representations of class, ethnicity, sexual orientation, gender, and race in several genres—critical theory, film, art, fiction, non-fiction, and theater. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C2.) The Staff

80C. Introduction to University Discourse: Power and Representation--Writing Intensive 1. F

Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Explores relationships between individuals and their communities--communities as small as families and friends, colleges, and cities; communities as large as nations and the world. Examines ways we constitute ourselves as individuals in relation to communities, focusing on representations of class, ethnicity, sexual orientation, gender, and race in several genres--critical theory, film, art, fiction, non-fiction, and theater. More writing intensive than course 80A; prerequisite to course 80D. Enrollment restricted to first-year college members who have not satisfied the Entry Level Writing and C1 requirement and who scored a 5 or lower on the AWPE (Analytical Writing and Placement Exam). Enrollment limited to 22. The Staff

80D. Introduction to University Discourse: Power and Representation--Writing Intensive 2.

W
Continues to provide practice in analytical writing, critical reading, and speaking, and to examine power and representation issues. Pre-requisite(s): Course 80C. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): C1.) The Staff

80H. Reading Chinese Paintings. *
Introduces significant currents in Chinese cultural history and their visual expression through close examination of selected paintings. Readings focus on a rich variety of primary sources in translation. Course intended for honors students by permission of instructor. Enrollment limited to 20. (General Education Code(s): T5-Humanities and Arts or Social Sciences, A.) R. Birnbaum

80T. Power and Representation (Kresge Core Course for Transfer Students). *
Explores the intersections of investigations, interpretation, and persuasion, and hones strategies for writing and research. Explores relationships between individuals and their communities—communities as small as families and friends, colleges and cities; communities as large as nations and the world. Examines ways we constitute ourselves as individuals in relation to communities, focusing on representations of class, ethnicity, sexual orientation, gender, and race in several genres—critical theory, film, art, fiction, non-fiction, and theater. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to sophomore, junior, and senior college members. (General Education Code(s): T5-Humanities and Arts or Social Sciences, W.) The Staff

99. Tutorial. F,W,S
A program of directed study arranged between a first-year or sophomore student and a Kresge faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Independent Study (2 credits). F,W,S
A program of directed study arranged between a student and a Kresge faculty member. Class time is less proportional to credit given. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99G. Independent Study (3 credits). F,W,S
A program of directed study arranged between a student and a Kresge faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

161. Permaculture and Whole Systems Design. *
Focuses on concepts, principles, and practices of permaculture and whole systems design. Permaculture education is transdisciplinary and provides practical experience with design, ecological horticulture, regional planning, natural building, architecture, appropriate technology, aquaponics, animal husbandry, ecopsychology, and community resilience. Enrollment by application. Priority given to Kresge College students. Enrollment limited to 23. May be repeated for credit. D. Shaw

171. Kresge Challenge Seminar. S

For first-year students, by invitation only. This class is part of the Challenge Program which provides high-achieving students with the opportunity to participate in a rigorous program emphasizing individual attention and dynamic interaction with UCSC faculty and academically motivated peers in classes, social settings, and collaborative research projects. Enrollment restricted to Kresge, Merrill, and Stevenson students enrolled in the College Challenge Programs. Enrollment limited to 25. The Staff

172. Collaborative Learning The Great Turning. F

Collaborative learning in service of transitioning from industrial growth society to a life-sustaining society. Students deepen their connection with nature, themselves, and community through guest lectures, intergenerational dialogue to discover collective and wise action, and engagement with long-term projects. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): PR-E.) D. Shaw

192. Directed Student Teaching. F,W,S

Teaching of a lower-division seminar under Kresge faculty supervision. (See course 42.) Prerequisite(s): upper-division standing in Kresge, a proposal supported by a Kresge faculty member willing to supervise, and college approval. The Staff

193. Field Study. F,W,S
Supervised off-campus study conducted under the immediate and direct guidance of a Kresge faculty supervisor. To be used primarily by upper-division students doing part-time, off-campus study. Prerequisite(s): approval of student's adviser and the college. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a Kresge faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis. F,W,S
Senior thesis or project for student doing individual major program. May be repeated twice for credit. Prerequisite(s): permission of sponsoring committee and college approval. The Staff

198. Independent Field Study. F,W,S
Provides for college-sponsored individual study programs off campus, for which Kresge faculty supervision is not in person (e.g., supervision is by correspondence.) Prerequisite(s): approval of the student's faculty sponsor and college approval. May be repeated for credit. The Staff

199. Tutorial. F,W,S
A program of individual study arranged between an upper-division student and a Kresge faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Languages

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80D. Italian Culture Through Cinema. S
Film is used as a medium through which images of Italians and their culture are disseminated, perpetuated, and crystallized. Whether these representations offer historical perspectives or stereotypes, they are important documents for the study of Italian culture, society, history, and politics. Students cannot receive credit for this course and Italian 106. May be repeated for credit. (General Education Code(s): CC, T4-Humanities and Arts.) G. Centineo

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

210. Oral Communication in the U.S. Classroom: Strategies for International T.A.s (2 credits). F
Seminar for international graduate students who speak English as a second or foreign language. Focuses on oral competency and serves to qualify students as graduate teaching assistants in UCSC classrooms or laboratories. Enrollment restricted to international graduate students; language assessment administered by the Graduate Division. The Staff

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Languages and Applied Linguistics

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Upper-Division Courses

112. Language and Gender. S
Examines the relationship between language and gender. Topics include: gender differences in speech; linguistic gender norms and stereotypes; gender and the construction of identity in discourse; sexuality and language; sexism in language; social, educational, and political implications. (Formerly Languages 112.) S. Okamoto

113. Inter-Cultural Communication. *
Examines intercultural communication and miscommunication between individuals and speech communities, both within North American and global contexts. Through discourse and analytic approaches, students explore cultural stereotypes and interactional expectations, among other issues, that influence the outcome of intercultural communication. (Formerly Languages 113, Cross-Cultural Communication and Miscommunication.) Enrollment restricted to juniors and seniors. Enrollment limited to 25. (General Education Code(s): CC.) Z. Abrams

116. Discourse Analysis: Language Use and Context. W
Familiarizes students with the methods and theoretical assumptions behind discourse analytic approaches to the study of language. Examines language used in specific contexts. Topics include: genres, registers; discourse organization; discourse grammar; interaction; conversation; pragmatics; and social practice. Prerequisite(s): Linguistics 50 or by consent of the instructor. Enrollment restricted to juniors and seniors. The Staff

135. Second Language Teaching. S
Introduces the theories of second-language acquisition and their connection to second-language teaching. Students develop cutting-edge teaching and testing materials, and engage with current scholarship on language instruction. Prerequisite(s): at least one year of college-level study of a foreign language, or its equivalent. Enrollment restricted to juniors and seniors, and by permission of instructor. Students cannot receive credit for this course and course 235. Enrollment limited to 20. The Staff

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235. Second Language Teaching. S

Helps novice instructors learn about the theory and practice of language teaching and learning. Focuses on current methods used in communicatively oriented classrooms. Topics include: listening comprehension, grammar, vocabulary, reading, writing, and testing/assessment. Students cannot receive credit for this course and course 135. (Formerly Language Studies 201.) Enrollment restricted to graduate students. Enrollment limited to 20. The Staff, Z. Abrams, E. Zyzik

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Academic English

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Upper-Division Courses

110A. Advanced Academic English 1.
Students develop an academic vocabulary and successful reading strategies in English in order to understand high-level academic texts. Students also practice pronunciation and apply the rules of grammar to written and spoken academic language through weekly oral presentations and written assignments. Enrollment by instructor consent only. Enrollment restricted to international students. The Staff

110B. Advanced Academic English 2. F
Students continue to develop an academic vocabulary (e.g., collocations, idiomatic expressions), which is a significant contributor to successful academic reading and writing. Students also practice complex sentence structures in written and spoken language through weekly oral presentations and written assignments. Enrollment by instructor consent only. Enrollment restricted to international students. The Staff

110C. Advanced Academic English 3. W
Students continue to develop an academic vocabulary, and practice reading and writing complex sentences in English with a high level of grammatical and stylistic accuracy. Students also increase their oral fluency and pragmatic skills and their awareness of second-language learning. Enrollment by instructor consent only. Enrollment restricted to international students. The Staff

110D. Advanced Academic English 4. S
Students continue to develop an academic vocabulary, and practice reading and writing complex essays in English with a high level of grammatical and stylistic accuracy. Students also continue to increase their oral fluency, pragmatic skills, and awareness of second-language learning. Enrollment by instructor consent only. Enrollment restricted to international students. The Staff

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Latin

2014-15 General Catalog

History Department
201 Humanities
(831) 459-2982
http://history.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

1. Elementary Latin. F
Instruction in Latin grammar, using a modern Latin method, designed to prepare for the study of classical literature. The sequence begins in the fall quarter only. The Staff

2. Elementary Latin. W
Instruction in Latin grammar, using a modern Latin method, designed to prepare for the study of classical literature. Prerequisite(s): course 1. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

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Revised: 09/01/14

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Latin American and Latino Studies

2014-15 General Catalog

32 Merrill College
(831) 459-4284
http://lals.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Introduction to Latin American and Latino Studies. F,W
Interdisciplinary introduction presenting the elements for studying Latin American politics and economics, culture, and society as well as the dynamics of Latino communities in the U.S. Special attention paid to issues of colonialism, human rights, U.S. foreign policy toward Latin America, racism, capitalist globalization, migration, to emerging political and economic shifts in the Americas, and to new local and transnational efforts for social change on the part of Latin America's peoples and Latinos in the U.S. (General Education Code(s): ER, IS, E.) F. Leiva, H. Perla

20. Latino Politics. S
Offers a domestic (U.S.) and transnational approach to Latino politics, focusing on the five largest Latino groups: Mexicans, Puerto Ricans, Cubans, Salvadorans, and Guatemalans. Issues addressed include Latino electoral participation, Latino public opinion, migrant political incorporation, and transnationalism among others. (General Education Code(s): ER.) A. Felix

30. Social Movements in Latin America. *
Examines contemporary social movements in Latin America, especially those that arose from popular response to different forms of social exclusion and to authoritarian political systems. Explores a variety of popular movements, their successes and setbacks, including rural and urban uprisings, native nations and their descendants, women, labor, human rights, and transnational movements. (Formerly course 80B.) Enrollment limited to 60. (General Education Code(s): CC, T3-Social Sciences, E.) H. Perla

40. Latinos, Work, and Organizing. *
Students learn about the role of Latinos in different forms of U.S. organized labor (including, but not limited to, traditional unions). Focus is on organizing in several low-wage and immigrant-dense industries. (Formerly course 80K.) (General Education Code(s): ER, T3-Social Sciences, E.) The Staff

42. Student-Directed Seminar.
Seminar taught by upper-division student under faculty supervision. Requires prior approval by Latin American and Latino Studies Department and two quarters (fall, winter) of supervised preparation prior to teaching in spring quarter. (See course 192). The Staff

45. Race, Class, and Gender. *

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Examines the economic, social, political, and cultural experience of communities of color (Latinas/os, African Americans, Asian Americans, and Native Americans) and women in the U.S., through a sociological perspective. Using quantitative and qualitative methods, the relationship among individual actions, social institutions, societal forces, and social change are analyzed. (Formerly course 80G.) (General Education Code(s): ER, T3-Social Sciences, E.) The Staff

50. Transnational Feminist Organizing in the Americas. W
Explores key aspects of transnational feminist organizing in the Americas, including transnational feminist theories and feminist activism in Latin America and the Caribbean. Discusses how women from throughout the Americas region organize politically and socially across gender, race, ethnicity, sexuality, and nationality. (Formerly course 80W.) (General Education Code(s): CC.) S. Falcon

70. Cinema and Social Change in Cuba. *
Examines selected feature-length films and documentaries produced after the Revolution of 1959 as a venue to study social change in Cuba. Cinema is used as artifact to document and critique social change. Topics include: the role of art and artist in Revolution, literacy campaign, changing gender relations, dissident sexualities, racial politics, and others. (General Education Code(s): IM.) L. Martinez-Echazabal

80D. Political Change in Mexico. F
Reviews broad trends in contemporary Mexican politics against the backdrop of long-term historical, social, and economic change throughout the 20th century, analyzing how power is both wielded from above and created from below. The course covers national politics, grassroots movements for social change and democratization, environmental challenges, indigenous movements, the media, and the politics of immigration and North American integration. (General Education Code(s): CC, T3-Social Sciences, E.) A. Felix

80E. Latin American Philosophy. *
Is there a general school of philosophy endemic to Latin America? Would it have to appeal to quintessential Western philosophical questions regarding knowledge, values, and reality? If not, why not, and would it then still count as philosophy? What difference do ethnic and national diversity, as well as strong political and social inequality, make to the development of philosophical questions and frameworks? Course explores a variety of historically situated Latin American thinkers who investigate ethnic identity, gender, and socio-political inequality and liberation, and historical memory, and who have also made important contributions to mainstream analytical and continental philosophy. (Also offered as Philosophy 80E. Students cannot receive credit for both courses.) (General Education Code(s): T4-Humanities and Arts, E.) R. Winther

80F. Latinos in the U.S.: A Comparative Perspective. *
Analyzes the Latino experience in the U.S. with a special focus on strategies for economic and social empowerment. Stresses the multiplicity of the U.S. Latino community, drawing comparative lessons from Cuban-American, Puerto Rican, Chicano/Mexicano, and Central American patterns of economic participation and political mobilization. (General Education Code(s): ER, T3-Social Sciences, E.) A. Felix

80H. Comparative Latina/o Histories. *
Designed to survey recent works in the field of Latina and Latino histories, with particular emphasis on historiographical approaches and topics in the field. Readings are chosen to expose a selection of the varied histories and cultures of Latina/os in the U.S., and focus primarily on Mexicans, Puerto Ricans, and Cubans. (General Education Code(s): CC, T3-Social Sciences, E.) G. Arredondo

80I. Gender and Global Cinema. *
Applies critical and historical approaches to the study of gender in global cinema. Introduces students to different aesthetic and cross-cultural approaches to representing gender in contemporary film. Focuses on films, documentaries, and video works from the Americas as well as from other regions of the global South. Enrollment limited to 80. (General Education Code(s): CC, T3-Social Sciences, E.) R. Fregoso

80J. Race, Nation, and War. *
Evaluates the relationship between processes of racial formation, war, and nationalism in Latin America. Case studies range from the wars of independence to more recent forms of

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Teaching and Administrative Staff

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transnational violence. Students engage historical and anthropological perspectives and critiques of modernity. Enrollment limited to 80. (General Education Code(s): ER, T3-Social Sciences, E.) C. Rivas

80P. Energy, Society, and Environment in Latin America. *
From petroleum extraction to hydroelectric power to ethanol production, Latin America is an important provider of the world's energy. Course examines the implications of this process for economic growth, climate change, environmental degradation, social inequality, and poverty. (Formerly Energy, Society, and Ecology in Latin America.) Enrollment limited to 80. (General Education Code(s): PE-E, T3-Social Sciences, E.) The Staff

80Q. Musica Latina: Music of Latin America and the Caribbean. *
Surveys various musical forms and styles that have developed in Latin America and Latino communities in the U.S. Discusses concept of hybridity and grapples with this as a central issue in the evolution of Latin American/Latino music. Addresses migration of music, which not only contributes to its distribution but also to the evolvement of musical practices of forms, styles and genres across borders. (Formerly Musica Latina.) (General Education Code(s): CC, T3-Social Sciences, E.) The Staff

80R. Organizing Across the Americas. *
Analyzes the range of theory and practice that emerged from and shaped significant social movements during the rise and fall of United States hegemony. Focuses on social struggles and revolutions in five distinct locations across the Americas: the United States (United Farm Workers--UFW), Cuba (Movimiento 26 de Julio--M26J), Nicaragua (Frente Sandinista de Liberacion Nacional--F.S.L.N.), Mexico (Zapatistas), and Brazil (Movimento dos Trabalhadores Rurais Sem Terra--MST). Enrollment limited to 80. (General Education Code(s): T3-Social Sciences, E.) J. Borrego, The Staff

80S. Sexualities and Genders in Latin American and Latina/o Studies. *
Introduction to issues and themes surrounding sexualities and genders within Latin American and Latina/o studies. Provides background in the basic theoretical and historical frameworks of gender and its relationship to sexuality. In addition to cross-border perspectives, course also examines how gender and sexuality are structured and experienced through other social categories. Enrollment limited to 80. (General Education Code(s): CC, T3-Social Sciences, E.) The Staff

80X. Central American Peoples and Cultures. F
Examines contemporary societies and peoples of Central America considering how, in recent decades, media, history, war, cultural production, and migration have shaped Guatemala, Honduras, El Salvador, Nicaragua, and Costa Rica both as individual nations and as a region. Enrollment limited to 80. (General Education Code(s): CC, T5-Humanities and Arts or Social Sciences, E.) C. Rivas

81A. Mexican Folklorico Dance (2 credits). *
Provides instruction in the aesthetic, cultural, and historical dimensions of Mexican folklorico dance. Students taught choreographed dances from various regions of Mexico and also learn dance techniques (tecnica) and stage make-up application. Additional workshops and lectures offered to supplement class. Open to all students; no previous experience required. (Also offered as Anthropology 81A. Students cannot receive credit for both courses.) May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

81B. Mexican Folklorico Dance (2 credits). *
Second course in series. Provides instruction in the aesthetic, cultural, and historical dimensions of Mexican folklorico dance. (Also offered as Anthropology 81B. Students cannot receive credit for both courses.) May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

81C. Mexican Folklorico Dance (2 credits). *
Third course in series. Provides instruction in the aesthetic, cultural, and historical dimensions of Mexican folklorico dance. (Also offered as Anthropology 81C. Students cannot receive credit for both courses.) Prerequisite(s): course 81A or 81B. May be repeated for credit. (General Education Code(s): PR-C, A.) O. Najera Ramirez

Upper-Division Courses

100. Concepts and Theories Latin American and Latina/o Studies. F
Interdisciplinary exploration of transnational migrations; social inequalities; collective action and social movements; and cultural productions, products, or imaginaries. Examines how transnational migration and hemispheric integration are transforming Latin American studies and Chicana/o-Latina/o studies. Explores the influence of neoliberalism and globalization, especially the intersection of critical analysis and social-justice praxis. Completion of course 1 highly recommended. (Formerly course 10, Bridging Latin American and Latina/o Studies) Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): ER, E.) G. Arredondo

100A. Social Science Analytics. W
Compares diverse analytical strategies and builds practical research skills in the field of Latin American and Latino studies. (Formerly Politics and Society: Concepts and Methods.) Two-credit course 100L writing lab highly recommended. Prerequisite(s): course 100 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to sophomore, junior, and senior Latin American and Latino studies majors, minors, and combined majors or by permission. (General Education Code(s): E.) A. Felix

100B. Cultural Theory in the Americas. S
Focuses on transnational, regional, and local features of Latina/o and Latin American cultural production and artistic expression: how culture is shaped by historical, social, and political forces; how cultural and artistic practices shape the social world; and how culture is produced in an interconnected, postindustrial, and globalized economy. (Formerly Culture and Society: Culture in a Global Context.) Prerequisite(s): courses 100 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to sophomore, junior, and senior Latin American and Latino studies majors, minors, and combined majors. (General Education Code(s): E.) C. Ramirez

100L. Writing Lab (2 credits). W
This course accompanies course 100A. Participants receive feedback and guidance on their written exercises required for course 100A. Students submit drafts in advance and receive feedback from course 100A writing tutors as well as engage in peer-to-peer learning. Consistent attendance is required. Prerequisite(s): concurrent enrollment in course 100A required. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 60. A. Felix

101. Using Media. *
Hands-on survey of print, broadcast, audiovisual, and electronic media. Students complete and present a dozen different media production assignments as part of permanent portfolio. Assignments have Latino/Latin American focus. Peer critique of media projects. Prerequisite(s): concurrent enrollment in course 101L. (General Education Code(s): E.) The Staff

101L. Using Media: Video Laboratory (2 credits). *
Trains students in the fundamentals of video preparation, production and post-production through Social Sciences Media Laboratory. Prerequisite(s): concurrent enrollment in course 101. The Staff

102. Writing for Latin America and Latino Studies Majors and Minors. F
For Latin American and Latino studies students who wish to gain greater awareness of rhetorical modes and the academic essay. Students write several academic essays, each with a different purpose, and master the conventions of revising and editing. (Formerly Advanced Expository Writing Workshop.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to. Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. The Staff

111. The U.S.-Mexican Border Region. *
Global and national forces have transformed the 2,000-mile United States/Mexico border region into a site for world market factories. Analyzes how this transformation has affected workers and communities and systematically reviews subjective responses. (General Education Code(s): E.) J. Borrego, The Staff

112. Immigration and Assimilation. *
Examines immigration to U.S. from colonial era to present with special emphasis on issues of citizenship, social identities, and social membership. (Formerly American Studies 112.)

(General Education Code(s): ER.) C. Ramirez

115. Mexico-United States Migration. S
Overview of Mexico-United States migration in historical and contemporary context. Focuses on Mexican experiences of racialization, deportability, second-class citizenship, and transnationalism--the cross-border networks, institutions, activities, loyalties, and identities by which Mexican migrants orchestrate their lives across international borders. Enrollment restricted to sophomores, juniors and seniors. A. Felix

121. Antropologia de las juventudes. *
Taught in Spanish. Overview of the social construction of youth identities represented by intertwined liminal processes linked to the history of migration and ethnicity. Explores theoretical approaches on border youth and methodological strategies. Enrollment restricted to Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): CC.) The Staff

122. Media and Nationalism. F
Evaluates the links between media and the production of national identities in Latin America. Focuses on theories of nationalism, media, and globalization to examine the production of national histories and representations. Enrollment restricted to juniors and seniors. Enrollment limited to 40. (General Education Code(s): E.) C. Rivas

124. Brazilian Cinema. *
Surveys films by and/or about women from Brazil, drawing a picture of contemporary Brazilian cinema through the angle of gender in its articulation with sexuality, race, class, ethnicity, national identity, and other key concepts, while offering a visual and critical introduction to Brazilian culture. (Formerly course 80T.) Enrollment limited to 80. (General Education Code(s): IM.) The Staff

127. Genero, Nacion Y Modernidad En El Cine. S
Taught in Spanish. Examines the relationship between cinema, gender, the nation, and modernity. Focusing on films by key women filmmakers in Latino and Latin America, the seminar examines their engagement with identity, cultural imaginaries, coloniality, sexuality, and gender. Enrollment restricted to Latin American and Latino studies majors, minors and combined majors. R. Fregoso

128. Latino Media in the U.S. *
Explores the history and practice of Latino media in the U.S. with an emphasis on work created by, for, with, and about Latino constituencies. Course highlights the role that media plays in struggles for social change, political enfranchisement, creative self-expression, and cultural development. Course content varies with instructor. (Also offered as Oakes College 128. Students cannot receive credit for both courses.) Enrollment limited to 39. (General Education Code(s): IM, E.) The Staff

129. Women Filmmakers: Latin American and Latina. *
Focuses on the work of a dozen major Latin American and Latina filmmakers from Argentina, Brazil, Venezuela, Mexico, and the U.S., including Maria Luisa Bemberg, Maria Navaro, Matilde Landeta, Lourdes Portillo. Examines contemporary films, from 1960 to present. (General Education Code(s): IM, E.) R. Fregoso

131. Latino Literatures: Assimilation and Assimilability. W
Explores assimilation and assimilability in the United States, especially as related to the education and languages of Latinos, via literary forms, such as the memoir, novel, essay, short fiction, film, and/or poetry. (Meets the methods requirement in Latin America and Latino studies.) (General Education Code(s): TA.) C. Ramirez

132. Citizens, Denizens, and Aliens. W
Explores the theories and practices of citizenship and the roles citizens and non-citizens play in the state, civil society, and market, with a focus on the ways historical legacies and social forces produce inclusion, exclusion, sameness, and difference. (Formerly American Studies 113C) Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 40. (General Education Code(s): ER.) C. Ramirez

140. Rural Mexico in Crisis. *
Focuses on political, social, economic, and environmental changes in rural Mexico from the 1910 revolution through the Zapatista rebellion. Emphasizes the interaction between the

state, markets, and rural civil society, covering agrarian reform, agricultural policy, grassroots development initiatives, democratization, indigenous movements, natural resource management, and migration. Prerequisite(s): Previous completion of course 80D recommended. Enrollment restricted to juniors and seniors. Sophomores may enroll with permission from instructor. (General Education Code(s): CC, E.) J. Fox

143. Race and Ethnicity. *
Race and ethnicity have been--and continue to be--powerful forces shaping the U.S. experience. This course examines a range of conceptual approaches and monographic studies grounded in the history of the U.S. The readings provide various criteria for studying and understanding these phenomena. The course problematizes "race" by asking what the readings tell us about "race-making" and the reproduction of racial ideologies in specific historical contexts. Similarly, "ethnicity" is treated as a historically specific social construct. (Meets the methods requirement in Latin America and Latino studies.) (General Education Code(s): ER, E.) G. Arredondo

143J. Global Political Economy. *
Analyzes the global, social, economic, and political forces that shape transnational, national, and regional societal formations and consequently the entire environment for social change. Examines the evolution of revolutionary struggle and its origins within and impact upon the evolving capitalist system. J. Borrego, The Staff

144. Mexicana/Chicana Histories. W
Explores current historical and theoretical writings on the lived experiences of Chicanas and Mexicana women in U.S. history. Themes include domination/resistance politics, (re)presentations, contestation, social reproduction, identity and difference. Meets the methods requirement in Latin America and Latino studies. (General Education Code(s): TA, E.) G. Arredondo

145. Grassroots Social Change in Latin America. *
Focuses on the analysis of collective action by underrepresented groups in Latin America. Concepts and issues include political participation and impact, gender, ethnicity and race, class, the environment, religion, non-governmental organizations, and social capital. Prerequisite(s): any two Latin American and Latino studies courses or permission of instructor; open to graduate students. Enrollment limited to 40. (General Education Code(s): CC, E.) H. Perla

148. Action Research in the Americas. *
This interdisciplinary course analyzes applied social science research strategies, focusing on diverse "evidence-based," public-interest advocacy initiatives. Issues include: voter participation, environmental justice, human rights, fair trade, the World Bank, the North American Free Trade Agreement (NAFTA), and immigrant rights. (Meets the methods requirement in Latin America and Latino studies.) Prerequisite(s): course 100A or equivalent, or by permission of instructor. J. Fox

149. U.S. Foreign Policy Toward Latin America. F
Examines how domestic political considerations and transnational forces influence the formation of U.S. foreign policy, specifically in the context of relations with Latin America. Explores the impact of institutional, electoral, and psychological pressures, public opinion, interest groups, non-state actors, and the media on decision-making regarding U.S. foreign policy toward Latin America, specifically on support for military intervention. (Meets the methods requirement in Latin America and Latino studies.) (General Education Code(s): PE-H.) H. Perla

150. Afro-Latinos/as: Social, Cultural, and Political Dimensions. W
Explores the lives of African descendants in the Americas, including the Caribbean. Students learn about the settlement patterns of Afro-Latinos/as and Afro-Latin Americans in the region and the ways in which African descendants negotiate their multiple identities and broaden racial frameworks in the United States and Latin America. (General Education Code(s): ER.) S. Falcon

152. Consumer Cultures Between the Americas. W
Examines the circuits of media, commodities, and migration connecting the Americas in an age of globalization. Issues of states, transnational markets, social relations, and cultural representations addressed. Relationship between consumption, nationalism, and

globalization is considered critically. (Meets the methods requirement in Latin America and Latino studies.) (General Education Code(s): CC, E.) C. Rivas

155. Latin American and Latino Youth Movements. F
Examines the histories, structures, and practices of Latin American and Latino youth movements. Analyzes the patterns, themes, and differences of social movements using primary documents. Addresses the dynamics of age, generation, race, ethnicity, and nation. Uses youth activism to explore questions relevant to the study of contemporary social movements in the Americas. J. Taft

159. Latinos and Population Change. *
Examines key theories of demographics change (fertility, mortality, and migration) in important policy issues, such as the aging of America, racial categorization, and immigration. Explores political and economic factors that have led to the changing face of the U.S. over the last century and key legislative changes that have changed the experience of immigrants. Students use primary demographic data from the U.S. Census Bureau and learn basic tools for demographic data access and presentation. (Formerly Latin American and Latino Studies 163.) (Also offered as Sociology 159. Students cannot receive credit for both courses.) Prerequisite(s): course 100A or Sociology 103A or Sociology 105A, or by permission of instructor. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): PE-H, E.) The Staff

161P. Theater in the "Chicano Power" Movement.
Covers the rise of Teatro Chicano as a cultural-political force within the 1960's "Chicano Power" Movement starting with founding playwriter Luis Valdez and El Teatro Campesino and covering Chicana/o playwrights inspired by the movement, e.g. Cherrie Moraga, Luis Alfaro, and Josefina Lopez. (Also offered as Theater Arts 161P. Students cannot receive credit for both courses.) (General Education Code(s): ER, A, E.) The Staff

164. Environmental Justice. *
Introduces students to participatory-action research, which both creates positive social-environmental change and contributes to scientific knowledge. Through collaboration with environmental justice organizations, students develop research skills, hone critical reflection abilities, and understand the connections between race, ethnicity, power, poverty, and environmental problems. (Formerly Action-Research for Social Change, Environmental Quality: Lessons Learned from Latin America, U.S. .) Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 35. (General Education Code(s): PE-E, E.) F. Lu

165. Contemporary Peru. *
Explores contemporary issues facing Peru by addressing the formation of the state and the country's troubled history with political and state violence. Students learn about Peru's multicultural/racial population and about ongoing conflicts and hopes for the country today. (General Education Code(s): CC.) S. Falcon

166. Latino Families in Transition. W
Explores the complex nature of Latino families in the U.S., which like other American families are undergoing profound changes. Placing families within a historical context of post-1960s social transformations, such as feminism, immigration, and multiple-earner households, course examines how family members adapt, resist, and/or construct alternative visions and practices of family life. (Meets the methods requirement in Latin America and Latino studies.) Prerequisite(s): course 1. (General Education Code(s): ER, E.) P. Zavella

168. Economic History of Latin America. *
Sheds light on Latin America's contemporary social and economic developments by providing an appreciation of their historical roots. Focusing on the period from independence until WWII, evaluates contesting explanations for Latin America's relatively poor economic performance and divergent policy implications. Prerequisite(s): course 1. (General Education Code(s): E.) H. Shapiro

169. Latin American Industrialization in a Global Perspective: Past, Present, and Future. *
Analyzes the economic, political, and social aspects of the industrialization process in Latin America. Evaluates import substitution policies, the changing roles of the state and foreign and domestic capital, and the impact of recent trade liberalization. Compares Latin

America's development with that of the East Asian newly-industrialized countries (NICs) and looks at the implications of globalization. (General Education Code(s): CC, E.) H. Shapiro

170. Indigenous Struggles in the Americas. *
Focuses on the way Natives of First Peoples have interacted voluntarily and involuntarily with nonindigenous cultures. Examines their perspectives, thoughts, frustrations, and successes. Touches on land issues and examines the way current indigenous cultures of Latin America face and adapt to social change. Focuses mainly on the Andes, lowland Amazon, Mesoamerica, and other areas. (General Education Code(s): CC, E.) The Staff

171. Talleres de Poesiá. *
Taught in Spanish. Develops creative writing skills through reading, discussion, and a progression of hands-on group poetry-writing sessions. Enrollment restricted to juniors and seniors. Enrollment limited to 25. (General Education Code(s): A.) D. Zamora-Evans

172. Visualizing Human Rights. W
Explores how visual artists take up the subject of human rights in response to urgent challenges facing Latina/o and Latin American communities across the Americas. Examines the imprint of film and media arts reshaping human-rights discourse. Considers persistent themes in Latina/o representation, including colonialism and state terrorism; self-representation and the rights of collectives (racial, ethnic, and sexual groups); social and economic rights. (Meets the methods requirement in Latin America and Latino studies.) R. Fregoso

174. Immigration and Citizenship: A Global Perspective. W
Examines U.S. immigration policy in comparison to other major destinations. Class discusses relevant socio-economic and political factors and the various citizenship paradigms in place throughout the world. Readings draw on disciplinary foci, including quantitative and qualitative analysis. (General Education Code(s): PE-H.) The Staff

175. Migration, Gender, and Health. F
Through an interdisciplinary, cross-border approach, examines complex nature of Latino health in relation to migration and how women and men experience health problems differently. Examines how health problems are created by economic and social conditions, how migrants experience access to care, and how agencies can design culturally sensitive programs. (General Education Code(s): ER, E.) P. Zavella

176. Gender, the Nation, and Latina Cinema. *
Applies critical and cultural theories of interculturality, coloniality of power and transnational feminism to the study of Latina cinematic imaginaries in the Americas. Explores images and self-representations of race, sexuality, and the nation; citizenship, diaspora, and belonging; gender violence and state violence; militarization, human rights, and gender justice. (General Education Code(s): IM, E.) R. Fregoso, The Staff

178. Gender, Transnationalism, and Globalization. *
Focuses on the impact of globalization and transnationalism on gender relations in the Americas. Examines gender and power in the context of neoliberalism, modernity, the nation, social movements, and activism. Explores local and transnational constructions of gender, and the intersection of gender with race, ethnicity, class, and sexuality. Enrollment limited to 40. (General Education Code(s): ER, E.) R. Fregoso, The Staff

180. Borders: Real and Imagined. *
Situates "The Border" historically and within the context of U.S. imperialism. Examines the formalization of political "borders," methods of enforcement, and intra-group conflicts. Examines the varied experiences of colonialism and immigration between Mexicans, Puerto Ricans, Native Americans, and Cubans. Explores how the tools of "The Border" and "Borderlands" are being used to untangle the roles of race prejudice and sexual and gender discrimination. (Meets the methods requirement in Latin America and Latino studies.) (General Education Code(s): TA, E.) G. Arredondo

186. Field Research Methods. S
Introduction to field research methods that consider theory, methodological challenges, and epistemology in conducting research. Explains the research process, including designing research questions, interview instruments, concepts maps, and methods of data

collection, and data analysis. (Meets the methods requirement in Latin America and Latino studies.) Prerequisite(s): course 100, and 100A or 100W. Enrollment restricted to junior and senior Latin American and Latino studies majors, and combined majors. S. Falcon

190. Internship. F,W,S
Internships with campus or community organizations sponsored and evaluated by a Latin American and Latino studies faculty member. Students write an analytical paper or produce another major work agreed upon by student, faculty supervisor, and internship sponsor; sponsor must also provide review of experience. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

190F. Internship (2 credits). F,W,S
Internships with campus or community organizations sponsored and evaluated by a faculty member from Latin American and Latino studies. Students write a short (8-page) descriptive paper or produce another work agreed upon by student and faculty supervisor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

191. Latin American Studies Teaching Apprenticeship. F,W,S
Advanced students serve as facilitators for small discussion groups or aid in reading of papers related to Latin American Studies courses. Students are expected to read all course assignments and meet with instructors to discuss the teaching process. May not be counted toward major requirements. The Staff

192. Directed Student Teaching. F,W,S
Teaching under faculty supervision of a lower-division course in Latin American and Latino studies, normally done by majors in the final quarter of study as the senior project. (See course 42.) Students submit petition to sponsoring agency. The Staff

193. Field Study. F,W,S
Supervised off-campus (domestic or international) study that entails working closely with faculty. Typically undertaken as part of fulfilling the senior exit requirement. Students need to be in good to excellent standing and show preparation to undertake field study (e.g., relevant coursework, appropriate language skills, etc.). May be repeated for credit. The Staff

194C. Criminalizing the Poor. *
Examines neoliberal discourses related to poverty that have become more critical of the poor over time, including reforms to social welfare, criminal justice, and immigration, and the ways in which the poor struggle to survive and contest neoliberalism. Enrollment restricted to junior and senior Latin American and Latino studies majors and minors; and combined majors with global economics, sociology, literature, and politics. Enrollment limited to 25. (General Education Code(s): ER.) P. Zavella

194F. Latinos and Socio-Political Change. *
Explores the role of Latinos in civic and political life in the U.S., focusing on specific avenues for participation such as religion, work, and transnational experiences. Examines barriers to participation experienced by Latinos in the U.S. as well as relationships between civic engagement and political incorporation and the ramifications for inequality for Latinos and other ethnic/racial groups in cities across America. (Formerly Latino Civic Engagement in Comparative Perspective.) Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): PE-H, E.) S. Gleeson

194G. Chile: Social and Political Change. *
Analysis of Chilean politics and society from the election of Salvador Allende in 1970 to the present. Particular emphasis is given to understanding the different forces, internal as well as external, that broke the Chilean tradition of democratic rule in 1973, and to the current configuration. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): CC, E.) W. Goldfrank

194H. Central American Political Relations with the U.S. S
Writing- and research-intensive senior seminar on U.S.-Central American relations. Students gain understanding of Central American political history; the region's relations with the United States; and the problems arising from this relationship. Prerequisite(s):

satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): W, E.) H. Perla

194I. Contemporary Ecuador. *
The Andean nation of Ecuador exemplifies cultural and biological diversity, rapid economic and social change, and increasing geopolitical influence as one of the current South American left-leaning countries. Course looks at Ecuador's recent history and future challenges. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): CC.) F. Lu

194M. Twentieth-Century Revolutions. *
Treatment of 20th-century Latin American revolutions from Zapata to the Zapatistas. Focuses on the causes and consequences of revolutions rather than on their narrative histories. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): CC, E.) G. Arredondo, W. Goldfrank

194Q. Globalization in the Américas. F
Introduces multiple dimensions of globalization by reviewing key theories and frameworks in order to understand development, social inequalities, trade agreements, multilateral institutions, and the future of globalization studies. Enrollment restricted to junior, and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): CC.) S. Falcon

194R. Violencia Cotidiana en las Americas. W
Senior seminar taught in Spanish. Engages a critical study of violence, social relations, and everyday life in contemporary Latin America. Focuses on the relationship between narratives and acts of violence, and the constitution and social effects of these representations. Requires proficiency in Spanish (written and spoken), and advanced reading knowledge of Spanish. Enrollment restricted to junior and senior Latin American and Latino studies majors, minors, and combined majors. Enrollment limited to 25. (General Education Code(s): E.) C. Rivas

194S. La Crisis del Campo Mexicano. *
Taught in Spanish. Analyzes both the causes and possible solutions to the challenges of rural poverty and democratization. Focuses on agrarian reform; agricultural development; protest movements; electoral change; local government; grassroots development initiatives; natural resources; the social construction of ethnicity, gender, and class; and the dynamics of migration. Mexico's regional diversity is highlighted as well, and students are encouraged to study a particular region in depth to accompany the course's national overview. (Formerly El Campo Mexicano en Crisis.) Enrollment restricted to junior, and senior Latin American and Latino studies majors, minors, and combined majors with global economics, sociology, literature, and politics. Enrollment limited to 25. J. Fox

195B. Senior Project. F,W,S
Senior thesis writing under direction of major adviser. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195C. Senior Project. F,W,S
Senior thesis writing under direction of major adviser. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

196. Field Study Seminar. *
Emphasizes ethnographic strategies of fieldwork. Primarily oriented to students interested in understanding the daily life of societies and cultures. Prepares students both to conduct fieldwork, and to process their fieldwork experience. Covers complexities related to the experience of "stepping out of" one's own culture. Prerequisite(s): concurrent enrollment in course 196L. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. J. Borrego

196L. Field Study Seminar Lab (2 credits). *
Media lab trains students in the use of electronic and photographic media for the acquisition of field data. Through lectures, demonstrations, hands-on field exercises and

review of students' media exercises, students will learn the fundamentals of photography, video production, and audio recording in the field. Prerequisite(s): concurrent enrollment in course 196. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 25. J. Borrego

198. Field Study. F,W,S
Off-campus study in Latin America, the Caribbean, or nonlocal Spanish-speaking community in the U.S. Nature of proposed study/project to be discussed with sponsoring instructor(s) before undertaking field study; credit toward major (maximum of three courses per quarter) conferred upon completion of all stipulated requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Individual studies undertaken off-campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Supervised directed reading; weekly or biweekly meetings with instructor. Final paper or examination required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Supervised research and writing of an expanded paper, completed in conjunction with requisite writing for an upper-division course taken for credit in the major. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Bridging Latin American and Latina/o Studies. F
Explores social, cultural, economic, and political changes that connect Latin America and U.S. Latina/o communities. The objective of this interdisciplinary team-taught course is to bridge previously distinct research approaches of Latin American and Latina/o studies to better understand processes that link peoples and ideas across borders as well as help students to conceptually and methodologically identify and design new objects of study and revisit traditional approaches. Core requirement for students pursuing the Parenthetical Notation in Latin American and Latino studies. Enrollment restricted to graduate students. G. Arredondo

210. Latina Feminisms: Theory and Practice. *
Through an interdisciplinary approach, explores Latina feminist social theory and scholarly practice—especially in representation and interpretation of Latina experiences. Examining key texts at different historical junctures, charts how Latinas of varied ethnic, class, sexual, or racialized social locations have constructed oppositional and/or relational theories and alternative epistemologies or political scholarly interventions and, in the process, have problematized borders, identities, cultural expressions, and coalitions. Enrollment restricted to graduate students. P. Zavella

212. Latina/o Ethnographic Practice. F
Explores the social construction of Latino cultures in their varied regional, national-ethic, and gendered contexts. Examines how culture, as a dynamic process constructed with a historical context of hierarchical relations of group power, is interrelated to the structural subordination of Latinos. Focuses on how power relations create a context for the creation of specific Latino cultural expressions and processes. Enrollment restricted to graduate students. P. Zavella

215. Latina Cultural Studies: Culture, Power, and Coloniality. *
Examines the theories and practices informing the field of Latina cultural studies in the Americas. For students pursuing the Designated Emphasis in Latin American and Latino studies and students with interest in theories of coloniality of power, decolonialism, intercultural and transnational feminist methodologies. (Formerly Latina Cultural Studies: Transborder Feminist Imaginaries.) Enrollment restricted to graduate students. R. Fregoso

220. Transnational Civil Society: Limits and Possibilities. *
Analyzes social, civic, and political actors that come together across borders to constitute transnational civil society, drawing from political sociology, political economy, comparative

politics, and anthropology to address collective identity formation, collective action, institutional impacts, and political cultures. Enrollment restricted to graduate students. J. Fox

225. Race in the Americas. *
Considers historical moments in the development of "race" in the Americas to understand how "race" is given meaning and actualized through practices, beliefs, and behaviors. Interrogates theories and racial dynamics in the 19th through 21st centuries to reveal interconnections with constructions of gender and nation. Enrollment restricted to graduate students. Enrollment limited to 15. G. Arredondo

230. Political Ecology in Latin America. *
Examines the foundations and current literature on political ecology, with emphasis on issues in Latin America. Topics include the appropriation of "Nature;" degradation and deforestation; conservation policies and politics; land distribution and property; and indigenous resistance. Enrollment restricted to graduate students. F. Lu

240. Culture and Politics of Human Rights. W
Examines cultural, philosophical, and political foundations for human rights and provides students with critical grounding in the major theoretical debates over conceptualizations of human rights in the Americas. Addresses the role of feminist activism and jurisprudence in the expansion of human rights since the Universal Declaration of Human Rights. Addresses challenges of accommodating gender rights, collective rights, and social and economic rights within international human rights framework. (Also offered as Feminist Studies 240. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. R. Fregoso

242. Globalization, Transnationalism, and Gender in the Américas. *
Explores how globalization, transnationalism, and the social construction of gender are interrelated, contingent, and subject to human agency and resistance. Examines particular configurations of globalization, transnationalism, and gender through the Américas and their implications for race, space, work, social movements, migration, and construction of collective memory. Enrollment restricted to graduate students. P. Zavella, R. Fregoso

243. Comparative Methods. *
Introduces the comparative method in social science. Trains students in the use of this method by examining how scholars have used it to compare across national governments, subnational units, public policies, organizations, social movements, and transnational collective action. (Also offered as Politics 243. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. K. Eaton, J. Fox

244. U.S. Political Relations with Latin America. *
Examines relations between the U.S. and Latin America. Emphasizes the domestic and global contexts within which U.S. leaders defined national economic, strategic, and ideological interests, and their regional policy objectives. Explores the impact of Latin Americans' nationalistic, anti-imperialist, class, racial, and gender struggles that often shaped policy outcomes in ways unanticipated by the U.S. Special focus on sharpening graduate students' research design. Enrollment restricted to graduate students. H. Perla

297. Independent Study. F,W,S
Students submit a reading course proposal to a department faculty member who supervises independent study in the field. Faculty and student jointly agree upon reading list. Students expected to meet regularly with faculty to discuss readings. This independent study must focus on a subject not covered by current UCSC graduate curriculum. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to graduate students and permission of instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Legal Studies

2014-15 General Catalog

27 Merrill College
(831) 459-2056
legalstudies@ucsc.edu
Department web site

Faculty | Program Statement

Lower-Division Courses

10. Introduction to Legal Process. W
Introduction to U.S. and comparative legal institutions and practices. Examines diverse areas of law from torts to civil rights to international human rights. Why is America portrayed as having an activist legal culture; why is law used to decide so many questions from presidential elections to auto accidents; can law resolve disputes that, historically, have led to war and violence; is the legal system fair and/or effective, and, if so, for whom and under what conditions? (General Education Code(s): IS.) The Staff

Upper-Division Courses

105A. Ancient Political Thought. F
Ancient political ideas in context of tension between democracy and empire, emergence of the psyche, and shift from oral to written culture. Emphasis on Athens, with Hebrew, Roman, and Christian departures and interventions. Includes Sophocles, Thucydides, Socrates, Plato, Aristotle, Stoics, the Bible, and Augustine. (Also offered as Politics 105A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. D. Mathiowetz

105B. Early Modern Political Thought. W
Studies republican and liberal traditions of political thought and politics. Authors studied include Hobbes, Locke, and Rousseau. Examination of issues such as authorship, individuality, gender, state, and cultural difference. (Also offered as Politics 105B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. V. Seth

105C. Modern Political Thought. S
Studies in 19th- and early 20th-century theory, centering on the themes of capitalism, labor, alienation, culture, freedom, and morality. Authors studied include J. S. Mill, Marx, Nietzsche, Foucault, Hegel, Fanon, and Weber. (Also offered as Politics 105C. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. M. Thomas

106. Marxism as a Method. *
Examines Marx's use of his sources in political philosophy and political economy to develop a method for analyzing the variable ways in which social change is experienced as a basis for social action. Provides a similar analysis of contemporary materials. Contrasts and compares Marxian critiques of these materials and readings based on Nietzsche,

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
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- German
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- Hebrew
- History
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- Italian
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- Merrill College
- Microbiology and Environmental Toxicology
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- Oakes College
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- Porter College
- Portuguese
- Psychology
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- Science Communication
- Social Documentation
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- Spanish for Heritage Speakers
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- Technology and Information

psychoanalysis, cultural studies, and rational choice materialism. (Also offered as Politics 106. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. The Staff

109. Legal Theory. *
Offers systematic exploration of alternative conceptions of the nature of law, including positivism, natural law, formalism, realism, pragmatism, and theories of justice. Additional focus on the nature of law; relation of law and morality, rights and other legal concepts; and philosophical debates such as critical legal studies and critical race theory. Enrollment restricted to legal studies majors during priority enrollment only. The Staff

110. Law and Social Issues. F
Examines current problems in law as it intersects with politics and society. Readings are drawn from legal and political philosophy, social science, and judicial opinions. (Also offered as Politics 110. Students cannot receive credit for both courses.) Enrollment restricted to politics, legal studies, and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

111A. Constitutional Law. W
An introduction to constitutional law, emphasizing equal protection and fundamental rights as defined by common law decisions interpreting the 14th Amendment, and also exploring issues of federalism and separation of powers. Readings are primarily court decisions; special attention given to teaching how to interpret, understand, and write about common law. (Also offered as Politics 111A. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. The Staff

111B. Civil Liberties. *
Explores the status of American civil liberties as provided by the Bill of Rights. Particular attention will be given to issues of concern relating to the aftermath of 9/11, including issues relating to detainees, freedom of information requests, wiretapping authority, watch lists, profiling, and creation of a domestic intelligence agency. Enrollment restricted to legal studies majors during priority enrollment only. The Staff

111C. Issues in Constitutional Law. S
Examines variety of topics in constitutional law that are not covered in courses 111A and 111B. Focuses primarily on Supreme Court decisions and common-law debates. Enrollment restricted to legal studies majors during priority enrollment. R. Coonerty

113. Gay Rights and the Law. *
Examines relevant court cases as well as local, state, and federal laws that define boundaries for legal recognition of sexual orientation and personal sexuality. Explores legal assumptions behind current and historical cases defining personal sexuality and sexual orientation and considers the social and political impetus in each era that drove the courts and legislatures to make such decisions. The Staff

114. Jews, Anti-Semitism, and the American Legal System. *
Explores how Jews have influenced and been impacted by the American legal system. Students explore significant cases, debates, and trends in the law as it relates to Jewish identity, religious freedom, and conceptions of justice. Enrollment restricted to legal studies majors during priority enrollment only. The Staff

115. Law and the Holocaust. *
Examines the Nazi philosophy of law, and how it was used to pervert Germany's legal system in order to discriminate against, ostracize, dehumanize, and ultimately eliminate certain classes of human beings, and the role of international law in rectifying the damage. Enrollment restricted to legal studies majors during priority enrollment only. Enrollment restricted to legal studies majors during priority enrollment only. The Staff

116. Comparative Law. *
Explores legal systems and legal rules around the world, for a better understanding of the factors that have shaped both legal growth and legal change. Particular attention given to differences between common and civil law systems, changes brought about by the European Union, and expansion of legal norms around the globe. (Also offered as Politics 116. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. The Staff

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Appendixes

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Nondiscrimination Statement

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118. Law and Literature. *
Explores variety of texts including novels, short stories, and essays as a source for reflection about the nature of law and legal practice. Readings include such writers as Herman Melville, Harper Lee, Richard Wright, Arthur Miller, Nadine Gordimer, and James Alan McPherson, among others. (Formerly course 138.) Enrollment restricted to legal studies majors during priority period. The Staff

120A. Congress, President, and the Court in American Politics. *
Study of political development, behavior, performance, and significance of central governmental institutions of the U.S. Emphasizes the historical development of each branch and their relationship to each other, including changes in relative power and constitutional responsibilities. (Also offered as Politics 120A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. D. Wirls

120B. Society and Democracy in American Political Development. F
Examines the role of social forces in the development of the American democratic processes and in the changing relationship between citizen and state. Course materials address the ideas, the social tensions, and the economic pressures bearing on social movements, interest groups, and political parties. (Also offered as Politics 120B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. M. Springer

120C. State and Capitalism in American Political Development. W
Examines the relationship between state and economy in the U.S. from the 1880s to the present, and provides a theoretical and historical introduction to the study of politics and markets. Focus is on moments of crisis and choice in U.S. political economy, with an emphasis on the rise of regulation, the development of the welfare state, and changes in employment policies. (Also offered as Politics 120C. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. E. Bertram

121. Black Politics and Federal Social Policy. *
Examination of changes in the political and economic status of African Americans in the 20th century; particular focus on the role of national policies since 1933 and the significance of racism in 20th-century U.S. political development. (Also offered as Politics 121. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment. (General Education Code(s): E.) M. Brown

122. The Sociology of Law. *
Explores the social forces that shape legal outcomes and the ways law, in turn, influences social life. Traces the history and political economy of American law; the relation between law and social change; how this relation is shaped by capitalism and democracy; and how class, race, and gender are expressed in welfare and regulatory law. (Also offered as Sociology 122. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors and minors. C. Reinarman

123. Law, Crime, and Social Justice. *
Blends the latest research in criminology with that from social stratification, inequality, and social welfare policy with the objective of exploring the relationship between levels of general social justice and specific patterns of crime and punishment. The focus is primarily on the U.S. although many other industrialized democracies are compared. An introductory course in sociology is recommended as preparation. (Also offered as Sociology 123. Students cannot receive credit for both courses.) The Staff

125. History of the U.S. Penal Culture. *
Explores the history and theory of U.S. state punishment from its 17th-century beginnings to the present and notes evolving models of criminal deviance, focusing on how punishment systems legitimate particular models of criminal deviance, crime, and its "correction." Enrollment restricted to legal studies majors during priority enrollment only. The Staff

126. Law and Politics in Contemporary Japan and East Asian Societies. *
Introduction to contemporary analysis of Japan's race relations, ethnic conflicts, and a

government's failure to restore remedial justice for war victims in Japan, Asia, and the U.S. Specific issues include comfort women, national or state narratives on Hiroshima, forced labor during World War II, and Haydon legislation that allows war victims to sue Japanese government and corporations in California. (Also offered as Sociology 128. Students cannot receive credit for both courses.) Enrollment limited to 30. H. Fukurai

127. Drugs in Society. W
Explores the history of the use and abuse of consciousness-altering substances like alcohol and other drugs. Social-psychological theories of addiction are reviewed in tandem with political-economic analyses to identify the social conditions under which the cultural practices involved in drug use come to be defined as public problems. An introductory sociology course is recommended prior to taking this course. (Also offered as Sociology 127. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors and minors. C. Reinarman

128. Poverty and Public Policy. S
Studies the causes, consequences, and governmental response to urban poverty in the U.S. Topics include how public policy, the macroeconomy, race, gender, discrimination, marriage, fertility, child support, and crime affect and are affected by urban poverty. Emphasizes class discussion and research. (Also offered as Economics 128. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; ECON 100A & 113 or consent of instructor. Enrollment restricted to economics, business management economics, global economics, legal studies, or economics combined major Enrollment limited to 35. (General Education Code(s): W, E.) L. Kletzer, R. Fairlie

128I. Race and Law. F
An introduction to comparative and historical analyses of the relation between race and law in the U.S. Emphasis on examinations of continuous colonial policies and structural mechanisms that help maintain and perpetuate racial inequality in law, criminal justice, and jury trials. (Formerly Race and Justice) (Also offered as Sociology 128I. Students cannot receive credit for both courses.) Enrollment restricted to sophomores, juniors, and seniors. H. Fukurai

128J. The World Jury on Trial. *
Adoption of the jury and its varied forms in different nations provides ideal opportunities to examine differences between systems of popular legal participation. Course considers reasons why the right to jury trial is currently established in Japan or Asian societies, but abandoned or severely curtailed in others. American jury contrasted with other forms of lay participation in the legal process. (Also offered as Sociology 128J. Students cannot receive credit for both courses.) Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 30. H. Fukurai

128M. International Law and Global Justice. *
Examines war crimes, crimes against humanity, and the evolution and role of the International Criminal Court (ICC). Examines the evolution of the concept of international law, the rationale for its birth and existence, roots of international conflicts and genocides, possible remedies available to victims, mechanisms for the creation and enforcement of international legal order, as well as the role of colonialism, migration, povery, race/ethnic conflicts, gender, and international corporations in creating and maintaining conflicts and wars. (Also offered as Sociology 128M. Students cannot receive credit for both courses.) Enrollment restricted to juniors and seniors. Enrollment limited to 30. H. Fukurai

130. Race and the Law. *
Explores the complex relationship between race and the law in American society. Included subjects are critical race theory, civil rights and voting rights law, issues of the criminal justice system, intersections with issues of class and gender, and the social construction of race through law and legal decisions. Enrollment restricted to legal studies majors during priority enrollment. The Staff

131. Wildlife, Wilderness, and the Law. *
Introduction to wildlife, wilderness, and natural resources law, policy, and management. Examines rules governing resource allocation and use including discussion of fundamental legal concepts. Explores laws and management policies affecting wildlife and wilderness,

including their origins and impacts. Examines how conflicts over natural resources are being negotiated today. Enrollment restricted to sophomore, junior, and senior legal studies majors during the priority period. R. Langridge

132. California Water Law and Policy. W
Explores the rich history and fundamental legal concepts surrounding water in California. Students identify, evaluate, and debate some critical water policy questions faced by Californians today and in the future. (Also offered as Politics 132. Students cannot receive credit for both courses.) R. Langridge

133. Law of Democracy. W
Explores the role of law in both enabling and constraining the actions of elected politicians in the U.S. Among issues examined are voting rights, redistricting, and campaign finance. Course asks how the law shapes and limits our ability to choose our elected leaders, and in turn, how the law is shaped by political forces. (Also offered as Politics 133. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment. R. Coonerty

134. Congress: Representation and Legislation. *
Examines the United States Congress and the nature of the representative and legislative processes. Topics include: districting and elections; bicameralism; party organization; institutional and behavioral influences on legislative action; and the efficacy of Congress as a legislative body. Focuses on the contemporary Congress with comparisons to other legislative and representative institutions. (Formerly Congress: Representation and Legislation in Comparative Perspective.) (Also offered as Politics 134. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. D. Wirls

135. Native Peoples Law. S
Explores the legal relationship between native peoples and the state. Examines the development of that relationship and several of the key legal issues currently confronting native peoples as they attempt to redress the injustices of the past. Enrollment restricted to legal studies majors during priority enrollment only. (General Education Code(s): E.) The Staff

136. Federal Indian Law and International Comparative Indigenous Peoples' Law. *
Indian law refers to the body of law dealing with the status of Indian tribes, their inherent powers of self-government, their special relationship to the federal government, and the actual or potential conflicts of governmental power. Primary objective will be to address tribal reassertion of aboriginal sovereignty over culture and land in the context of increasing world recognition of indigenous rights. Enrollment restricted to legal studies majors during priority period. (General Education Code(s): E.) The Staff

137. International Environmental Law and Policy. *
International environmental law (IEL) endeavors to control pollution and depletion of natural resources within a framework of sustainable development and is formally a branch of public international law—a body of law created by nation states for nation states, to govern problems between nation states. Examines landmark developments of IEL since 1972 within a historical continuum to better understand their strengths and weaknesses. Enrollment restricted to legal studies majors during priority period. The Staff

138. Political Anthropology. *
The ideas, in selected non-Western societies, about the nature of power, order, social cohesion, and the political organization of these societies. (Also offered as Anthropology 138. Students cannot receive credit for both courses.) Offered in alternate academic years. T. Pandey

139. War Crimes. *
Explores complex international human rights/humanitarian law issues surrounding genocide and other mass violence, beginning with the Nuremberg trials following World War II up to recent atrocities in Rwanda, Bosnia, and elsewhere. Covers basic legal framework of human rights law, examines specific situations on a case by case basis, and discusses what options the international community, the nations themselves, and individuals have in the wake of such catastrophes. Enrollment restricted to legal studies majors during priority period. The Staff

142. Anthropology of Law. *
An ethnographically informed consideration of law, dispute management, and social control in a range of societies including the contemporary U.S. Topics include conflict management processes, theories of justice, legal discourse, and relations among local, national, and transnational legal systems. (Also offered as Anthropology 142. Students cannot receive credit for both courses.) Enrollment restricted to anthropology and legal studies majors. D. Brenneis

144. Social and Political Philosophy. *
A study of selected classical and contemporary writings dealing with topics such as the nature and legitimacy of the liberal state, the limits of political obligation, and theories of distributive justice and rights. (Also offered as Philosophy 144. Students cannot receive credit for both courses.) Prerequisite(s): one course in philosophy. Offered in alternate academic years. D. Guevara

146. Philosophy of Law. *
Exploration of selected problems in jurisprudence: "legal reasoning" and social policy, rules and individual cases, the mental element in the law, punishment and responsibility, causation and fault, liberty and paternalism, etc. (Formerly Philosophy 146.) (Also offered as History of Consciousness 146. Students cannot receive credit for both courses.) J. Neu

147A. Psychology and Law. W
Current and future relationships between law and psychology, paying special attention to gaps between legal fictions and psychological realities in the legal system. Topics include an introduction to social science and law, the nature of legal and criminal responsibility, the relationship between the social and legal concepts of discrimination, and the nature of legal punishment. (Also offered as Psychology 147A. Students cannot receive credit for both courses.) Psychology 3 or 100 and 40 are recommended prior to taking this course. Enrollment restricted to psychology, pre-psychology, and legal studies majors. C. Haney

147B. Psychology and Law. S
Continuing discussion of current and future relationships between law and psychology and to contrasting psychological realities with legal fictions. Special attention is given to the criminal justice system including crime causation, the psychology of policing and interrogation, plea bargaining, jury selection and decision making, eyewitness identification, and the psychology of imprisonment. (Also offered as Psychology 147B. Students cannot receive credit for both courses.) Prerequisite(s): course 147A. C. Haney

149. Environmental Law and Policy. S
Surveys a wide range of topics in environmental law, including state and federal jurisdiction, administrative law, separation of powers, state and local land use regulation, public land and resource management, pollution control, and private rights and remedies. Students read a large number of judicial cases and other legal documents. (Also offered as Environmental Studies 149. Students cannot receive credit for both courses.) Enrollment restricted to junior and senior legal studies majors. T. Duane

150. Children and the Law. *
Explores the legal rights of children. Topics may include juvenile justice, gang offenses, free speech and Internet censorship, religious rights, child custody and support, adoption, foster care, abuse and sexual harassment, special needs, public benefits, and medical care. Enrollment restricted to legal studies majors during priority period. The Staff

151. Politics of Law. *
Uncovers the important debates in politics and law around the functions of courts, litigation, and rights--and the political nature of law itself. Course is interdisciplinary, and draws from literature in political science, law, and sociology. (Also offered as Politics 151. Students cannot receive credit for both courses.) Enrollment restricted to politics, legal studies, and Latin American and Latino studies/politics combined majors during priority period. M. Massoud

152. Courts and Litigation. *
A study of the role of courts in society and the uses of litigation to address and deflect social problems. Focus is on recent developments in American litigation, but comparative materials may be considered. Enrollment restricted to legal studies majors during priority period. The Staff

154. The Legal Profession. *
Lawyers stand between the legal system and those who are affected by it. Examines this relationship descriptively and normatively, and from the point of view of sociological theory. Concentrates on the U.S. profession, with some comparative material. Enrollment restricted to legal studies majors during priority period. The Staff

155. Topics in American Legal History: Making of American Constitutionalism.
Explores some aspects of early American constitutional thought, particularly immediately preceding the American Revolution situating early colonial constitutional thought within some of the larger themes and controversies of the 17th-century English constitutionalism, then considering some aspects of American constitutional thought in the founding period against the background of the colonial experience. Prerequisite(s): permission of instructor: selection based on the ability to do very advanced work. Enrollment restricted to legal studies majors during priority period. Enrollment limited to 20. The Staff

156. Administrative Jurisprudence. *
The rise of the regulatory state brings with it a host of questions regarding the exercise of state power and separation of powers. Takes up some of these questions; in particular, questions about administrative agencies and their relationship to the judiciary, the legislature and private individuals and groups. Enrollment restricted to legal studies majors during priority period. The Staff

157. Political Jurisprudence. *
Explores some themes in legal and political theory, especially on the relationship of theories of justice, law, and ethics. Enrollment restricted to legal studies majors during priority period. The Staff

159. Property and the Law. F
Beginning with an examination of the concept of property, the class covers how different cultures characterize property and determine "ownership" and the laws and policies that define property in modern society. Topics include theories of property law, common property, property and natural resources, zoning, regulatory takings, and property on the Internet. Enrollment restricted to legal studies majors during priority period. R. Langridge

160A. Industrial Organization. W
The structure and conduct of American industry with strong emphasis on the role of government, regulation, anti-trust, etc. The evolution of present-day industrial structure. The problems of overall concentration of industry and of monopoly power of firms. Pricing, output decisions, profits, and waste. Approaches include case study, theory, and statistics. (Also offered as Economics 160A. Students cannot receive credit for both courses.) Prerequisite(s): Economics 100A or 100M. The Staff

160B. International Law. S
Origins and development of international law: international law is examined both as a reflection of the present world order and as a basis for transformation. Topics include state and non-state actors and sovereignty, treaties, the use of force, and human rights. (Formerly course 173.) (Also offered as Politics 160B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. M. Massoud

162. Legal Environment of Business. *
A study of law and the legal process, emphasizing the nature and function of law within the U.S. federal system. Attention is given to the legal problems pertaining to contracts and related topics, business association, and the impact of law on business enterprise. (Also offered as Economics 162. Students cannot receive credit for both courses.) Prerequisite(s): Economics 100A. R. Bosso

167. Politics of International Trade. *
Examines key issues in international trade, including the distribution of gains, fair trading practices, and preferential trade agreements. Focuses on the political dimensions of trade, the rules of the international trade system, and conflicts within countries that international trade generates. (Also offered as Politics 167. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. The Staff

169. Economic Analysis of the Law. S
The application of the theories and methods of neoclassical economics to the central institutions of the legal system, including the common law doctrines of negligence, contract, and property; bankruptcy and corporate law; and civil, criminal, and administrative procedure. (Also offered as Economics 169. Students cannot receive credit for both courses.) Prerequisite(s): Economics 100A or 100M or permission of instructor. D. Wittman

171. Law of War. *
Examines legal regulation of international violent conflict. Students examine development of normative standards within international law and creation of institutions to both adjudicate violations and regulate conduct. (Also offered as Politics 171. Students cannot receive credit for both courses.) Enrollment restricted to legal studies majors during priority enrollment only. The Staff

175. Human Rights. S
Embraces an interdisciplinary approach to the study of human rights. Captures the malleable nature of human rights and the contours of its dual role as both law and discourse. (Also offered as Politics 175. Students cannot receive credit for both courses.) Prerequisite(s): course 160B. Enrollment restricted to legal studies majors during priority enrollment. M. Massoud

183. Women in the Economy. *
Study of gender roles in economic life, past and present. Topics include occupational structure, human capital acquisition, income distribution, poverty, and wage differentials. The role of government in addressing economic gender differentials is examined. (Also offered as Economics 183. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; Economics 1, 2, and 100A; Economics 113 strongly recommended. (General Education Code(s): W.) J. Poole

190R. Comparative Law and Society. *
Interdisciplinary investigation into functions of law across political, historical, and cultural contexts. Examines the international and comparative turn in public law scholarship and the role of law-based strategies in state building. Reviews literature in law, political science and legal anthropology. (Also offered as Politics 190R. Students cannot receive credit for both courses.) Prerequisite(s): course 160B. Enrollment restricted to senior legal studies majors. Enrollment limited to 20. M. Massoud

193. Field Study. F,W,S
Field research performed off-campus, under the supervision of a member of the legal studies faculty. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195A. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

195B. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

195C. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

196. Senior Capstone. W,S

Examines related legal topics from an interdisciplinary perspective. Each focuses broadly on the relationship between law as a distinct system and law as an attempt to achieve justice, which requires that law remain open to claims of political morality generally. To what extent are legal norms internal to a separate system called "law" and to what extent are claims of political right in general relevant to question of what law is? Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior legal studies majors. (General Education Code(s): W.) The Staff

198. Independent Field Study. F,W,S
Individual studies undertaken off-campus for which faculty supervision is not in person, but by correspondence. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Individual studies undertaken off-campus for which faculty supervision is not in person, but by correspondence. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
A student normally approaches a faculty member and proposes a course 199 on a subject he or she has chosen. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
A student normally approaches a faculty member and proposes a course 199 on a subject he or she has chosen. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Linguistics

2014-15 General Catalog

241 and 243 Stevenson College
(831) 459-2905
(831) 459-4988
http://linguistics.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

50. Introduction to Linguistics. F
An introduction to the major areas, problems, and techniques of modern linguistics. (General Education Code(s): SI, IH.) R. Mester

53. Semantics I. F,W
Introduction to the logical foundations of natural language semantics. Logical and semantic relations, simple set theory, logical representations (propositional and predicate calculi, modal and tense logics) and their interpretations. A basic literacy course in the language of logical representation. (General Education Code(s): IH.) P. Anand, D. Farkas

80C. Language, Society, and Culture. S
The study of language from a sociological perspective. Multilingualism, language change and variation, pidgins and creoles, the origin and diversification of dialects. (General Education Code(s): CC, T5-Humanities and Arts or Social Sciences.) J. Padgett

80D. Language and Mind. W
A critical overview of the research program initiated by Noam Chomsky and its implications for theories of the human mind and brain. (Formerly Language and Mind: Chomsky's Program.) (General Education Code(s): T5-Humanities and Arts or Social Sciences.) M. Wagers

80V. Structure of the English Vocabulary. *
A systematic study of the elements of English words: besides the practical goal of vocabulary consolidation and expansion, explores the historical origin and development of word elements, as well as their sound, meaning, and function in the contemporary language. (General Education Code(s): T4-Humanities and Arts.) The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

101. Phonology I. W,S
Introduction to how sounds pattern in grammars—why they vary, how they combine, etc. Emphasis is on developing theories to explain the patterns. Topics include distinctive feature theory, phonemic analysis, autosegmental phonology, and principles of

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

syllabification and stress. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 50. (General Education Code(s): W.) J. Ito, R. Mester

102. Phonology II. F
Advanced phonological theory. Topics include markedness; underspecification theories; advanced topics in feature geometry, syllable theory, and stress theory; and optimality theory. Readings include published articles. Emphasis on theory construction and argumentation based on data. Prerequisite(s): course 101. J. Ito

105. Morphology. F
Study of the principles of word formation: derivation, inflection, and compounding; cross-linguistic study of morphological processes, morphological investigation and analysis. Prerequisite(s): course 111or 112, and course 101. Offered in alternate academic years. J. Hankamer

108. Poetry and Language. W
An introduction to the linguistic aspects of poetry, e.g., rhyme, meter, and larger-scale organization of poetic form. The emphasis is on English poetry, complemented by brief sketches of other poetic traditions. Prerequisite(s): course 101, and course 111 or 112. Offered in alternate academic years. (General Education Code(s): TA.) S. Chung

111. Syntactic Structures. S
Provides a basic introduction to the methods and results of generative grammar. It simultaneously provides an overview of the major syntactic constructions of English. (Formerly course 55.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): IH.) A. Deal

112. Syntax I. F,W
An introduction to syntactic investigation, developed through the study of central aspects of English syntax. A major purpose is to introduce students to the study of language as an empirical science. (Formerly course 52.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): IH.) S. Chung, M. Toosarvandani, J. Hankamer

113. Syntax II. S
Further aspects of English syntax; universal and language-particular constraints on syntactic structures and rules. Further developments and extensions of generative theory. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 53 and 112. (General Education Code(s): W.) J. McCloskey

114A. Syntax III. F
Advanced topics in syntax and semantics. Prerequisite(s): course 113, satisfaction of the Entry Level Writing and Composition requirements and permission of instructor. (General Education Code(s): W.) J. McCloskey

114B. Readings in Syntax. *
Introduces reading the primary literature in syntax. Readings will vary. Emphasis is on how to read technically difficult works, evaluate arguments, and appreciate competing views. Coursework includes readings, presentations, and short response papers. Enrollment by permission of instructor. Prerequisite: course 113. The Staff

114C. Topics in Syntax. *
Advanced undergraduate course devoted to a topic in syntax. Topics vary and may include ellipsis, binding, agreement phenomena, alternative frameworks. Coursework includes problem sets, readings, presentations, and a term paper. Enrollment by permission of instructor. Prerequisite: course 113. The Staff

116. Semantics II. W
Major issues in natural language semantics: nature of lexical entries, thematic relations, propositional representation or "logical form"; relation between semantic interpretation and syntactic representations, quantification and scope relations, reference and presupposition, coreference and anaphoric relations. Prerequisite(s): course 53, and either course 111 or 112. P. Anand

117. Pragmatics. F
Covers topics central in the study of pragmatics, the interpretation of language use. Topics

Management
- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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include conversational implicature, speech acts and discourse understanding, and social deixis. Prerequisite(s): course 53. D. Farkas

118. Semantics III. S
Uses the tools learned in courses 53 and 116 (Semantics I and Semantics II), giving students the opportunity to explore important topics with heavy emphasis placed on reading primary-source literature. Readings form the basis for weekly lectures and the discussion section. Prerequisite(s): course 116 and permission of instructor. Enrollment limited to 25. D. Farkas

120. Structure of English. *
Survey of grammatical structure of English and terminology of grammatical description. Covers phonological, morphological, and syntactic structure of English and contrasts it with other languages. Prerequisite(s): course 111 or 112, and 101. The Staff

124. Language Typology. S
Introduces the branch of linguistics whose goal is to describe and explain the structural diversity of the world's languages. Focuses on what is known about variation in particular domains (e.g., syllable structure, word order, evidentiality), and how it might be explained. Prerequisite(s): course 111or 112, and course 101. Enrollment limited to 40. M. Toosarvandani

125. Foundations of Linguistic Theory. *
Survey of some of the history and foundational assumptions of generative grammar; also looks at some of the influence of generative linguistic theorizing on disciplines outside linguistics, notably psychology and philosophy. Prerequisite(s): course 113 or 116. Enrollment limited to 25. The Staff

140. Language Change. S
Methods and problems in the study of change in linguistic systems. Reconstruction of proto-languages; the comparative method. Theories of change and implications for the theory of grammar. Prerequisite(s): course 102. Enrollment limited to 25. R. Mester

141. Ellipsis. W
An introduction to and survey of the ellipsis in natural language, including the typology of ellipsis processes, cross-linguistic uniformity and variation in ellipsis, and theoretical approaches and issues. Prerequisite(s): courses 53 and 101, and 111 or 112 The Staff

144. Computational Methods for Linguists. *
Practical introduction to computational methods for linguists. Topics covered include: database development; indexation and search; morphological and syntactic parsing; modern annotation methodologies. Students concurrently learn Python and Javascript. No background in programming required. Prerequisite(s): courses 50, 53, and either 111 or 112. Enrollment restricted to linguistics and language studies majors. The Staff

145. Native Languages of North America. *
Selective survey of the indigenous languages of North America, including a formal/structural component and an historical/social component. Topics include typological properties of these languages, current status, and revitalization efforts. Prerequisite(s): course 101, and either course 111 or 112. The Staff

147. Quantitative Methods in Linguistics. W
Introduces quantitative methods for linguistics. Focuses on categorical data and continuous data, and using R. Students learn the basics of probability, statistics, and experimental design, and use R to apply them to linguistic data sets. Prerequisite(s): courses 53 and 101, and either course 111 or 112. (General Education Code(s): SR.) A. Brasoveanu

151. Phonetic Analysis. W
Introduction to instrumental phonetic analysis—analysis using experimental methods. Emphasis is on the acoustics and perception of speech. Prerequisite(s): course 101. G. McGuire

152. Applied Phonetics. *
Examines areas in which phonetic analysis and experimentation are used in practice. Emphasizes problem-solving, experiments, and analytical tasks. Prerequisite(s): course 151. Enrollment limited to 25. The Staff

154. Language and Social Identity. S
Introduction to sociolinguistics exploring the relationship between language and such social parameters as social status, ethnicity, race, gender, etc., including the role of language differences in the creation of social stereotypes. Emphasis on gathering, examining, and reporting data. Prerequisite(s): course 101, and either course 111 or 112. Enrollment limited to 25. G. McGuire

155. Language and Cognition. *
Introduces and examines some of the foundational assumptions, practices, and methods of generative grammar in comparison to those of other areas of cognitive science, notably psychology and philosophy. Prerequisite(s): course 111 or 112, 53, and 101. The Staff

157. Psycholinguistics and Linguistic Theory. F
Theory and methods in psycholinguistics, covering perception, production, and acquisition of language and linguistic structure. A hands-on, laboratory-style introduction to the topic, focusing on the relation between experimental findings and linguistic theory. Students cannot receive credit for this course and course 257. Prerequisite(s): course 102 or 105 or 113 or 116. Enrollment restricted to linguistics and language studies majors. (General Education Code(s): SR.) M. Wagers

158. Advanced Psycholinguistics. *
Advanced topics in psycholinguistics and experimental linguistics, contemporary memory models, computational models of comprehension and production, and neurolinguistic findings and methodologies. Student work revolves around an extended research project in which students learn to apply advanced analytical techniques. Prerequisite(s): course 157. Enrollment restricted to linguistics and language studies majors. Enrollment limited to 12. The Staff

160. Language Engineering. *
Addresses a particular problem in language engineering, chosen for its practical and theoretical interest and its tractability. The entire course focuses on a team project to design a solution to the problem. Permission of instructor required. The Staff

181. Structure of Romance Languages. *
Discusses topics in the phonology, syntax, and semantics of Romance languages, with emphasis left to the discretion of the instructor. Students read original research articles and pursue empirical investigation of Romance languages by collecting data from scholarly publications, fieldwork, and/or corpus analysis. Some knowledge of Italian, French, or Spanish is required. Prerequisite(s): course 111 or 112, and course 101. The Staff

182. Structure of Spanish. *
The phonology and syntax of Spanish, studied from a modern linguistic perspective. Some knowledge of Spanish is required. Prerequisite(s): course 111 or 112, and course 101. The Staff

183. Structure of French. *
The phonology, morphology, and syntax aspects of French. Some knowledge of French is helpful. Prerequisite(s): course 111 or 112, and 101. The Staff

185. Structure of Russian. *
The phonology, morphology, and syntax of Russian. Some knowledge of Russian is helpful. Prerequisite(s): course 111 or 112, and course 101. Enrollment limited to 30. Offered in alternate academic years. The Staff

186. Structure of German. *
Phonological, morphological, and syntactic aspects of the structure of the German language. Some knowledge of German is required. Prerequisite(s): course 111 or 112, and course 101. The Staff

187. Structure of Japanese. *
The phonology, morphology, and syntax of Japanese. Some knowledge of Japanese is required. Prerequisite(s): course 111 or 112, and course 101. Offered in alternate academic years. The Staff

188. Structure of Turkish. *
The phonology, morphology, and syntax of Turkish. Prerequisite(s): course 111 or 112, and

course 101. The Staff

189. Structure of Arabic. *
The phonology, morphology, and syntax of Arabic. (Mainly modern standard, but also some regional dialects.) No knowledge of Arabic is required. Pre-requisite(s): course 101, and course 111 or 112. The Staff

193. Field Study. *
Students submit petition to sponsoring agency. The Staff

195. Senior Thesis. F,W,S
Deadline for submission of thesis proposal is one year in advance of proposed completion. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for department-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision by correspondence). Preparation and approval must be completed by the fifth day of instruction of any given quarter. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

211. Phonology A. F
First part of a three quarter introduction to phonology. Topics of the sequence include fundamentals of acoustic phonetics; introduction to optimality theory; theories of syllabification, stress, and prosodic organization; prosodic morphology; advanced issues in faithfulness and correspondence; segmental and suprasegmental processes. Enrollment restricted to graduate standing or consent of instructor. J. Padgett

212. Phonology B. W
Second part of a three quarter introduction to phonology. Topics of the sequence include fundamentals of acoustic phonetics; introduction to optimality theory; theories of syllabification, stress, and prosodic organization; prosodic morphology; advanced issues in faithfulness and correspondence; segmental and suprasegmental processes. Prerequisite(s): course 211. Enrollment restricted to graduate standing or consent of instructor. J. Ito

214. Phonetics. S
Introduction to phonetic theory concentrating on acoustic phonetics and speech perception along with common experimental methods, the role of phonetic principles in explaining phonological patterns and markedness. Enrollment restricted to graduate students, or by permission of instructor. Enrollment limited to 12. G. McGuire

216. Phonology Proseminar. *
One or more topics in phonological theory. Topics vary from year to year, covering literature and current research in phonology. Prerequisite(s): course 212. Enrollment restricted to graduate standing or consent of instructor. May be repeated for credit. The Staff

219. Phonology Seminar. W
Advanced topics in phonology drawn from the current research interests of the instructor. Prerequisite(s): course 212. Enrollment restricted to graduate standing or consent of instructor. May be repeated for credit. R. Mester

219G. Phonology Seminar (3 credits). W
Advanced topics in phonology drawn from the current research interests of the instructor. Three-credit version of course 219. Does not require a final paper. Prerequisite(s): course 212. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. R. Mester

221. Syntax A. F
Introduction to syntactic theory. Phrase structure; subcategorization; lexical entries;

passive; infinitival constructions. Enrollment restricted to graduate standing or consent of instructor. A. Deal

222. Syntax B. W
Continuation of Syntax A. The syntax of unbounded dependencies, including constituent questions, relative clauses, clefts, topicalization. Constraints on extraction; unbounded versus successive cyclic movement; the licensing of gaps. Prerequisite(s): course 221. Enrollment restricted to graduate standing or consent of instructor. M. Toosarvandani

226. Proseminar in Syntax. W
In-depth investigation of some topic in syntactic theory. Topics vary from year to year, covering literature and current research in grammatical structure from varying theoretical perspectives. Prerequisite(s): course 222. J. McCloskey

226G. Proseminar in Syntax (3 credits). W
In-depth investigation of some topic in syntactic theory. Topics vary from year to year, covering literature and current research in grammatical structure from varying theoretical perspectives. Three-credit version of course 226. Does not require a final paper. Prerequisite(s): course 222. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. J. McCloskey

229. Syntax Seminar. F,S
Advanced topics in syntax drawn from the current research interests of the instructor. Prerequisite(s): course 222. Enrollment restricted to graduate standing or consent of instructor. May be repeated for credit. M. Toosarvandani, A. Deal

229G. Syntax Seminar (3 credits). F,W
Advanced topics in syntax drawn from the current research interests of the instructor. Three-credit version of course 229. Does not require a final paper. Prerequisite(s): course 222. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. M. Toosarvandani, J. McCloskey

231. Semantics A. W
Introduction to linguistic semantics: nature of lexical entries, thematic relations, representation of logical form; relation between semantic interpretation and syntactic representation, quantification and scope relations, reference and presupposition. Enrollment restricted to graduate standing or consent of instructor. A. Brasoveanu

232. Semantics B. S
Model-theoretic semantics for natural language. Truth-conditional, compositional semantics. Various logical ontologies and their application to natural language categories. Dynamic interpretation of discourse and anaphoric relations. Treatment of illocutionary force. Prerequisite(s): course 231. Enrollment restricted to graduate standing or consent of instructor. D. Farkas

236. Proseminar in Semantics. *
In-depth investigation of some topic in semantics and pragmatics. Topics vary from year to year, covering literature and current research in linguistic semantics and pragmatics. Prerequisite(s): course 231. Enrollment restricted to graduate standing or consent of instructor. The Staff

236G. Semantics Proseminar (3 credits). *
In-depth investigation of some topic in semantics and pragmatics. Topics vary from year to year, covering literature and current research in linguistic semantics and pragmatics. Three-credit version of course 236. Does not require a final paper. Prerequisite(s): course 231. Enrollment restricted to graduate students, or by consent of instructor. Enrollment limited to 12. May be repeated for credit. The Staff

239. Semantics Seminar. F,S
Advanced topics in semantics drawn from the current research interests of the instructor. Prerequisite(s): course 232. Enrollment restricted to graduate standing or consent of instructor. May be repeated for credit. A. Brasoveanu, P. Anand

239G. Semantics Seminar (3 credits). F,S
Advanced topics in semantics drawn from the current research interests of the instructor. Three-credit version of course 239. Does not require a final paper. Prerequisite(s): course

232. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. A. Brasoveanu, P. Anand

240. The Pedagogy of Linguistics (1 credit). F,W
Provides training for graduate students in university-level pedagogy in general and in the pedagogy of linguistics specifically. Under the supervision of a faculty member, coordinated by a graduate student with substantial experience as a teaching assistant. May be repeated for credit. P. Anand

244. Computational Methods for Linguists. *
Practical introduction to computational methods for linguists. Topics covered: database development; indexation and search; morphological and syntactic parsing; and modern annotation methodologies. Students concurrently learn Python and JavaScript. No background in programming is required. Enrollment restricted to graduate students, or by consent of the instructor. Enrollment limited to 12. The Staff

245. Computational Models of Discourse and Dialogue. W
Focuses on classic and current theories and research topics in the computational modeling of discourse and dialogue, with applications to human-computer dialogue interactions; dialogue interaction in computer games and interactive story systems; and processing of human-to-human conversational and dialogue-like language such as e-mails. Topics vary depending on the current research of the instructor(s) and the interests of the students. Students read theoretical and technical papers from journals and conference proceedings and present class lectures. A research project is required. (Also offered as Psychology 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. May be repeated for credit. The Staff

249. Morphology Seminar. *
Presents theoretical and descriptive issues, particularly those raised by the framework of distributed morphology and its current competitors. Course work consists of readings, squibs, and a term paper. Enrollment restricted to graduate students. The Staff

249G. Morphology Seminar (3 credits). *
Presents theoretical and descriptive issues, particularly those raised by the framework of distributed morphology and its current competitors. Coursework consists of readings and squibs. Three-credit version of course 249. Does not require a final paper. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. The Staff

257. Psycholinguistics and Linguistic Theory. S
Theory and methods in psycholinguistics, covering perception, production, and acquisition of language and linguistic structure. A hands-on, laboratory-style introduction to the topic, focusing on the relation between experimental findings and linguistic theory. Students cannot receive credit for this course and course 157 or 257G. Enrollment restricted to graduate students. M. Wagers

258. Advanced Psycholinguistics. *
Advanced topics in psycholinguistics and experimental linguistics. Contemporary memory models. Computational models of comprehension and production. Neurolinguistic findings and methodologies. Student work revolves around an extended research project in which students learn to apply advanced analytical techniques. Graduate students have separate evaluation criteria. Students cannot receive credit for this course and course 258G. Prerequisite(s): course 257. Enrollment restricted to graduate students. The Staff

258G. Advanced Psycholinguistics (3 credits). *
Advanced topics in psycholinguistics and experimental linguistics. Contemporary memory models. Computational models of comprehension and production. Neurolinguistic findings and methodologies. Student work revolves around an extended research project in which students apply advanced analytical techniques. Graduate students have separate evaluation criteria. Three-credit version of course 258. Does not require a final paper. Students cannot receive credit for this course and course 258. Prerequisite(s): course 257. Enrollment restricted to graduate students. Enrollment limited to 12. The Staff

259. Phonetics Seminar. F

Advanced topics in acoustic and articulatory phonetics. Prerequisite(s): course 214. Enrollment restricted to graduate students. G. McGuire

259G. Phonetics Seminar (3 credits). F
Advanced topics in acoustic and articulatory phonetics. Three-credit version of course 259. Does not require a final paper. Prerequisite(s): course 214. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. G. McGuire

279. Research Seminar in Psycholinguistics. *
Contemporary research in psycholinguistic theory models, and methods. Topics vary with research interests of faculty and graduate students. Enrollment restricted to graduate students, or by consent of instructor. Enrollment limited to 12. May be repeated for credit. The Staff

280. Proseminar in Experimental Linguistics. F
Examines experimental design and analysis for gathering linguistic data; the advantages and disadvantages of major response measures, including reaction times; interaction with extra-grammatical factors; and statistics on categorical and continuous measures. Students present results in research papers. Students cannot receive credit for this course and course 280G. Enrollment restricted to graduate students. M. Wagers

280G. Proseminar in Experimental Linguistics (3 credits). F
Examines experimental design and analysis for gathering linguistic data: the advantages and disadvantages of major response measures, including reaction times; interaction with extra-grammatical factors; and statistics on categorical and continuous measures. Three-credit version of course 280. Does not require a final paper. Enrollment restricted to graduate students. Enrollment limited to 12. M. Wagers

282. Field Methods. *
Exploration of a language previously unfamiliar to students through elicitation from a native speaker. Discussion of elicitation techniques. Students investigate selected aspects of the language in depth. Enrollment restricted to graduate students. The Staff

290. Research Seminar. W
A research seminar for undergraduate and graduate students to develop the skills of the profession. Critical reading, reviewing, teaching, presentation, and writing. Students submit petition to sponsoring agency. Enrollment restricted to graduate standing or consent of instructor. Enrollment limited to 10. J. Ito

295. Directed Reading. F,W,S
Directed reading which does not involve a term paper. Enrollment restricted to graduate standing or consent of instructor. The Staff

296. Linguistics Colloquium (2 credits). F,W,S
Independent graduate-level activities and assignments relating to professionalism; organizing and attending colloquium and conferences; participation in discussion at such events; and preparation of commentaries on academic papers. Students submit petition to sponsoring agency. Enrollment restricted to linguistics graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Enrollment restricted to graduate standing or consent of instructor. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
The Staff

* Not offered in 2014-15

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Literature

2014-15 General Catalog

303 Humanities 1
(831) 459-4778
http://literature.ucsc.edu/

Faculty | Program Statement

Literature | Creative Writing | English-Language Literature | French Literature | German Literature | Greek Literature | Italian Literature | Latin Literature | Modern Literary Studies | Pre- and Early Modern Literature | Russian Literature | Spanish Literature | World Literature

Literature

Lower-Division Courses

1. Literary Interpretation. F,S
Close reading and analysis of literary texts, including representative examples of several different genres and periods. An introduction to practical criticism required of all literature majors; should be completed prior to upper-division work in literature. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to first-year students and sophomores, or literature and proposed literature majors and literature minors. (General Education Code(s): TA, IH, W.) (F) S. Gillman, (S) K. Bassi

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

61. Introduction to Literary Genres.

61F. Introduction to Reading Fiction. W
Close reading of short stories and some novels with the aim of developing critical methods for the analysis and interpretation of prose fiction. Topics include character, plot, narrative structure, and the poetics of prose. (General Education Code(s): TA, IH.) J. Fazzino

61H. Introduction to Film Analysis. W
Introduces techniques for the close reading of film, with particular attention to film form (shot-by-shot analysis), cinematic codes, narrative structure, and the ideological burdens of the basic cinematic apparatus. Case studies of select works by major directors from the Hollywood studio period. (General Education Code(s): IM, IH.) D. Bell

61J. Introduction to Jewish Literature and Culture. *
Surveys 3,000 years of Jewish literature and culture. Themes include origins of the Jews in the ancient world; formation and persistence of the Jewish diaspora; coherence and diversity of Jewish experience; Jewish narrative and textual traditions; interaction

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
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- Literature
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- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

between Jews and other cultures; tensions between tradition and modernity. (General Education Code(s): ER, IH, E.) M. Baumgarten

61K. Introduction to the Fairy Tale. *
Introduces the fairy tale as a genre, including historical, cultural, and political contexts; relation to identity, performance, transnationalism; contemporary transformations of tales and their expression in other media (e.g., film, art, theater); and current scholarship. (General Education Code(s): TA.) K. Lau

61M. Approaches to Classical Myth. *
Introduction to Greek myths, including selected ancient texts and visual artifacts, historical and cultural context of their creation and reception, modern theoretical approaches such as structuralism and psychoanalysis, and interpretations in various media. (General Education Code(s): TA, IH.) M. Gamel

61P. Introduction to Reading Poetry. F
An introduction to selected modes and forms of poetry with an emphasis on close textual analysis. Examples will be taken from different historical periods and poetic traditions. Course topics changes; please see the Schedule of Classes for the current topic. (General Education Code(s): TA, IH.) C. Chen

61R. Race in Literature. *
An investigation into the various uses and abuses of "race" in literature. Course topic changes; see the Schedule of Classes for current topic. (General Education Code(s): ER, IH, E.) C. Hong

61W. Writing and Research Methods. F
Intensive training in the practice of literary analysis and the writing of polished research papers. Topics include manuscript sources, variant editions, reading techniques, publication technologies, web research. Workshop format. Strongly recommended for majors and/or transfer students who have completed course 1 or its equivalent. (General Education Code(s): IH, W.) S. Vesco

80. Topics in Literature.

80E. Animals and Literature. S
Examines the copresence in literary works (fiction and non-fiction prose and poetry) of nonhuman and human animals from antiquity to the present across a variety of cultures. (General Education Code(s): TA.) C. Freccero

80I. Topics in American Culture. *
A history of one or more cultural genres in written, visual, and/or musical forms. Course topic changes; please see the Schedule of Classes for the current topic. (General Education Code(s): T4-Humanities and Arts.) M. Gamel

80L. The Holocaust: The Destruction of European Jewry. W
Focus is on the destruction of the Jews of Europe by Nazi Germany. Issues are historically grounded, and include works of literature, social sciences, philosophy, and film. (General Education Code(s): ER, T4-Humanities and Arts, E.) M. Baumgarten, P. Kenez

80N. Latino Expressions in the U.S. F
An introduction to Latino literature and culture in the U.S. A study of the creative expressions of Chicanos/as, Nuyoricans, Cuban Americans, and other Latin Americans in the U.S. (General Education Code(s): ER, T4-Humanities and Arts, E.) K. Gruesz

80V. Literature and History. S
Examines literature's relationship to the past and to the experience of history. Course topic changes; please see the Schedule of Classes for current topic. (General Education Code(s): TA, T4-Humanities and Arts.) A. Bivens

80Z. Introduction to Shakespeare. F
Study of representative plays. No previous experience with Shakespeare is assumed. (General Education Code(s): TA, T4-Humanities and Arts.) A. Heald

99. Tutorial. F,W,S
The Staff

Management
- UCDC Program
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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

101. Theory and Interpretation. W,S
Contemporary approaches to literary and cultural theory, with emphasis on how theoretical perspectives advance and broaden the reading of literary texts. Introduction to important new theoretical developments and their antecedents. Literature majors should complete this course as early as possible. Course topic changes; see the Schedule of Classes for current topic. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to literature and proposed literature majors and literature minors. May be repeated for credit. (General Education Code(s): W.) (W) W. Godzich, (S) C. Connery

102. Translation Theory. W
Promotes the understanding of translation and its role in redefining meanings across epochs and cultures, in establishing common norms, and in advancing mutual intelligibility; but also providing encounters with absolute alterity. Actual translations are used as case studies. Prerequisite(s): one year of college-level, non-English language study or the equivalent reading ability in a non-English language. (General Education Code(s): TA.) G. Sahota

191. Methodologies of Teaching (3 credits). F
This 3-credit course provides students with the theoretical and practical knowledge to help others become more careful, sensitive, and sophisticated readers of complex texts. Enrollment by permission of the instructor. (General Education Code(s): PR-S.) K. Gruesz

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

200. Proseminar. F
The proseminar provides a common experience for entering students, facilitates exchange of ideas and approaches to literary and extra-literary texts, critical issues, and theoretical problems. It focuses on broad aspects of the history of theory and criticism, on the students' critical writing, and on aspects of professional development. Enrollment restricted to graduate students. S. Gillman

201. The Pedagogy of Literature (1 credit). F
Provides training for graduate students in university-level pedagogy in general and in the pedagogy of literature specifically. Coordinated by a graduate student who has had substantial experience as a teaching assistant, under the supervision of a faculty member. Enrollment restricted to graduate students. May be repeated for credit. S. Gillman

202. Colloquium (2 credits). F,W,S
Student receives credit for attending a designated number of freestanding lectures, colloquia, symposia, or conferences during the term and reports orally, or in writing, to instructor. Enrollment restricted to graduate students. May be repeated for credit. The Staff

204. Readings in Literature (2 credits). *
Focuses on selected texts or authors in literature and/or theory. Students meet with instructor to discuss readings and deepen their knowledge on a particular author, critic, theorist, or text. Enrollment restricted to graduate students. May be repeated for credit. The Staff

291F. Advising (2 credits). F,W,S
Independent study formalizing the advisee-adviser relationship. Regular meetings to plan, assess, and monitor academic progress and to evaluate course work as necessary. May be used to develop general bibliography of background reading and trajectory of study. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S

Independent Study. The Staff

297F. Independent Study (2 credits). F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Creative Writing

Lower-Division Courses

10. Introduction to Creative Writing. F,W,S
Introduction to the crafts and techniques of poetry, fiction, and creative non-fiction, identifying and exploring traditional and non-traditional literary forms and genres while working on individual creative writing projects. An author reading and two workshop sections per week. Prerequisite: satisfaction of the Entry Level Writing requirement. Enrollment restricted to first-year students, sophomores, and juniors. May be repeated for credit. (General Education Code(s): PR-C, A.) The Staff

52. Intermediate Fiction Writing. F,W,S
An intermediate-level course in fiction designed for prospective creative writing majors. Prerequisite(s): submission of writing at first class meeting. May be repeated for credit. (General Education Code(s): PR-C, A.) (F) M. Perks, (W) The Staff, (S) K. Yamashita

53. Intermediate Poetry Writing. F,W,S
An intermediate-level course in poetry designed for prospective creative writing majors. Prerequisite(s): submission of writing at first class meeting. May be repeated for credit. (General Education Code(s): PR-C, A.) (FS) G. Young,(W) C. Chen

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

170. Methods and Materials. W
Focuses on a particular process or subject used in the production of a literary text. Course is intended to work as a bridge between invention and scholarship. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the Creative Writing Literature concentration. Enrollment restricted to creative writing literature majors. May be repeated for credit. (General Education Code(s): PR-C, A.) The Staff

180. Advanced Writing: Fiction. F,W,S
Intensive work in writing fiction. Satisfies the Creative Writing Literature concentration. Enrollment restricted to creative writing literature majors. May be repeated for credit. (General Education Code(s): PR-C, A.) (F) M. Perks, (W) K. Yamashita, (S) The Staff

183. Advanced Writing: Poetry. F,W,S
Intensive work in writing poetry. Satisfies the Creative Writing Literature concentration. Enrollment restricted to creative writing literature majors. May be repeated for credit. (General Education Code(s): A.) (F) G. Young, (W) R.V. Wilson, (S) R.J. Wilson

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) The Staff

194. Creative Project Seminar.
Seminar offered to senior literature majors in the cCeative Writing Literature concentration as a way to satisfy the senior exit requirement. All students are required to complete a creative writing project of significant length as part of the seminar course work. Attention is given to focusing of creative topics, review of work in progress, work rhythms, and revision. Prerequisite(s): Literature 101.

194A. Poetry Senior Seminar. S
Satisfies the Creative Writing Literature concentration; also satisfies the senior seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior creative writing literature majors. R. Wilson

194B. Fiction Senior Seminar. S
Satisfies the Creative Writing Literature concentration; also satisfies the senior seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior creative writing literature majors. K. Yamashita

195. Senior Essay. F,W,S
Satisfies the Creative Writing Literature concentration; also satisfies the Creative Writing senior exit distribution requirement. Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. Enrollment restricted to senior creative writing literature majors. The Staff

198. Group Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

270. Methods and Materials. F
A combined seminar and creative-writing workshop with a concentrated focus on a particular problem, aspect, or genre of poetry or prose writing, this course includes reading and analysis of selected texts with critical responses and creative writing. The course topic changes; please see the Schedule of Classes for the current topic. Enrollment is restricted to graduate students. May be repeated for credit. K. Yamashita

271. Writing Workshop. W
In this graduate-level, multi-genre, workshop-based course, students develop their own creative projects of publishable quality under the guidance of the instructor. Enrollment is restricted to graduate students in the creative writing concentration or by permission of the instructor. May be repeated for credit. M. Perks

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English-Language Literature

Upper-Division Courses

102. Canons.

102A. The Traditional British Canon, Part I. F
The constitution of the "canon" of English literature from Chaucer to Cowper. Satisfies the English and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. (General Education Code(s): TA.) J. Greene

102B. The Traditional British Canon, Part II. W
Explores poetry and prose from 1800 to 1950 through extensive reading in the Romantics, Victorians, Moderns, articulating the connections among them, connecting their work to key social, political, scientific, and technological moments defining these eras. Satisfies the English and Modern Literary Studies concentrations; also satisfies the Poetry distribution requirement. J. Kuskey

102D. The Traditional U.S. Canon, 1900 to the Present. *
Major works from 1900 to the present, with attention to their social and cultural context. Satisfies the English and Modern Literature concentrations. C. Chen

103. Periods and Movements.

103E. Studies in Romanticism. *
A survey of major Romantic themes and authors between 1780 and 1820. Explores relationships to pre-Romantic and post-Romantic authors. The main goal is to achieve familiarity with a wide range of individual poems in the general context of

Romanticism. Satisfies the English and Modern Literary Studies concentrations; also satisfies the Poetry distribution requirement. (General Education Code(s): TA.) H. Leicester

103J. Contemporary American Literature. *
A selective examination of major writings since WWII, with attention to both literary issues and historical context. Satisfies the English and Modern Literary Studies concentrations. May be repeated for credit. The Staff

110. Prose.

110A. Studies in the English Novel. *
From the 18th to the 20th century. Texts include work by Fielding, Austen, Bronte, Dickens, Conrad, and Woolf. Satisfies the English and Modern Literary Studies concentrations. (General Education Code(s): TA.) J. Kuskey

110B. The 18th-Century English Novel. *
The 18th-century novel from Defoe to Austen. Satisfies the English and Pre- and Early Modern Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. J. Greene

110C. The 19th-Century English Novel. S
The 19th-century novel: Austen to Bronte. Satisfies the English and Modern Literary Studies concentrations. J. Kuskey

110D. The 19th- and 20th-Century English Novel. F
The 19th- and 20th-century novel: Hardy to Joyce. The course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Modern Literature concentrations. J. Kuskey

110E. Victorian Prose. *
Victorian prophecy, Victorian criticism: an examination of some major writings of 19th-century nonfiction prose by Carlyle, Mill, Ruskin, Newman, Arnold, Pater, and Wilde, with a glance at the social context and the minor fictional forms of the era. Satisfies the English and Modern Literary Studies concentrations. J. Kuskey

110F. Nineteenth-Century American Fiction. *
Examination of selected fiction written between the end of the 18th century and the Civil War, with attention to historical and cultural as well as literary issues. Satisfies the English and Modern Literary Studies concentrations. (General Education Code(s): TA.) K. Gruesz

120. Poetry.

120A. Poetry of the 17th Century. S
Readings in the works of Donne, Jonson, Herbert, Herrick, Marvell, and others. Satisfies the English and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. (General Education Code(s): TA.) J. Greene

120B. Victorian Poetry. *
A reading of the major Victorian poets from Tennyson to early Yeats. Satisfies the English and Modern Literary Studies concentrations; also satisfies the Poetry distribution requirement. (General Education Code(s): TA.) The Staff

120C. Nineteenth-Century American Poetry. *
The major figures and important movements from Poe to Emerson through Whitman and Dickinson. Satisfies the English and Modern Literary Studies concentrations; also satisfies the Poetry distribution requirement. K. Gruesz

120F. American Poetry Since World War II. *
Major poets since World War II, with attention to leading movements and critical issues. Satisfies the English and Modern Literary Studies concentrations; also satisfies the Poetry distribution requirement. C. Chen

120H. Beat Literature and the World. *
Explores the sources and context of Beat writing, emphasizing the Beats' intense

interest in and engagement with the world at large. Includes works by major and minor Beat writers. Satisfies the English and Modern Literary Studies concentration; also satisfies the Poetry distribution requirement. (General Education Code(s): TA.) R. Wilson

120L. Topics in Poetry. S
Close reading--critical and creative--of poetry. Examines how poets teach, through their writing, to radically attend to reading. The course topics changes; please see the Schedule of Classes for the current topic. Satisfies the English concentration; also satisfies the Poetry distribution requirement. May be repeated for credit. (General Education Code(s): TA.) L. Shufran

140. Visual Media/Popular Culture.

140C. The Films of John Carpenter. *
Study of development and central themes of preeminent genre director of the "post-Hollywood" era, concentrating on central core of major works in horror/science fiction genres from Halloween to In the Mouth of Madness, with attention to the comedies and action films. Satisfies the English and Modern Literature concentrations. H. Leicester

150. Ethnic Writing.

150A. Afro-American Literature. W
Examination of Afro-American writing and cultural representations, with attention to the historical, cultural, and general literary contexts out of which they emerged and upon which they commented. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Modern Literary Studies concentrations. May be repeated for credit. (General Education Code(s): ER, E.) C. Chen

150C. Asian American Literature. *
Examination of Asian American literary works (fiction, poetry, dramatic essays) in the context of the historical presence of Asian Americans in the United States since the 1850s. Emphasis on comparison of select works from ethnic Asian writings. Satisfies the English and Modern Literature concentrations. (General Education Code(s): ER, E.) K. Yamashita

150E. American Indian Literature. *
Explores works of fiction, creative non-fiction, drama, and poetry written by American Indians. Focuses on historical and political issues within the text as well as on formal and thematic structures. Satisfies the English and Modern Literature concentrations. (Formerly Native American Literature: Inscribing the Native Self) (General Education Code(s): E.) The Staff

150F. African-American Women Writers. *
Explores the cultural, aesthetic, political, and feminist issues in select works by African-American women. Through close analysis of the works, students develop an understanding of the intersections that race, gender, and class play in the literary imaginations of these writers. Satisfies the English Language and Modern Literary Studies concentrations. (General Education Code(s): ER, E.) C. Chen

155. Regional Writing.

155B. Regions in American Literature. S
Examines development of regional writing in the U.S. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English and Modern Literary Studies concentrations. May be repeated for credit. R. J. Wilson

160. Transnational Writing.

160B. Empire and After in the Anglophone Novel. *
Examines fiction written in English, 1883 to 1948, in order to consider the complex relations--complicit, resistant, both--between literary and imperialist discourses. Likely novelists for study are Schreiner, Haggard, Conrad, Kipling, Forster, Hilton, Paton. Satisfies the English and Modern Literary Studies concentrations. (Formerly Empire and After in the British Novel.) May be repeated for credit. V. Cooppan

160C. Postcolonial Writing. W
Introduces students to a selection of postcolonial theory and texts. Satisfies the English and Modern Literature concentrations. May be repeated for credit. C. Hong

160F. Contemporary Transnational Literatures. *
Examines contemporary cultural production, including literature, music, and film, with close attention to social and political issues. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the English, Modern, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): CC.) The Staff

170. Individual Authors.

170A. Geoffrey Chaucer. *
Close study of Chaucer's poetry, with some attention to relevant cultural, philosophical, and historical issues in the context of the late medieval period. Particular emphasis on The Canterbury Tales. Satisfies the English and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. (General Education Code(s): TA.) H. Leicester

170B. Edmund Spenser. W
Studies in Spenser's major poetry: Faerie Queene, Book I; Epithalamion; Mutabilitie Cantos. Satisfies the English and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. H. Leicester

170C. William Shakespeare. W
Study of representative works by William Shakespeare. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirement. May be repeated for credit. (General Education Code(s): TA.) S. Keilen

170F. Charles Dickens. *
Study of representative work by Charles Dickens. Satisfies the English and Modern Literary Studies concentrations. May be repeated for credit. (General Education Code(s): TA.) The Staff

170G. Herman Melville. *
Study of representative work by Herman Melville, including novels and short stories. Satisfies the English and Modern Literary Studies concentrations. The Staff

170M. William Faulkner. *
A survey of Faulkner's early fiction; focus on development of theme and technique. Also considers Faulkner as a Southern historian, stressing the relationship between personal and regional experience in time. Satisfies the English and Modern Literary Studies concentrations. The Staff

180. Topics.

180B. The Gothic Imagination in Fiction, Film, and Theory. *
Readings include theoretical essays by Freud and Lacan and such fictions as "The Monk," "Frankenstein," "Dracula," "Maus," "The Yellow Wallpaper," and "Beloved." Films change each year, but may include "Alien" and "Blue Velvet." Satisfies the English and Modern Literary Studies concentrations. (General Education Code(s): TA.) The Staff

180D. Twain, Slavery, and the Literary Imagination. *
Using Mark Twain's later writings and other literary/non-literary materials, explores responses to popular and legal discourse on "blood," race, sex, resurgence of racism, and imperialism. Satisfies the English and Modern Literature concentrations. (General Education Code(s): ER.) S. Gillman

180H. Women's Literature. *
Works by women from the 18th century to the present, with special attention to the relationship of literature to history, psychology, and aesthetics. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Modern Literature concentrations. May be repeated for credit. (General Education

Code(s): TA.) The Staff

180K. War in Contemporary American Culture. S
Considers the treatment of war in American literature since World War II. Close attention paid to both literary form and relevant historical context. Also provides perspectives on, and critical tools for thinking about, contemporary armed conflict. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Modern Literature concentrations. (General Education Code(s): TA.) B. Sanfilippo

180L. Representations of Hamlet. *
Examination of Shakespeare's Hamlet from various perspectives, including as a literary and historical object, and as a mirror of socio-political concerns. Readings include both precursors to Shakespeare and modern adaptations and revisions of the Hamlet story. Satisfies the English and Pre- and Early Modern concentrations; also satisfies the Pre- and Early Modern distribution requirement. The Staff

180M. Topics in American Literature and Culture. W,S
Studies in American literature and culture, with attention to historical context. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the English and Modern Literary Studies concentrations. May be repeated for credit. (General Education Code(s): TA.) A. Athens, S. Gillman

180V. The Vampire in Literature and Popular Culture. F
Traces the vampire's appearance in different historical moments, different cultural contexts, and different genres and media to interrogate its place in the shifting cultural politics of gender and sexuality. Gender and sexuality are the primary lens of analysis through which to consider the ways in which they are entwined with race, ethnicity, sexuality, class, and other identity positions. Satisfies the English, Modern Literary Studies, and World Literature concentrations; also satisfies the Global distribution requirement. (Formerly American Studies 152.) (General Education Code(s): TA.) K. Lau

190. Senior Seminars.
Seminar offered to literature majors as a way to satisfy the senior exit requirement. Offered at different times by different instructors, focus is on topics of interest in English-language literatures. All students are required to complete an essay of significant length as part of the seminar coursework. May be repeated for credit.

190A. Individual Authors. S
Intensive examination of works by individual authors. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English Literature concentration; also satisfies the Senior Seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. H. Leicester

190C. Studies in 19th-Century British Literature. *
Study of selected authors or issues in 19th-century British literature. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English and Modern Literature concentrations; also satisfies the Senior Seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. J. Kuskey

190F. Studies in U.S. Literature. W
Intensive examination of issues in U.S. literature. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English and Modern Literature concentrations; also satisfies the Senior Seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. K. Gruesz

190K. Studies in Poetry. F
Studies in English-language poetry. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English concentration; also satisfies the Poetry and Senior Seminar distribution requirements. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. C. Chen

190L. Studies in English Language Literature. *
Studies of selected authors or issues in English language literature. Course topic changes; see the Schedule of Classes for current topic. Satisfies the English Literature concentration; also satisfies the Senior Seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior Literature majors. V. Cooppan

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. Students submit petition to sponsoring agency. The Staff

195. Senior Essay. F,W,S
Students submit petition to sponsoring agency. Prerequisite(s): Literature 101. The Staff

198. Group Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

203. Periods and Movements. W,S
Examines a particular historical period or literary movement. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. (W) K. Gruesz, (S) J. Greene

260. Transnational Literatures. *
Investigation of English language literature which transcends national boundaries. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. K. Gruesz

270. Individual Authors. S
Intensive examination of works by individual authors. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. S. Keilen

280. Topics in English Language Literature. W
Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. R. Wilson

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with teaching of undergraduates. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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French Literature

Upper-Division Courses

131. The Middle Ages. W
Speaking, reading, and writing proficiency in French required. Study of 12th- and 13th-century texts, with attention to problems of history and social change. In modern translations with selected readings in Old French or Provencal. Course topic changes; see the Schedule of Classes for current topic. Satisfies the French and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. May be repeated for credit. S. Kinoshita

142. Studies in Poetry. *
Speaking, reading, and writing proficiency in French required. Emphasizes the close study of a limited number of poetic texts in terms of their linguistic, stylistic, and rhetorical devices.Course topic changes; please see Schedule of Classes for current topic. Satisfies the French and Modern Literary Studies concentrations. May be repeated for credit. W. Godzich

143. Theater and Drama. *
Speaking, reading, and writing proficiency in French required. Studies in French drama and theories of theatricality. Course topic changes; see the Schedule of Classes for current topic. Satisfies the French and Modern Literary Studies concentrations. May be repeated for credit. W. Godzich

152. Texts and Contexts. F
Speaking, reading, and writing proficiency in French required. Examines implications of social and political change in terms of literary theory and practice. Places equal emphasis on literary and other kinds of cultural texts: historical, political, and cinematic. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the French Literature concentration. May be repeated for credit. D. Bell

195. Senior Essay. F,W,S
Speaking, reading, and writing proficiency in French required. Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. The Staff

198. Group Tutorial. F,W,S
Speaking, reading, and writing proficiency in French required. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Speaking, reading, and writing proficiency in French required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Speaking, reading, and writing proficiency in French required. Students submit petition to sponsoring agency. The Staff

Graduate Courses

230. Studies in Literary and Cultural History. W,S
In-depth examination of one period of French literature. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. (W) S. Kinoshita, (W) R. Terdiman, (S), W. Godzich

240. Studies in Literary Genres. *
An in-depth examination of one genre of French literature. Course topic changes; see the Schedule of Classes for the current topic. Enrollment restricted to graduate students. May be repeated for credit. W. Godzich

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. The Staff

295. Directed Reading. F,W,S
Directed reading which does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit.

The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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German Literature

Upper-Division Courses

102. Introduction to German Literature. *
Speaking, reading, and writing proficiency in German required. Wide reading of works representing the major authors, periods, and genres of German literature. Satisfies the German and Modern Literary Studies concentrations. L. Nygaard

104. Topics in German Literature and Culture. S
Speaking, reading, and writing proficiency in German required. Course studies German literature and culture, with attention to historical context. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the German and Modern Literary Studies concentrations. May be repeated for credit. A. Bivens

120. Fear of the Foreign: Xenophobia in German Literature and Culture. W
Speaking, reading, and writing proficiency in German required. Considers recent violence against immigrants and asylum-seekers in Germany, and moves on to examine images of people perceived as "foreign" or alien in German literature and culture from early times to the present. Satisfies the German and Modern Literary Studies concentrations. L. Nygaard

150. German Romanticism. F
Speaking, reading, and writing proficiency in German required. A study of the emergence and development of German Romanticism. Central concerns are the Romantics' attitude toward the role of the imagination in literature and their attempts to revitalize myth and folklore in their works. Authors read include Tieck, Novalis, Hoffmann, Eichendorff, and Heine. Satisfies the German and Modern Literary Studies concentrations. L. Nygaard

154. The German Novelle. *
Speaking, reading, and writing proficiency in German required. A study of Novellen of the major 19th-century German authors. Satisfies the German and Modern Literary Studies concentrations. A. Bivens

161. Weimar Culture: Modernism in German Literature and Film. *
Speaking, reading, and writing proficiency in German required. A survey of the literature, film and visual culture of the post-war Weimar period, concentrating in particular on modernism, Dada and the avant-garde. Selections from Fritz Lang, Murnau, Döblin, Brecht, Trakl. Satisfies the German and Modern Literary Studies concentrations. (General Education Code(s): IM.) A. Bivens

164. Modern German Fiction. *
Speaking, reading, and writing proficiency in German required. Selected readings from the novel and novella in 20th-century German literature. Satisfies the German and Modern Literature concentrations. The Staff

165. German Drama. *
Speaking, reading, and writing proficiency in German required. Selected readings of major German dramatists; attention given to various movements in theater. Satisfies the German and Modern Literature concentrations. The Staff

166. Contemporary German Literature and Film. *
Speaking, reading, and writing proficiency in German required. A survey of contemporary German culture in the context of the current debate on postmodernism and the avant-garde. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the German and Modern Literary Studies concentrations. May be repeated for credit. A. Bivens

167. Modern German Literature and Film. *
Speaking, reading, and writing proficiency in German required. Discusses a range of modern and contemporary German texts, including poetry, drama, and film. Satisfies the German and Modern Literary Studies concentrations. May be repeated for credit. A. Bivens

195. Senior Essay. F,W,S
Speaking, reading, and writing proficiency in German required. Prerequisite: Literature 101. The Staff

198. Group Tutorial. F,W,S
Speaking, reading, and writing proficiency in German required. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Speaking, reading, and writing proficiency in German required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Greek Literature

Upper-Division Courses

100. Introduction to Greek Literature. S
Reading proficiency in Ancient Greek required. Satisfies the Greek and Pre- and Early Modern Studies Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. May be repeated for credit. (General Education Code(s): IH.) J. Lynn

102. Greek Poetry. *
Reading proficiency in Ancient Greek required. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Greek and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. Prerequisite(s): satisfaction of the Entry Level Writing and Composition

requirements. May be repeated for credit. The Staff

103. Greek Drama. W
Reading proficiency in Ancient Greek required. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Greek and Pre- and Early Modern Studies Literature concentrations; also satisfies the Pre- and Early Modern Studies distribution requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. M. Gamel

105. Special Topics in Greek Literature. F
Reading proficiency in Ancient Greek required. Readings in selected ancient Greek texts. Course topic changes; see the Schedule of Classes for the current topic. Focus is on translation and interpretation; requirements normally include translation exams and interpretive essays. Satisfies the Greek and Pre- and Early Modern Studies Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. K. Dority

193. Field Study. F,W,S
An individual program of study sponsored by a faculty member and completed off campus. Designed for upper-division students. May be taken concurrently or consecutively for up to three courses of credit. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis. F,W,S
Reading proficiency in Ancient Greek required. Prerequisite(s): Literature 101. The Staff

198. Group Tutorial. F,W,S
Reading proficiency in Ancient Greek required. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Reading proficiency in Ancient Greek required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Reading proficiency in Ancient Greek required. Students submit petition to sponsoring agency. The Staff

Graduate Courses

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Italian Literature

Upper-Division Courses

130. Author and Contexts.
Designed to give an in-depth study of a given author's literary production and its cultural context.

130B. Boccaccio. *
Speaking, reading, and writing proficiency in Italian required. Critical study of "The Decameron." Satisfies the Italian and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. D. Shemek

130D. Dante's Divine Comedy. *
Speaking, reading, and writing proficiency in Italian required. Reading of the "Inferno," the "Purgatorio," and selected canti of the "Paradiso," along with selections from Dante's lyrics and from medieval Italian and French poetry. Satisfies the Italian and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. The Staff

150D. Italian Opera as Drama. *
Speaking, reading, and writing proficiency in Italian required. Explores Italian opera as dramatic and spectacular cross-cultural phenomenon beginning in 1590s Florence through the 19th and 20th centuries. Attention to opera's function as a medium of cultural translation and political critique. Satisfies the Italian Literature and Modern Literary Studies concentrations. Prerequisite(s): Two years of university study of Italian language, or equivalent proficiency. (General Education Code(s): CC.) D. Shemek

164. Literature and Fascism. W
Speaking, reading, and writing proficiency in Italian required. The relationship between literature and Italian fascism is explored as concerns the rise and myths of fascism, critique and censorship, the persecution of minorities, the Resistance, the role of the intellectual. Authors include Borgese, Vittorini, Bassani, Pavese. Satisfies the Italian and Modern Literary Studies concentrations. D. Shemek

165. Studies in Italian Literature and Culture. S
Speaking, reading, and writing proficiency in Italian required. In-depth examination of a topic in Italian literary and cultural studies. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Italian and Modern Literary Studies concentrations. May be repeated for credit. The Staff

170A. Modern Italian Poetry. *
Speaking, reading, and writing proficiency in Italian required. Study of development of the Italian lyric from romanticism to present, with close stylistic and thematic analyses of works of Leopardi, D'Annunzio, Ungaretti, Quasimodo, Pavese, and Montale. Satisfies the Italian and Modern Literature concentrations; also satisfies the Poetry distribution requirement. The Staff

170B. Petrarca. F
Speaking, reading, and writing proficiency in Italian required. The transition from medieval to Renaissance modes of poetry in the works of Francesco Petrarca. Readings in the Rime Sparse, the Trionfi, and the prose works. D. Shemek

180. Women in Italy: Nineteenth and Twentieth Centuries. *
Speaking, reading, and writing proficiency in Italian required. Explores the specificity of Italian women's writing and studies their literary activities in historical and social context. Readings include Italian feminist and some history as well as literary texts. Satisfies the Italian and Modern Literary Studies concentrations. D. Shemek

191. Italian Studies Writing in the Discipline (1 credit). F,W,S
Concurrent enrollment in an approved upper-division course in Italian literature, history of art and visual culture, or history satisfies the Disciplinary Communication requirement in Italian studies. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Students submit petition to sponsoring agency. Enrollment restricted to Italian studies majors and by permission of instructor. The Staff

195. Senior Thesis. F,W,S
Speaking, reading, and writing proficiency in Italian required. Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. The Staff

198. Group Tutorial. F,W,S
Speaking, reading, and writing proficiency in Italian required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Speaking, reading, and writing proficiency in Italian required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Speaking, reading, and writing proficiency in Italian required. Students submit petition to sponsoring agency. The Staff

Graduate Courses

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Latin Literature

Upper-Division Courses

100. Introduction to Latin Literature. S
Reading proficiency in Latin required. Satisfies the Latin and Pre- and Early Modern Studies Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. May be repeated for credit. (General Education Code(s): TA, IH.) J. Lynn

102. Roman Poetry. *
Reading proficiency in Latin required. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Latin and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. The Staff

103. Prose Authors. W
Reading proficiency in Latin required. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Latin and Pre- and Early Modern Studies Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. C. Hedrick

104. Special Topics in Latin Literature. F,S
Reading proficiency in Latin required. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Latin and Pre- and Early Modern Studies Literature concentrations; also satisfies the Poetry and Pre- and Early Modern distribution requirements. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. (F) K. Bassi, (S) D. Selden

193. Field Study. F,W,S
An individual program of study sponsored by a faculty member and completed off campus. Designed for upper-division students. May be taken concurrently or consecutively for up to three courses of credit. Students submit petition to sponsoring agency. The Staff

195. Senior Thesis. F,W,S
Reading proficiency in Latin required. Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. The Staff

198. Group Tutorial. F,W,S
Reading proficiency in Latin required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Reading proficiency in Latin required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Reading proficiency in Latin required. Students submit petition to sponsoring agency. The Staff

Graduate Courses

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Modern Literary Studies

Upper-Division Courses

104. Topics in Literary Theory. F Examination of major issues in contemporary theory, with emphasis on key concepts. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration. (Formerly course 102A) May be repeated for credit. D. Bell

125. Modern Cinema.

125D. Cinema and Social Change in Latin America. *
Surveys selected Latin American and Latino feature and documentary films. Course topic changes; please see the Schedule Classes for the current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): CC, E.) The Staff

125J. Cinema and Subjectivity. *
An examination of the ways in which the technological and institutional practices of cinema construct modes of modern and contemporary subjectivity. Course topic

changes; please see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies concentration. May be repeated for credit. (General Education Code(s): IM.) The Staff

125N. The Horror Film. W
Shifting definitions of horror in the movies from the late silent period to the present through close analysis of representative films and critical texts. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration. (General Education Code(s): IM.) H. Leicester

144. Modern Jewish Cultures.
Modernity transformed Jewish culture: we will explore the ways in which changed social, political, and economic conditions produced new gender roles; professional, personal, communal, and cultural experiences; and generated powerful fictions, autobiographies, films and poems. Among the writers we will read are Isaac Bashevis Singer, Rebecca Goldstein, Saul Bellow, Martin Buber, Hannah Arendt, and S.Y. Agnon.

144A. Jewish Diaspora, Ethnicity, and Urban Life. *
Focuses on modern Jewish diaspora, ethnicity, and urban life. Satisfies the Modern Literary Studies concentration. (General Education Code(s): ER, E.) B. Thompson

144C. Literature and the Holocaust. *
Reading and analysis of fiction and poetry, focusing on Holocaust literature as a problem in critical theory, cultural studies, and literary history. Though most of the works are read in translation, some knowledge of European languages is helpful. Satisfies the Modern Literary Studies concentration. May be repeated for credit. N. Deutsch

144D. Jewish Writers and the American City. F
An examination of some major Jewish writers and their responses to the American city. Major writers: Henry Roth, Saul Bellow, Bernard Malamud, J. Kaplan, Philip Roth. A look at Yiddish and other minority writers, and including sociological and historical materials on the American city. Satisfies the English and Modern Literary Studies concentrations. (General Education Code(s): ER, E.) B. Thompson

144E. Hebrew Poetry. S
Hebrew poetry—Biblical, medieval, modern—explores cultural and literary issues central to our contemporary world. Texts and discussion focus on Jewish and Israeli literary traditions. Satisfies the Modern Literary Studies concentration; also satisfies the Poetry distribution requirement. May be repeated for credit. (General Education Code(s): CC.) M. Baumgarten

144G. Global Jewish Writing. *
Comparative analysis of modern Jewish writers from Western and non-Western diasporas. Satisfies the Modern and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) M. Baumgarten

144H. Jewish Writers and the European City. W
Interrogates the master narrative of a specific European city and discusses the ways in which Jewish life and Jewish actions helped to shape that story and were shaped by it. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration. May be repeated for credit. (General Education Code(s): ER.) M. Baumgarten

144J. Jewish Travel Narratives. *
Exploration of the idea of the Diaspora as a "moving" condition, and of the mutli-dimensional character of global Jewish culture, covering authors who traveled across the Jewish world from medieval times to the present. Satisfies the Modern Literary Studies or the Pre- and Early Modern Studies Literature concentrations; may also satisfy the Pre- and Early Modern distribution requirement. M. Baumgarten

145. Special Topics in Modern Literature.

145A. Modern Poetry. *
Survey of modern poetry; includes a variety of poetic forms. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies

concentration; also satisfies the Poetry distribution requirement. May be repeated for credit. (General Education Code(s): TA.) The Staff

145B. Modern Literature. F,W,S
Study of 19th- and/or 20th-century literature, with attention to its literary and historical context. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies concentration. May be repeated for credit. (General Education Code(s): TA.) (F) H. Leicester, C. Gomez-Rivas, (S) K. Lau

145C. Modern Fiction and Poetry. S
Survey of modern fiction and poetry. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration; also satisfies the Poetry distribution requirement. May be repeated for credit. K. Finberg

145J. Speculative Fiction As Cultural Theory and Practice. F
Readings of contemporary and historical speculative fiction, including examination of representational practices, technologies, and politics that emerge from and/or circumscribe their interrelations. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration. (Formerly English Language Literature 140E, Out There: Science Fiction As Cultural Theory and Practice.) May be repeated for credit. S. Magnone

146. Topics in African Literature. F
Thematic and stylistic linkages: classical texts, oral traditions, and modern developments in African literature. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. Enrollment limited to 40. (General Education Code(s): E.) W. Godzich

167. German Authors in Translation.

167G. Goethe's "Faust". *
An intensive study of Goethe's "Faust," Parts I and II. All works are read in English. Satisfies the Modern Literary Studies concentration; also satisfies the Poetry distribution requirement. L. Nygaard

167K. Kafka in Translation. W
An intensive study of the works of Franz Kafka, with reference to the literary, social, and historical context in which his work emerged. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies concentration requirement. May be repeated for credit. (General Education Code(s): TA.) A. Bivens

180. Latin American Literature in Translation.

180A. Contemporary Mexican Narrative. *
Examines 20th and 21st century Mexican literature, with attention to literary critical issues as they relate to cultural, historical, and political contexts. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. (Formerly The Mexican Narrative.) (General Education Code(s): E.) N. Klahn

190. Senior Seminar.
Seminar offered to literature majors as a way to satisfy the senior exit requirement. Offered at different times by different instructors, focus is on topics of interest in modern literary studies. All students are required to complete an essay of significant length as part of the seminar course work. Prerequisite: Literature 101. May be repeated for credit.

190N. Topics in Modern Literary Studies. W
Selected authors or issues in modern literary and cultural studies. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies concentration; also satisfies the Senior Seminar distribution requirement. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. J. Jordan

190Y. Topics in Modern Jewish Literature and Culture. S
Study of selected authors or issues related to modern Jewish literature and culture. Topic changes; please see the Schedule of Classes for the current topic. Satisfies the

Modern Literary Studies concentration; also satisfies the Senior Seminar distribution requirement. Jewish Studies majors may use this course to satisfy the Jewish Studies senior exit requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and Literature 101 (for senior literature majors) or Jewish Studies 101 (for senior Jewish studies majors). May be repeated for credit. B. Thompson

190Z. Topics in German Literature and Culture. *
Study of selected authors or issues related to German literature and culture. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies concentration; also satisfies the Senior Seminar distribution requirement. German studies majors may use this course to satisfy the German studies senior exit requirement. Prerequisite(s): Literature 101 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior German studies and literature majors. May be repeated for credit. L. Nygaard

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. The Staff

195. Senior Essay. F,W,S
Satisfies the Modern Literary Studies concentration; also satisfies the Modern Literary Studies senior exit distribution requirement. Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. Enrollment restricted to senior literature majors. The Staff

198. Group Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

219. Feminist Theories/Historical Perspectives. F
A critical examination of feminist and related theories (queer, critical race, post-humanist) and criticism in historical and culturally specific contexts. Enrollment restricted to graduate students. C. Freccero

231. Studies in Literary and Cultural History. W,S
Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. (W) R. Terdiman, (S) L. Nygaard

270. Narrative Theory. *
A survey of 20th-century narratology, emphasizing structuralist and poststructuralist theories of narrative. Enrollment restricted to graduate students. May be repeated for credit. J. Jordan

280. Topics in Theory. W
Explores issues arising in both the modern practice of criticism and in writings on the theory of criticism. Course topic changes; please see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. A. Bivens, J. Poblete

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S

Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Pre- and Early Modern Studies

Upper-Division Courses

102. Ancient Literature in Cross-Cultural Perspective. W
Comparative approaches to the study of ancient literature and culture. Topic changes; see the Schedule of Classes for current topic. Satisfies the Pre- and Early Modern and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. May be repeated for credit. (General Education Code(s): CC.) M. Gamel

107A. Reading Egyptian Hieroglyphs, Part 1. *
Introduction to Egyptian hieroglyphs as a graphic, conceptual, and communicative system. Covers the basic elements of classical Egyptian grammar, drawing primarily on inscriptions from extant Egyptian monuments. Students read one prose and one poetical text from the Middle Kingdom. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. Strongly recommended: two years previous study of a foreign language at the college level or the equivalent. (General Education Code(s): CC.) D. Selden

107B. Reading Egyptian Hieroglyphs, Part 2. *
Advanced Middle Egyptian grammar (two weeks). Close reading of the Tale of Sinuhe in Middle Egyptian, selected hymns and love poetry from the New Kingdom. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global, Pre- and Early Modern, and Poetry distribution requirements. Together, Egyptian Hieroglyphs 1 and fulfill the language prerequisites for Literature 102; together they also satisfy the intensive major second-language course requirements. Prerequisite(s): course 107A. (General Education Code(s): CC.) D. Selden

107C. Reading Egyptian Hieroglyphs, Part 3. *
Close reading of the Tale of Sinuhe in Middle Egyptian. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. Prerequisite(s): course 107A and 107B. D. Selden

119. Medieval Romance.
A study of representative texts from the 12th through the 15th centuries. Questions of subjectivity, sexuality, and history in romance narratives are addressed. Satisfies the Pre- and Early Modern Studies concentration; also satisfies the Pre- and Early Modern distribution requirement. The Staff

128. Medieval Epic. *
Medieval reworkings of stories and motifs drawn from the "barbarian" or Germanic tradition including Beowulf, The Song of Roland, Nibelungenlied, Snorri Sturlason: King Harald's Saga from Heimskringla, and Njal's Saga. Satisfies the Pre- and Early Modern Studies Literature concentration; also satisfies the Poetry and Pre- and Early Modern distribution requirements. H. Leicester

134. The Idea of Poetry. *
Focus is on the theories of rhetoric and poetry written between 1580 and 1620. Texts include English, Italian, French, and Spanish works. Satisfies the Pre- and Early Modern Studies concentration; also satisfies the Poetry and Pre- and Early Modern Studies distribution requirements. (General Education Code(s): TA.) S. Keilen

135. Travel Writing and Intercultural Relations in the Middle Ages. S

Provides a historically-based and theoretically-informed introduction to medieval and early modern European contacts with other cultures. Readings include fourth through 17th-century writings about travel, discovery, and conquest in Asia, Africa, and America. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. C. Gomez-Rivas

136. Representations of Gender in Medieval Literature. *
Examination of the portrayal of gender roles and interactions. Particular stress on erotic experience and the courtly tradition: Ovid, Andreas Capellanus, Marie de France, Chretien de Troyes, "The Romance of the Rose," Dante, Chaucer, Christine de Pizan. Satisfies the Pre- and Early Modern Studies Literature concentration; also satisfies the Poetry and Pre- and Early Modern distribution requirements. H. Leicester

137. Modern Ancient Drama. *
The study of 20th- and 21st-century productions and adaptations of ancient Greek drama in theater, dance, music, and film, including Stravinsky, Graham, Pasolini, Breuer, and von Trier, discussing artists' goals, the sociopolitical context, ideas of authenticity, and audience response. Satisfies the Pre- and Early Modern Studies Literature concentration; also satisfies the Pre- and Early Modern distribution requirement. (General Education Code(s): IM.) M. Gamel

143. Greek Drama/Modern Film. *
A reading of ancient Greek plays along with contemporary films similar to them in theme, form, and effect. Students discuss different definitions of tragedy; genre as a critical tool; and similarities and difference between the media of literature, drama, and film. Satisfies the Pre- and Early Modern Studies concentrations; also satisfies the Pre- and early Modern distribution requirement. M. Gamel

144. Pre- and Early Modern Jewish Cultures.

144B. Hebrew Bible. *
Introduction to textual, source, redaction, historical, and literary criticism of individual books of the Hebrew Bible and to exegesis as science and ideology. Covers texts and iconography of neighboring mythological traditions (Mesopotamian, Ugaritic, Egyptian, Greek) when appropriate. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Pre-and Early Modern Studies Literature concentration; also satisfies the Pre- and Early Modern distribution requirement. May be repeated for credit. (General Education Code(s): TA.) N. Deutsch

146. The Phenomenon of Tragedy. *
Examines the theory of tragedy from Aristotle to Nietzsche, while inviting students to read and discuss classic dramatic pieces to which the label "tragedy" was applied. Relies on student presentations and contributions, and teaches skills both in handling theory and in practical literary criticism. Satisfies the English and Pre- and Early Modern Studies literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. The Staff

149. Ancient Myth/Modern Poetics. *
Reading of Greek and Roman texts (in English translation) which utilize mythic material juxtaposed with later poems written in response to them. Readings from Homer, Sappho, Greek drama, Petrarch, modern poets; discussion of concepts of myth and strategies of response. Satisfies the Pre- and Early Modern concentration; also satisfies the Poetry and Pre- and Early Modern distribution requirements. M. Gamel

150. Pre- and Early Modern Literature in Translation.

150B. Early Modern Italian Women Writers. *
In early modern Italy several factors converged to foster a boom in women's writing and publication. Course addresses the context and content of these writings, dealing with key theoretical and historical issues surrounding women's entry into authorship in Europe. Knowledge of Italian not required. Satisfies the Pre- and Early Modern Studies concentrations; also satisfies Pre- and Early Modern distribution requirements. D. Shemek

150D. Orlando Furioso. F
Reading the 46-canto Italian Renaissance adventure poem of Ludovico Ariosto, the most popular book of its century and a classic of humanist literature, students

consider literary tradition, Renaissance humanism, and how entertainment literature may articulate moral and political criticism. Satisfies the Pre- and Early Modern Studies concentration; also satisfies the Poetry and Pre- and Early Modern Studies distribution requirements. (General Education Code(s): CC.) D. Shemek

152. Continental Renaissance. S
Introductory survey of great prose writings of the continental Renaissance in their cultural and historical contexts. Authors include: Machiavelli, Castiglione, Erasmus, Rabelais, Montaigne, and Cervantes. Satisfies the Pre- and Early Modern Studies concentration; also satisfies the Pre- and Early Modern Studies distribution requirement. A. Heald

153A. Biblical Hebrew, Part 1. *
Grammatical study interspersed with narrative excerpts from the Hebrew Bible. Recommended: previous study of a second language up to the advanced level. Satisfies the Pre- and Early Modern studies and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. D. Selden

153B. Biblical Hebrew, Part 2. *
Continuation of grammatical study interspersed with poetic texts from the Hebrew Bible. Satisfies the Pre- and Early Modern and World Literature concentrations; also satisfies the Global, Poetry, and Pre-and Early Modern distribution requirements. Together, Biblical Hebrew 1 and 2 fulfill the language prerequisites for Literature 102; together they also satisfy the intensive major second-language course requirements. Prerequisite(s): course 153A or the equivalent. D. Selden

153D. Sanskrit, Part 1. W
Systematic introduction to the grammar, syntax, and usage of Classical Sanskrit, to the oral dimensions of the language, and to the Sanskrit literary tradition. Satisfies the Pre- and Early Modern and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. G. Sahota

153E. Sanskrit, Part 2. S
Continued study of the grammar, syntax, and usage of Classical Sanskrit, and the Sanskrit literary tradition. Students read the entire Bhagavad-Gita, including key sections in the original Sanskrit. Satisfies the Pre-and Early Modern and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. Together Sanskrit, Part 1 and Part 2 fulfill the language prerequisites for Literature 102; together they also satisfy the intensive major second-language course requirements. Prerequisite(s): course 153D. G. Sahota

162. Early Modern Representations of Gender. *
Explores representation of gender in early modern literature, with attention to contemporary aesthetic, cultural, and theoretical contexts. Texts include drama, poetry, and prose. Satisfies the Pre- and Early Modern Studies concentration; also satisfies the Pre- and Early Modern distribution requirement. May be repeated for credit. The Staff

165. Classical Poetics in Elizabethan Verse. F
An introduction to Elizabethan poetry and poetics, with emphasis on shorter lyrics (sonnets, ballads, etc.), pastoral, erotic epyllia, devotional poetry, etc. Examines various Classical and Continental strains of influence at play in the production of English verse in the later 16th century, including Classical rhetoric, Ovidian mythology, and Petrarchanism. Satisfies the English and the Pre- and Early Modern Studies concentration; also satisfies the Pre- and Early Modern distribution requirements. M. Yinger

190. Senior Seminar.
Seminar offered to literature majors as a way to satisfy the senior exit requirement. Offered at different times by different instructors, focus is on topics of interest in pre- and early modern studies. All students are required to complete an essay of significant length as part of the seminar course work. Prerequisite: Literature 101. May be repeated for credit.

190P. Topics in Pre- and Early Modern Studies. F
Examination of individual authors or critical problems in ancient, medieval, or early modern/Renaissance literature. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Pre- and Early Modern Literature concentration; also satisfies the Pre- and Early Modern and Senior Seminar distribution requirements.

Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. K. Bassi

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. The Staff

195. Senior Essay. F,W,S
Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. The Staff

198. Group Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

204. Studies in Early Modernity. *
In-depth examination of a topic in Early Modern Studies. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. J. Aladro Font

211. History and Tragedy. *
Examines history, tragedy, and early science as ways of representing human experience in the Western canon. Topics include truth claims and questions of evidence, the nature of historical events, and tragedy as a political medium. Enrollment restricted to graduate students. K. Bassi

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Students submit petition to sponsoring agency. The Staff

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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Russian Literature

Upper-Division Courses

199. Tutorial. F,W,S
Speaking, reading, and writing proficiency in Russian required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Speaking, reading, and writing proficiency in Russian required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Spanish/Latin American/Latino Literatures

Lower-Division Courses

60. Introduction to Literary Genres. F
Speaking, reading, and writing proficiency in Spanish required. The study of poetry, drama, and prose in Spain and Latin America. (General Education Code(s): TA, IH, E.) J. Aladro Font

Upper-Division Courses

100B. Peninsular Literature: 19th and 20th Centuries. W
Speaking, reading, and writing proficiency in Spanish required. A critical study of several representative texts from this period of Spanish literature. Satisfies the Modern Literary Studies and Spanish Literature concentrations. (Formerly Nineteenth and Twentieth Centuries.) The Staff

102. Introduction to Hispanic American Literature.

102A. From the Conquest to Sor Juana. F
Speaking, reading, and writing proficiency in Spanish required. A study of Hispanic American and Peninsular literatures from the chronicles of the conquest through the 17th century. Readings deal with transformations in both the idea of empire and the rights of the conquered. Includes the works of Colon, Cortes, El Inca Garcilaso de la Vega, Sor Juana Ines de la Cruz, and others. Satisfies the Pre- and Early Modern Studies, Spanish and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. (General Education Code(s): CC.) J. Poblete

102B. Romanticism to Modernism. S
Speaking, reading, and writing proficiency in Spanish required. Follows the literary manifestations of the growing consciousness of the Latin American writer: discovery of native themes, comparative analysis of Spanish American and Peninsular European models, search for a "new language" literally and figuratively. Relates historical events with literary movements. Satisfies the Modern Literary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): CC, E.) L. Martinez-Echazabal

103. Sor Juana Ines de la Cruz. *
Speaking, reading, and writing proficiency in Spanish required. An in-depth examination of the life and work of Sor Juana Ines de la Cruz, a 17th-century nun, poet, playwright, and woman of genius and intellectual prowess whose ideas and accomplishments were ahead of her time. Satisfies the Pre- and Early Modern Studies and Spanish Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. J. Aladro Font

104. Erotismo y Mistica. *
Speaking, reading, and writing proficiency in Spanish required. Examines the connections between erotic literature and mystical literature through poetic representations of sublime where Eros and Thanatos meet. As symbolisms of mystical and erotic experiences fuse and confuse each other, we are able to establish connections between Sufi, Hindi, and Judeo-Christian mystical poetry. Satisfies the Pre- and Early Modern Studies and Spanish Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. J. Aladro Font

105. Introduction to Spanish Studies. W
Speaking, reading, and writing proficiency in Spanish is required. Explores the social, cultural, economic, and political changes that connect Latin America, Spain, and the United States Latina/o communities. Satisfies the Modern, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (Also offered as Spanish 105. Students cannot receive credit for both courses.) Prerequisite(s): Spanish 6 or Spanish for Heritage Speakers 6 or permission of instructor. (General Education Code(s): ER.) J. Poblete

130. Studies in Latin American Literary Genres.

130A. Contemporary Spanish American Prose. *

Speaking, reading, and writing proficiency in Spanish required. Examines contemporary Spanish American prose. Course topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): CC, E.) N. Klahn

130D. Latin American "testimonio". F
Speaking, reading, and writing proficiency in Spanish required. Contemporary non-fiction testimonial literature of Latin America. Authors: Marta Rojas, Elene Poniatowska, Rigoberta Menchu, Noema Viezzer, Omar Cabezas Lacayo, Aníbel Quijada Cerda, Mario Payeras, Eduardo Galeano, Ricardo Pozas, Hugo Neiva Samanez, Luis González de Alba. Satisfies the Modern cliterary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) J. Poblete

130E. Latin American Poetry. *
Speaking, reading, and writing proficiency in Spanish required. Poets from "modernismo" to the present in Spanish America. Studies how this poetry attempts to define Latin America, its past, its present history, and its vision for the future. Satisfies the Modern, Spanish, and World Literature concentrations; also satisfies the Global and Poetry distribution requirements. (General Education Code(s): CC, E.) N. Klahn

131. National Literatures of Latin America.
Speaking, reading, and writing proficiency in Spanish required. A study of the literary expression of a particular Latin American country or region, with texts representing a variety of authors, periods, and genres.

131H. Cuba. *
Speaking, reading, and writing proficiency in Spanish required. Examines Cuban literature and culture, with attention to historical context. Course topic changes: please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): CC, E.) L. Martinez-Echazabal

134. Special Topics in Latin American Literature.

134B. Women in Latin American Literature. *
Speaking, reading, and writing proficiency in Spanish required. Literary and sociological writings by and about women in Latin America-in Hispanic, indigenous, and African-Latino communities; in rural and urban settings; in historical and contemporary periods. Satisfies the Modern Literary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) The Staff

134L. Historia de la lectura y los lectores: Recepción y consumo cultural en el mundo L. Americano. *
Speaking, reading, and writing proficiency in Spanish required. Explores historical readers and reading practices in at least three different formations: colonial, national-popular, and transnational. Proposes a historical-theoretical reconstruction of the place of reading and readers at key moments in the history of culture in Latin America. Satisfies the Modern, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) J. Poblete

134M. Modernidad y literatura: El Boom de la novela latinoamericana. *
Speaking, reading, and writing proficiency in Spanish required. Explores the relationships between literature and mass culture, modernization, and globalization through the study of the so-called Boom of Latin American narrative. Course satisfies the Modern, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) N. Klahn

134N. El Cuento Hispanoamericano: Variedades esteticas de la literatura breve en America Latina. S
Speaking, reading, and writing proficiency in Spanish required. Explores various aesthetics of the Latin American short story including fantastic, detective,

metaliterary, social critique, historical, and philosophical writings. Satisfies the Modern Literary Studies, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) J. Poblete

135. Latin American Cinema.

135C. La Globalizacion en/del Cine Latin/o Americano. *
Speaking, reading, and writing proficiency in Spanish required. Examines globalization of Latin/o American cinema as a cultural industry. Classical issues of cultural politics and political economy are revisited from the viewpoint of current global processes. Also provides access to the representation of different aspects of globalization in Latin/o American cinema. Course satisfies the Modern Literary Studies, Spanish/Latin American/Latino, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) J. Poblete

135F. Cine y Literatura. *
Speaking, reading, and writing proficiency in Spanish required. Analysis and interpretation of Spanish-language films derived from literary works by Latin American and Spanish authors. Topic changes; see the Schedule of Classes for the current topic. Satisfies the Spanish and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): IM.) L. Martinez-Echazabal

151. Literature and Life in "Don Quijote" and Other Cervantes Texts. *
Speaking, reading, and writing proficiency in Spanish required. A close reading of the works of Cervantes, with particular attention to "Don Quijote," in an attempt to discover how these works reflect the conflictive period in which the author lived. Also looks closely at the Cervantine view of the relationship of literature to life, as manifested in the works under study. Satisfies the Pre- and Early Modern Studies and Spanish Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. J. Aladro Font

153. The Picaresque Novel. F
Speaking, reading, and writing proficiency in Spanish required. The picaresque novel of 16th-century Spain considers the fictive environment as reality in order to introduce its protagonist as a rebel against social dominion. The picaresque novel is the only literary genre comparable to what is now called "literature of social protest." Satisfies the Pre- and Early Modern and Spanish Literature concentrations; also satisfies the Pre- and Early Modern distribution requirement. (General Education Code(s): CC.) J. Aladro Font

154. Short Stories of the Spanish Golden Age. *
Speaking, reading, and writing proficiency in Spanish required. Focuses on the prose in the Renaissance period and the different genres that flourished before the creation of Cervantes' "Don Quixote" Chosen texts constitute an amalgam of Renaissance ideology, and provide examples of 16th-century literature, including the picaresque novel, pastoral novel, the Byzantine novel, and the chivalresque novel. Satisfies the Pre- and Early Modern Studies and Spanish Literature concentrations, also satisfies the Pre- and Early Modern distribution requirement. J. Aladro Font

163. The Literature of the Spanish Civil War. W
Speaking, reading, and writing proficiency in Spanish required. Examines literature related to the period of the Spanish Civil War (1936-39) and the Franco years (1939-75). Includes works by Spanish writers in exile during this period; also examines literary texts written prior to the outbreak of the war. Satisfies the Modern Literary Studies and Spanish Literature concentrations. The Staff

164. Contemporary Spanish Literature. S
Speaking, reading, and writing proficiency in Spanish required. Examines works by Spanish peninsular authors from the 19th century to the present with attention to historical and cultural as well as literary issues. The topic changes, see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies and Spanish Literature concentrations. (Formerly Fiction and History in Contemporary Spain.) May be repeated for credit. The Staff

195. Senior Essay. F,W,S
Speaking, reading, and writing proficiency in Spanish required. Prerequisite(s): Literature

101. Students submit petition to sponsoring agency. The Staff

198. Group Tutorial. F,W,S
Speaking, reading, and writing proficiency in Spanish required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Speaking, reading, and writing proficiency in Spanish required. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Speaking, reading, and writing proficiency in Spanish required. Students submit petition to sponsoring agency. The Staff

Graduate Courses

201. Don Quixote. *
Concentrates on the study and analysis of Miguel de Cervantes' major work Don Quixote, with a three part structure: life and literature in Don Quixote; Cervantes-the father of the modern novel; and madness and "ingenio" in Don Quixote. Enrollment restricted to graduate students. J. Aladro Font

210. Spain in the Eyes/Camera of Pedro Almodovar. *
Contemporary Spain through the camera of Pedro Almodovar from transgressive enthusiasm, experimentation, and cultural disobedience of the 1980s to more universal themes of human nature and borderline experiences in the pursuit of love, relationships, beauty, and art. Enrollment restricted to graduate students. J. Aladro Font

225. The Avant Garde in Latin America. F
Emerging from a Europe in crisis, this 20th-century avante-garde movement opened a space in Latin/o American literature for the emergence of a post-western aesthetic exploring a cultural identity in difference. A deconstruction of vanguardismo, lo real maravilloso, lo fantástico, lo mítico-antropológico, and realismo mágico. (Formerly Surrealisms in the Americas: An Aesthetic in Motion.) Enrollment restricted to graduate students. N. Klahn

226. Teoria Critica en America Latina. W
Overview of contemporary theoretical issues in Latin American cultural critique. Course topic changes; please see the Schedule of Classes for the current topic. Enrollment restricted to graduate students. May be repeated for credit. J. Poblete

230. Citiscapes. *
Theories of space/place poetics and politics, and the literary and visual re-presentations of urban spaces in Latin/o America. Questions of identity and location in modernist poetics, and the ways difference (gender, ethnicity, and sexuality) inhabit and imagine the post-modern lettered city. Enrollment restricted to graduate students. N. Klahn

231. National Literatures of Latin America.

231A. Cuba. *
Course topic changes; please see the Schedule of Classes for the current topic. Enrollment restricted to graduate students. May be repeated for credit. L. Martinez-Echazabal

295. Directed Reading. F,W,S
Directed reading that does not involve a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

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World Literature and Cultural Studies

Upper-Division Courses

105. International Cyberpunk. *
Cyberpunk, considered a subgenre within science fiction, has achieved international prominence and presents interesting interpretative challenges. Course examines some issues as manifested in representative texts. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): PE-T.) W. Godzich

109. Topics in Cultural Studies. F,W
Studies in the theory of cultural studies.Course topic changes; see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): TA, E.) (F) C. Hong, (F) S. Kinoshita, (W) K. Lau

113. The Future. W
Examines modes of thinking and imagining the future throughout human history, and considers the fate of the future today. Topics include apocalyptic religion, utopia and dystopia, progress, revolution, finance, and everyday life. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. C. Connery

115. Modern Literature in a Global Context.

115A. Fiction in a Global Context. *
Comparative examination of fiction in the modern world and of fictional responses to social change and crisis. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): TA.) V. Cooppan

123. The 1960s. *
An interdisciplinary study of the cultural and social movements of the 1960s. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) C. Connery

124. Cultural Theory in Historical Perspective. F
Examination of representations of medieval and early modern Mediterranean history. Course topic changes; please see the Schedule of Classes for current topic. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global and Pre- and Early Modern distribution requirements. May be repeated for credit. (General Education Code(s): CC, E.) C. Gomez-Rivas

127. Chicano/Mexicano Geographies. *
Considers the historical, current, and future directions of Chicano/a literary culture within the context of the long-standing exchanges of culture and politics across the U.S.-Mexican border and the challenges of globalization. Includes novels, essays, and films. Satisfies the English, Modern, and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): ER, E.) K. Gruesz

129. Theorizing Race and Comics. *
Examines comics' origins in the United States' legacies of racial caricature and political cartoons about slavery, Asian exclusion, yellow journalism, and imperial expansion. Analyses of graphic novel's 20th-century evolution around human-rights violations and post-atrocity representational strategies around race, nationalism and minority status. Satisfies the English, Modern Literary Studies, and World Literature concentrations; also satisfies the Global distribution requirement. Enrollment by interview only; course requires

an essay application. Enrollment restricted to literature and history of art and visual culture majors. (General Education Code(s): ER.) C. Hong

132. Global Cities. *
Examines cities as social spaces and as local spaces in the global economy and global imaginary. Focus is interdisciplinary, including literature, film, cultural studies, history, and sociology. Topic changes; please see the Schedule of Classes for the current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. (General Education Code(s): CC.) C. Connery

135. Classical Chinese Culture and Literature, 10th Century B.C.E. through Sixth Century C.E. *
Survey of writing and culture from the 10th century B.C.E. through the sixth century C.E., focusing on poetry, philosophical and historical writing, supernatural fiction, Buddhist/Taoist texts in contexts of fragmentation, empire building, dynastic collapse, rebellion, eremitism, and courtly society. Satisfies the Pre- and Early Modern and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. (Also offered as History 141A. Students cannot receive credit for both courses.) (General Education Code(s): E.) C. Connery

136. Classical Chinese Culture and Literature, Sixth Century through 16th Century. *
Survey of writing and culture from the Tang through early Ming dynasties (sixth century C.E. through 16th century C.E.). Themes include literary, religious, and philosophical innovation; courtly life; cultural contacts with non-Chinese people; and transformations of state and society. Satisfies the Pre- and Early Modern Studies and World Literature concentrations; also satisfies the Global, Poetry, and Pre- and Early Modern distribution requirements. (Also offered as History 141B. Students cannot receive credit for both courses.) (General Education Code(s): E.) C. Connery

140. The Historical Imaginary. *
A survey of historical literature in the Americas that examines fictional attempts to re-imagine New World histories. Readings focus on secret or mangled histories, the legacies of slavery and colonialism, gendered critiques of national histories, and US imperialism. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. (General Education Code(s): E.) S. Gillman

150. World Literature and Cultural Studies Core Sequence.

150A. Worldings. S
How to think about the world as a whole: representations, networks, systems, taxonomies, versions of globalization. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. V. Cooppan

150B. Space/Time. *
The world as understood through spatial and temporal divisions: regions, nations, empires, periods in a worlded perspective. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern and World Literature concentrations; also satisfies the Global distribution requirement. May be repeated for credit. The Staff

150C. Problems. *
Considers a range of phenomena from a critical world perspective: subject formation; human activity on a global scale; questions that demand a worlded answer. Course topic changes; see the Schedule of Classes for current topic. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global requirement. May be repeated for credit. The Staff

190. Senior Seminar.
Seminar offered to literature majors as a way to satisfy the senior exit requirement. Offered at different times by different instructors; focus is on topics of interest in world literature and cultural studies. All students are required to complete an essay of significant length as part of the seminar course work. Prerequisite(s): Literature 101.

190A. Topics in World Literature and Cultural Studies. W,S

Course topic changes; see the Schedule of Classes for current topic. Satisfies the World Literature concentration; also satisfies the Global and Senior Seminar distribution requirements. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. May be repeated for credit. (General Education Code(s): E.) V. Cooppan, G. Sahota

190B. Studies in Slavery, Race, and Nation in the Americas. *
Compares literatures and histories of slavery, abolitionism, and nationalism in 19th-century Cuba and the U.S. Readings include slave narratives and antislavery novels. Satisfies the Modern Literary Studies and World Literature concentrations; also satisfies the Global and Senior Seminar distribution requirements. Prerequisite(s): Literature 101. Enrollment restricted to senior literature majors. (General Education Code(s): E.) S. Gillman

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. Students submit petition to sponsoring agency. The Staff

195. Senior Essay. F,W,S
Prerequisite(s): Literature 101. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Group Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

201. Theory and Methods. *
Global theories of history and cultural production. Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. S. Gillman

209. Topics in Cultural Studies. F,S
Course topic changes; see the Schedule of Classes for current topic. Enrollment restricted to graduate students. May be repeated for credit. (F) S. Kinoshita, (F) C. Hong, (S) C. Connery, (S) W. Godzich

295. Directed Reading. F,W,S
Directed reading which does not require a term paper. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

* Not offered in 2014-15

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Mathematics

2014-15 General Catalog

4111 McHenry
(831) 459-2969
http://www.math.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

2. College Algebra for Calculus. F,W
Operations on real numbers, complex numbers, polynomials, and rational expressions; exponents and radicals; solving linear and quadratic equations and inequalities; functions, algebra of functions, graphs; conic sections; mathematical models; sequences and series. Prerequisite(s): mathematics placement examination (MPE) score of 100 or higher. The Staff

2S. College Algebra for Calculus (2 credits). *
This two-credit, stretch course offers students two quarters to master material covered in course 2: operations on real numbers, complex numbers, polynomials, and rational expressions; exponents and radicals; solving linear and quadratic equations and inequalities; functions, algebra of functions, graphs; conic sections; mathematical models; sequences and series. After successful completion of this course in the first quarter, students enroll in course 2 the following quarter to complete the sequence and earn an additional 5 credits. Prerequisite(s): mathematics placement examination (MPE) score of 100 or higher. N. Bhattacharya, The Staff

3. Precalculus. F,W,S
Inverse functions and graphs; exponential and logarithmic functions, their graphs, and use in mathematical models of the real world; rates of change; trigonometry, trigonometric functions, and their graphs; and geometric series. Students cannot receive credit for both course 3 and Applied Mathematics and Statistics 3. Applied Mathematics and Statistics 3 can substitute for course 3. Prerequisite(s): course 2 or mathematics placement examination (MPE) score of 200 or higher. (General Education Code(s): MF, Q.) The Staff

4. Mathematics of Choice and Argument. *
Techniques of analyzing and creating quantitative arguments. Application of probability theory to questions in justice, medicine, and economics. Analysis and avoidance of statistical bias. Understanding the application and limitations of quantitative techniques. Prerequisite(s): course 2, or mathematics placement examination (MPE) score of 200 or higher, or AP Calculus AB examination score of 3 or higher. (General Education Code(s): SR, Q.) The Staff

11A. Calculus with Applications. F,W,S
A modern course stressing conceptual understanding, relevance, and problem solving. The derivative of polynomial, exponential, and trigonometric functions of a single variable is

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
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- Italian
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- Jewish Studies
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- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
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- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

developed and applied to a wide range of problems involving graphing, approximation, and optimization. Students cannot receive credit for both this course and course 19A or Applied Mathematics and Statistics 11A and 15A, or Economics 11A. Prerequisite(s): course 3 or Applied Mathematics and Statistics 3; or mathematics placement examination (MPE) score of 300 or higher; or AP Calculus AB exam score of 3 or higher. (General Education Code(s): MF, IN, Q.) The Staff

11B. Calculus with Applications. F,W,S
Starting with the fundamental theorem of calculus and related techniques, the integral of functions of a single variable is developed and applied to problems in geometry, probability, physics, and differential equations. Polynomial approximations, Taylor series, and their applications conclude the course. Students cannot receive credit for this course and course 19B, or Applied Mathematics and Statistics 11B and 15B, or Economics 11B. Prerequisite(s): course 11A or 19A or Applied Mathematics and Statistics 15A or AP Calculus AB exam score of 4 or 5, or BC exam score of 3 or higher, or IB Mathematics Higher Level exam score of 5 or higher. (General Education Code(s): MF, IN, Q.) The Staff

19A. Calculus for Science, Engineering, and Mathematics. F,W,S
The limit of a function, calculating limits, continuity, tangents, velocities, and other instantaneous rates of change. Derivatives, the chain rule, implicit differentiation, higher derivatives. Exponential functions, inverse functions, and their derivatives. The mean value theorem, monotonic functions, concavity, and points of inflection. Applied maximum and minimum problems. Students cannot receive credit for both this course and course 11A or Applied Mathematics and Statistics 11A and 15A,or Economics 11A. Prerequisite(s): course 3 or Applied Mathematics and Statistics 3; or mathematics placement examination (MPE) score of 400 or higher; or AP Calculus AB exam score of 3 or higher. (General Education Code(s): MF, IN, Q.) The Staff

19B. Calculus for Science, Engineering, and Mathematics. F,W,S
The definite integral and the fundamental theorem of calculus. Areas, volumes. Integration by parts, trigonometric substitution, and partial fractions methods. Improper integrals. Sequences, series, absolute convergence and convergence tests. Power series, Taylor and Maclaurin series. Students cannot receive credit for both this course and course 11B, Applied Math and Statistics 11B and 15B, or Economics 11B. Prerequisite(s): course 19A or AP Calculus AB exam score of 4 or 5, or BC exam score of 3 or higher, or IB Mathematics Higher Level exam score of 5 of higher. (General Education Code(s): MF, IN, Q.) The Staff

20A. Honors Calculus. F
Challenging course designed to approach single-variable calculus from the perspective of modern mathematics. Emphasis is on the evolution and historical development of core concepts underlying calculus and analysis. Prerequisite(s): mathematics placement examination (MPE) score of 500 higher; or AP Calculus AB examination score of 4 or 5; or BC examination of 3 or higher; or IB Mathematics Higher Level examination score of 5 or higher. Enrollment limited to 60. (General Education Code(s): MF, IN, Q.) The Staff

20B. Honors Calculus. W
Challenging course designed to approach single-variable calculus from the perspective of modern mathematics. Emphasis is on the evolution and historical development of core concepts underlying calculus and analysis. Prerequisite(s): course 20A. Enrollment limited to 60. (General Education Code(s): MF, IN, Q.) The Staff

21. Linear Algebra. F,W,S
Systems of linear equations, matrices, determinants. Introduction to abstract vector spaces, linear transformation, inner products, geometry of Euclidean space, and eigenvalues. Prerequisite(s): Mathematics 11A or 19A or 20A or Applied Mathematics and Statistics 11A or 15A. (General Education Code(s): MF, Q.) The Staff

22. Introduction to Calculus of Several Variables. S
Functions of several variables. Continuity and partial derivatives. The chain rule, gradient and directional derivative. Maxima and minima, including Lagrange multipliers. The double and triple integral and change of variables. Surface area and volumes. Applications from biology, chemistry, earth sciences, engineering, and physics. Students cannot receive credit for this course and course 23A. Prerequisite(s): course 11B or 19B or 20B or Applied Mathematics and Statistics 15B or AP calculus BC exam score of 4 or 5. (General Education Code(s): MF.) The Staff

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- UCDC Program
- Writing Program
- Theater Arts
- Yiddish

Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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23A. Vector Calculus. F,W,S
Vectors in n-dimensional Euclidean space. The inner and cross products. The derivative of functions from n-dimensional to m-dimensional Euclidean space is studied as a linear transformation having matrix representation. Paths in 3-dimensions, arc length, vector differential calculus, Taylor's theorem in several variables, extrema of real-valued functions, constrained extrema and Lagrange multipliers, the implicit function theorem, some applications. Students cannot receive credit for this course and course 22. (Formerly Multivariable Calculus.) Prerequisite(s): course 19B or 20B or AP calculus BC exam score of 4 or 5. (General Education Code(s): MF.) The Staff

23B. Vector Calculus. F,W,S
Double integral, changing the order of integration. Triple integrals, maps of the plane, change of variables theorem, improper double integrals. Path integrals, line integrals, parametrized surfaces, area of a surface, surface integrals. Green's theorem, Stokes' theorem, conservative fields, Gauss' theorem. Applications to physics and differential equations, differential forms. (Formerly Multivariable Calculus.) Prerequisite(s): course 23A. (General Education Code(s): MF.) The Staff

24. Ordinary Differential Equations. S
First and second order ordinary differential equations, with emphasis on the linear case. Methods of integrating factors, undetermined coefficients, variation of parameters, power series, numerical computation. Students cannot receive credit for this course and Applied Mathematics and Statistics 20. Prerequisite(s): course 22 or 23A; course 21 is recommended as preparation. The Staff

99. Tutorial. F,W,S
The Staff

99F. Tutorial (2 credits). F,W,S
May be repeated for credit. The Staff

Upper-Division Courses

100. Introduction to Proof and Problem Solving. F,W,S
Students learn the basic concepts and ideas necessary for upper-division mathematics and techniques of mathematical proof. Introduction to sets, relations, elementary mathematical logic, proof by contradiction, mathematical induction, and counting arguments. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; courses 11A and 11B or 19A and 19B or 20A and 20B. Enrollment limited to 80. (General Education Code(s): MF.) The Staff

101. Mathematical Problem Solving. W
Students learn the strategies, tactics, skills and tools that mathematicians use when faced with a novel (new) problem. These include generalization, specialization, the optimization, invariance, symmetry, Dirichlet's box principle among others in the context of solving problems from number theory, geometry, calculus, combinatorics, probability, algebra, analysis, and graph theory. (Formerly, course 30.) Prerequisite(s): courses 21 and 100. (General Education Code(s): PR-E.) The Staff

103A. Complex Analysis. W,S
Complex numbers, analytic and harmonic functions, complex integration, the Cauchy integral formula, Laurent series, singularities and residues, conformal mappings. (Formerly course 103.) Prerequisite(s): course 23B; and either course 100 or Computer Science 101. The Staff

103B. Complex Analysis II (2 credits). *
Conformal mappings, the Riemann mapping theorem, Mobius transformations, Fourier series, Fourier and Laplace transforms, applications, and other topics as time permits. Prerequisite(s): course 103A. The Staff

105A. Real Analysis. F,W
The basic concepts of one-variable calculus are treated rigorously. Set theory, the real number system, numerical sequences and series, continuity, differentiation. Prerequisite(s): course 22 or 23B and either course 100 or Computer Science 101. The Staff

105B. Real Analysis. S
Metric spaces, differentiation and integration of functions. The Riemann-Stieltjes integral. Sequences and series of functions. Prerequisite(s): course 105A. The Staff

105C. Real Analysis. *
The Stone-Weierstrass theorem, Fourier series, differentiation and integration of functions of several variables. Prerequisite(s): course 105B. The Staff

106. Systems of Ordinary Differential Equations. W
Linear systems, exponentials of operators, existence and uniqueness, stability of equilibria, periodic attractors, and applications. (Formerly course 106A.) Prerequisite(s): courses 21 and 24 (preferred) or Applied Mathematics and Statistics 10 and 20; and either course 100 or Computer Science 101. The Staff

107. Partial Differential Equations. *
Topics covered include first and second order linear partial differential equations, the heat equation, the wave equation, Laplace's equation, separation of variables, eigenvalue problems, Green's functions, Fourier series. (Formerly course 106B.) Prerequisite(s): courses 21 and 24 (preferred) or Applied Mathematics and Statistics 10 and 20; and either course 100 or Computer Science 101; course 106 is recommended as preparation. The Staff

110. Introduction to Number Theory. F,W
Prime numbers, unique factorization, congruences with applications (e.g., to magic squares). Rational and irrational numbers. Continued fractions. Introduction to Diophantine equations. An introduction to some of the ideas and outstanding problems of modern mathematics. Prerequisite(s): course 100 or Computer Science 101. (General Education Code(s): Q.) The Staff

111A. Algebra. F,W
Group theory including the Sylow theorem, the structure of abelian groups, and permutation groups. Prerequisite(s): course 21 or Applied Mathematics and Statistics 10 and either course 100 or Computer Science 101. The Staff

111B. Algebra. S
Introduction to rings and fields including polynomial rings, factorization, the classical geometric constructions, and Galois theory. Prerequisite(s): course 111A. The Staff

114. Introduction to Financial Mathematics. *
Financial derivatives: contracts and options. Hedging and risk managment. Arbitrage, interest rate, and discounted value. Geometric random walk and Brownian motion as models of risky assets. Ito's formula. Initial boundary value problems for the heat and related partial differential equations. Self-financing replicating portfolio; Black-Scholes pricing of European options. Dividends. Implied volatility. American options as free boundary problems. Corequisite(s): Applied Mathematics and Statistics 131 or Computer Engineering 107. The Staff

115. Graph Theory. S
Graph theory, trees, vertex and edge colorings, Hamilton cycles, Eulerian circuits, decompositions into isomorphic subgraphs, extremal problems, cages, Ramsey theory, Cayley's spanning tree formula, planar graphs, Euler's formula, crossing numbers, thickness, splitting numbers, magic graphs, graceful trees, rotations, and genus of graphs. Prerequisite(s): course 21 or Applied Mathematics and Statistics 10 and either course 100 or Computer Science 101. The Staff

116. Combinatorics. *
Based on induction and elementary counting techniques: counting subsets, partitions, and permutations; recurrence relations and generating functions; the principle of inclusion and exclusion; Polya enumeration; Ramsey theory or enumerative geometry. Prerequisite(s): course 100. Enrollment restricted to sophomores juniors, and seniors. Familiarity with basic group theory recommended. The Staff

117. Advanced Linear Algebra. F
Review of abstract vector spaces. Dual spaces, bilinear forms, and the associated geometry. Normal forms of linear mappings. Introduction to tensor products and exterior algebras. Prerequisite(s): course 21 or Applied Mathematics and Statistics 10 and either course 100 or Computer Science 101. The Staff

118. Advanced Number Theory. S
Topics include divisibility and congruences, arithmetical functions, quadratic residues and quadratic reciprocity, quadratic forms and representations of numbers as sums of squares, Diophantine approximation and transcendence theory, quadratic fields. Additional topics as time permits. Prerequisite(s): course 110 or 111A. The Staff

120. Coding Theory. *
An introduction to mathematical theory of coding. Construction and properties of various codes, such as cyclic, quadratic residue, linear, Hamming, and Golay codes; weight enumerators; connections with modern algebra and combinatorics. Prerequisite(s): course 21. The Staff

121A. Differential Geometry. W
Topics include Euclidean space, tangent vectors, directional derivatives, curves and differential forms in space, mappings. Curves, the Frenet formulas, covariant derivatives, frame fields, the structural equations. The classification of space curves up to rigid motions. Vector fields and differentiable forms on surfaces; the shape operator. Gaussian and mean curvature. The theorem Egregium; global classification of surfaces in three space by curvature. Prerequisite(s): courses 21 and 23B and either course 100 or Computer Science 101. Course 105A strongly recommended. The Staff

121B. Differential Geometry and Topology. *
Examples of surfaces of constant curvature, surfaces of revolutions, minimal surfaces. Abstract manifolds; integration theory; Riemannian manifolds. Total curvature and geodesics; the Euler characteristic, the Gauss-Bonnet theorem. Length-minimizing properties of geodesics, complete surfaces, curvature and conjugate points covering surfaces. Surfaces of constant curvature; the theorems of Bonnet and Hadamard. Prerequisite(s): course 121A. The Staff

124. Introduction to Topology. F
Topics include introduction to point set topology (topological spaces, continuous maps, connectedness, compactness), homotopy relation, definition and calculation of fundamental groups and homology groups, Euler characteristic, classification of orientable and nonorientable surfaces, degree of maps, and Lefschetz fixed-point theorem. Prerequisite(s): course 100; course 111A recommended. The Staff

128A. Classical Geometry: Euclidean and Non-Euclidean. S
Rigorous foundations for Euclidean and non-Euclidean geometries. History of attempts to prove the parallel postulate and of the simultaneous discovery by Gauss, J. Bolyai, and Lobachevsky of hyperbolic geometry. Consistency proved by Euclidean models. Classification of rigid motions in both geometries. Prerequisite(s): either course 100 or Computer Science 101. The Staff

128B. Classical Geometry: Projective. *
Theorems of Desargue, Pascal, and Pappus; projectivities; homogeneous and affine coordinates; conics; relation to perspective drawing and some history. Prerequisite(s): course 21. The Staff

129. Algebraic Geometry. *
Algebraic geometry of affine and projective curves, including conics and elliptic curves; Bezout's theorem; coordinate rings and Hillbert's Nullstellensatz; affine and projective varieties; and regular and singular varieties. Other topics, such as blow-ups and algebraic surfaces as time permits. Prerequisite(s): courses 21 and 100. Enrollment limited to 40. The Staff

130. Celestial Mechanics. *
Solves the two-body (or Kepler) problem, then moves onto the N-body problem where there are many open problems. Includes central force laws; orbital elements; conservation of linear momentum, energy, and angular momentum; the Lagrange-Jacobi formula; Sundman's theorem for total collision; virial theorem; the three-body problem; Jacobi coordinates; solutions of Euler and of Lagrange; and restricted three-body problem. Prerequisite(s): courses 19A-B and course 23A or Physics 5A or 6A; courses 21 and 24 strongly recommended. Enrollment limited to 35. The Staff

134. Cryptography. F

Introduces different methods in cryptography (shift cipher, affine cipher, Vigenere cipher, Hill cipher, RSA cipher, ElGamal cipher, knapsack cipher). The necessary material from number theory and probability theory is developed in the course. Common methods to attack ciphers discussed. Prerequisite(s): course 100; course 110 recommended as preparation. The Staff

140. Industrial Mathematics. *
Introduction to mathematical modeling of industrial problems. Problems in air quality remediation, image capture and reproduction, and crystallization are modeled as ordinary and partial differential equations then analyzed using a combination of qualitative and quantitative methods. Prerequisite(s): course 24 and either course 100 or Computer Science 101, and course 105A. The Staff

145. Introductory Chaos Theory. *
The Lorenz and Rossler attractors, measures of chaos, attractor reconstruction, and applications from the sciences. Students cannot receive credit for this course and Applied Mathematics and Statistics 114. Prerequisite(s): course 22 or 23A; course 21; course 100 or Computer Science 101. Concurrent enrollment in course 145L is required. The Staff

145L. Introductory Chaos Laboratory (1 credit). *
Laboratory sequence illustrating topics covered in course 145. One three-hour session per week in microcomputer laboratory. Concurrent enrollment in course 145 is required. The Staff

148. Numerical Analysis. *
The theory of constructive methods in mathematical analysis and its application with scientific computation. Some typical topics are difference equations, linear algebra, iteration, Bernoulli's method, quotient difference algorithm, the interpolating polynomial, numerical differentiation and integration, numerical solution of differential equations, finite Fourier series. Prerequisite(s): course 22 or 23A; course 21 and 24 or Applied Mathematics and Statistics 10 and 20; course 100 or Computer Science 101. Concurrent enrollment in course 148L is required. The Staff

148L. Numerical Analysis Laboratory (1 credit). *
Laboratory sequence illustrating topics covered in course 148. One three-hour session per week in microcomputer laboratory. Concurrent enrollment in course 148 is required. The Staff

160. Mathematical Logic I. *
Propositional and predicate calculus. Resolution, completeness, compactness, and Lowenheim-Skolem theorem. Recursive functions, Godel incompleteness theorem. Undecidable theories. Hilbert's 10th problem. Prerequisite(s): course 100 or Computer Science 101. The Staff

161. Mathematical Logic II. *
Naive set theory and its limitations (Russell's paradox); construction of numbers as sets; cardinal and ordinal numbers; cardinal and ordinal arithmetic; transfinite induction; axiom systems for set theory, with particular emphasis on the axiom of choice and the regularity axiom and their consequences (such as, the Banach-Tarski paradox); continuum hypothesis. Prerequisite(s): course 100 or equivalent, or by permission of instructor. Enrollment limited to 45. The Staff

181. History of Mathematics. W
A survey from a historical point of view of various developments in mathematics. Specific topics and periods to vary yearly. Prerequisite(s): course 19B. course 100 strongly recommended for preparation. (General Education Code(s): TA.) The Staff

188. Supervised Teaching. F,W,S
Supervised tutoring in self-paced courses. May not be repeated for credit. Students submit petition to sponsoring agency. (General Education Code(s): PR-S.) The Staff

189. ACE Program Service Learning (2 credits). F
Students participate in training and development to co-facilitate collaborative learning in ACE chemistry discussion sections and midterm/exam review sessions. Students are role models for students pursuing science- and math-intensive majors. Prerequisite(s): Prior participation in ACE; good academic standing; no non-passing grades in prior quarter.

Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 10. (General Education Code(s): PR-S.) The Staff

194. Senior Seminar. W,S
Designed to expose the student to topics not normally covered in the standard courses. The format varies from year to year. In recent years each student has written a paper and presented a lecture on it to the class. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 103 or 103A or 105A or 111A. Enrollment priority given to seniors. The Staff

195. Senior Thesis. F,W,S
Students research a mathematical topic under the guidance of a faculty sponsor and write a senior thesis demonstrating knowledge of the material. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Algebra I. F
Group theory: subgroups, cosets, normal subgroups, homomorphisms, isomorphisms, quotient groups, free groups, generators and relations, group actions on a set. Sylow theorems, semidirect products, simple groups, nilpotent groups, and solvable groups. Ring theory: Chinese remainder theorem, prime ideals, localization. Euclidean domains, PIDs, UFDs, polynomial rings. Prerequisite(s): courses 111A and 117 are recommended as preparation. Enrollment restricted to graduate students. May be repeated for credit. The Staff

201. Algebra II. W
Vector spaces, linear transformations, eigenvalues and eigenvectors, the Jordan canonical form, bilinear forms, quadratic forms, real symmetric forms and real symmetric matrices, orthogonal transformations and orthogonal matrices, Euclidean space, Hermitian forms and Hermitian matrices, Hermitian spaces, unitary transformations and unitary matrices, skewsymmetric forms, tensor products of vector spaces, tensor algebras, symmetric algebras, exterior algebras, Clifford algebras and spin groups. Prerequisite(s): Course 200 is recommended as preparation. Enrollment restricted to graduate students. The Staff

202. Algebra III. S
Module theory: Submodules, quotient modules, module homomorphisms, generators of modules, direct sums, free modules, torsion modules, modules over PIDs, and applications to rational and Jordan canonical forms. Field theory: field extensions, algebraic and transcendental extensions, splitting fields, algebraic closures, separable and normal extensions, the Galois theory, finite fields, Galois theory of polynomials. Prerequisite(s): Course 201 is recommended as preparation. Enrollment restricted to graduate students. The Staff

203. Algebra IV. F
Topics include tensor product of modules over rings, projective modules and injective modules, Jacobson radical, Wedderburns' theorem, category theory, Noetherian rings, Artinian rings, affine varieties, projective varieties, Hilbert's Nullstellensatz, prime spectrum, Zariski topology, discrete valuation rings, and Dedekind domains. Prerequisite(s): courses 200, 201, and 202. Enrollment restricted to graduate students. The Staff

204. Analysis I. F
Completeness and compactness for real line; sequences and infinite series of functions; Fourier series; calculus on Euclidean space and the implicit function theorem; metric spaces and the contracting mapping theorem; the Arzela-Ascoli theorem; basics of general topological spaces; the Baire category theorem; Urysohn's lemma; and Tychonoff's theorem. Prerequisite(s): courses105A and 105B are recommended as preparation. Enrollment restricted to graduate students. The Staff

205. Analysis II. W

Lebesgue measure theory, abstract measure theory, measurable functions, integration, space of absolutely integrable functions, dominated convergence theorem, convergence in measure, Riesz representation theorem, product measure and Fubini 's theorem. Lp spaces, derivative of a measure, the Radon-Nikodym theorem, and the fundamental theorem of calculus. Prerequisite(s): course 204. Enrollment restricted to graduate students. The Staff

206. Analysis III. S
Banach spaces, Hahn-Banach theorem, uniform boundedness theorem, the open mapping and closed graph theorems, weak and weak* topology, the Banach-Alaoglu theorem, Hilbert spaces, self-adjoint operators, compact operators, spectral theory, Fredholm operators, spaces of distributions and the Fourier transform, and Sobolev spaces. Prerequisite(s): Courses 204 and 205 recommended as preparation. Enrollment restricted to graduate students. The Staff

207. Complex Analysis. F
Holomorphic and harmonic functions, Cauchy's integral theorem, the maximum principle and its consequences, conformal mapping, analytic continuation, the Riemann mapping theorem. Prerequisite(s): Course 103 is recommended as preparation. Enrollment restricted to graduate students. The Staff

208. Manifolds I. F
Definition of manifolds; the tangent bundle; the inverse function theorem and the implicit function theorem; transversality; Sard's theorem and the Whitney embedding theorem; vector fields, flows, and the Lie bracket; Frobenius's theorem. Course 204 recommended for preparation. Enrollment restricted to graduate students. The Staff

209. Manifolds II. W
Tensor algebra. Differential forms and associated formalism of pullback, wedge product, exterior derivative, Stokes theorem, integration. Cartan's formula for Lie derivative. Cohomology via differential forms. The Poincaré lemma and the Mayer-Vietoris sequence. Theorems of deRham and Hodge. Prerequisite(s): course 208. Course 201 is recommended as preparation. Enrollment restricted to graduate students. The Staff

210. Manifolds III. S
The fundamental group, covering space theory and van Kampen's theorem (with a discussion of free and amalgamated products of groups), CW complexes, higher homotopy groups, cellular and singular cohomology, the Eilenberg-Steenrod axioms, computational tools including Mayer-Vietoris, cup products, Poincaré duality, the Lefschetz fixed point theorem, the exact homotopy sequence of a fibration and the Hurewicz isomorphism theorem, and remarks on characteristic classes. Prerequisite(s): Courses 208 and 209 recommended as preparation. Enrollment restricted to graduate students. The Staff

211. Algebraic Topology. F
Continuation of course 210. Topics include theory of characteristic classes of vector bundles, cobordism theory, and homotopy theory. Prerequisite(s): Courses 200, 201, and 202 recommended as preparation. Enrollment restricted to graduate students. The Staff

212. Differential Geometry. S
Principal bundles, associated bundles and vector bundles, connections and curvature on principal and vector bundles. More advanced topics include: introduction to cohomology, the Chern-Weil construction and characteristic classes, the Gauss-Bonnet theorem or Hodge theory, eigenvalue estimates for Beltrami Laplacian, and comparison theorems in Riemannian geometry. Prerequisite(s): course 208. Enrollment restricted to graduate students. The Staff

213A. Partial Differential Equations I. W
First of the two PDE courses covering basically Part I in Evans' book; Partial Differential Equations; which includes transport equations; Laplace equations; heat equations; wave equations; characteristics of nonlinear first-order PDE; Hamilton-Jacobi equations; conservation laws; some methods for solving equations in closed form; and the Cauchy-Kovalevskaya theorem. Courses 106 and 107 are recommended as preparation. Enrollment restricted to graduate students. The Staff

213B. Partial Differential Equations II. *
Second course of the PDE series covering basically most of Part II in Evans' book and some

topics in nonlinear PDE including Sobolev spaces, Sobolev inequalities, existence, regularity and a priori estimates of solutions to second order elliptic PDE, parabolic equations, hyperbolic equations and systems of conservation laws, and calculus of variations and its applications to PDE. Prerequisite(s): Courses 106, 107, and 213A are recommended as preparation. Enrollment restricted to graduate students. The Staff

214. Theory of Finite Groups. *
Nilpotent groups, solvable groups, Hall subgroups, the Frattini subgroup, the Fitting subgroup, the Schur-Zassenhaus theorem, fusion in p-subgroups, the transfer map, Frobenius theorem on normal p-complements. Prerequisite(s): Courses 200 and 201 recommended as preparation. Enrollment restricted to graduate students. The Staff

215. Operator Theory. *
Operators on Banach spaces and Hilbert spaces. The spectral theorem. Compact and Fredholm operators. Other special classes of operators. Prerequisite(s): Courses 204, 205, 206, and 207 are recommended as preparation. Enrollment restricted to graduate students. The Staff

216. Advanced Analysis. *
Topics include: the Lebesgue set, the Marcinkiewicz interpolation theorem, singular integrals, the Calderon-Zygmund theorem, Hardy Littlewood-Sobolev theorem, pseudodifferential operators, compensated compactness, concentration compactness, and applications to PDE. Prerequisite(s): Courses 204, 205, and 206 recommended as preparation. Enrollment restricted to graduate students. The Staff

217. Advanced Elliptic Partial Differential Equations. *
Topics include elliptic equations, existence of weak solutions, the Lax-Milgram theorem, interior and boundary regularity, maximum principles, the Harnack inequality, eigenvalues for symmetric and non-symmetric elliptic operators, calculus of variations (first variation: Euler-Lagrange equations, second variation: existence of minimizers). Other topics covered as time permits. Prerequisite(s): Courses 204, 205, and 206 recommended as preparation. Enrollment restricted to graduate students. The Staff

218. Advanced Parabolic and Hyperbolic Partial Differential Equations. *
Topics include: linear evolution equations, second order parabolic equations, maximum principles, second order hyperbolic equations, propagation of singularities, hyperbolic systems of first order, semigroup theory, systems of conservation laws, Riemann problem, simple waves, rarefaction waves, shock waves, Riemann invariants, and entropy criteria. Other topics covered as time permits. Prerequisite(s): courses 205 and 206. Enrollment restricted to graduate students. The Staff

219. Nonlinear Functional Analysis. *
Topological methods in nonlinear partial differential equations, including degree theory, bifurcation theory, and monotonicity. Topics also include variational methods in the solution of nonlinear partial differential equations. Enrollment restricted to graduate students. The Staff

220A. Representation Theory I. *
Lie groups and Lie algebras, and their finite dimensional representations. Prerequisite(s): courses 200, 201, and 202. Courses 225A and 227 recommended as preparation. Enrollment restricted to graduate students. The Staff

220B. Representation Theory II. *
Lie groups and Lie algebras, and their finite dimensional representations. Prerequisite(s): course 220A. Enrollment restricted to graduate students. The Staff

222A. Algebraic Number Theory. *
Topics include algebraic integers, completions, different and discriminant, cyclotomic fields, parallelotopes, the ideal function, ideles and adeles, elementary properties of zeta functions and L-series, local class field theory, global class field theory. Courses 200, 201, and 202 are recommended as preparation. Enrollment restricted to graduate students. The Staff

222B. Algebraic Number Theory. *
Topics include geometric methods in number theory, finiteness theorems, analogues of Riemann-Roch for algebraic fields (after A. Weil), inverse Galois problem (Belyi theorem)

and consequences. Enrollment restricted to graduate students. The Staff

223A. Algebraic Geometry I. W
Topics include examples of algebraic varieties, elements of commutative algebra, local properties of algebraic varieties, line bundles and sheaf cohomology, theory of algebraic curves. Weekly problem solving. Courses 200, 201, 202, and 208 are recommended as preparation. Enrollment restricted to graduate students. The Staff

223B. Algebraic Geometry II. *
A continuation of course 223A. Topics include theory of schemes and sheaf cohomology, formulation of the Riemann-Roch theorem, birational maps, theory of surfaces. Weekly problem solving. Course 223A is recommended as preparation. Enrollment restricted to graduate students. The Staff

225A. Lie Algebras. F
Basic concepts of Lie algebras. Engel's theorem, Lie's theorem, Weyl's theorem are proved. Root space decomposition for semi-simple algebras, root systems and the classification theorem for semi-simple algebras over the complex numbers. Isomorphism and conjugacy theorems. Prerequisite(s): Courses 201 and 202 recommended as preparation. Enrollment restricted to graduate students. The Staff

225B. Infinite Dimensional Lie Algebras. *
Finite dimensional semi-simple Lie algebras: PBW theorem, generators and relations, highest weight representations, Weyl character formula. Infinite dimensional Lie algebras: Heisenberg algebras, Virasoro algebras, loop algebras, affine Kac-Moody algebras, vertex operator representations. Prerequisite(s): course 225A. Enrollment restricted to graduate students. The Staff

226A. Infinite Dimensional Lie Algebras and Quantum Field Theory I. *
Introduction to the infinite-dimensional Lie algebras that arise in modern mathematics and mathematical physics: Heisenberg and Virasoro algebras, representations of the Heisenberg algebra, Verma modules over the Virasoro algebra, the Kac determinant formula, and unitary and discrete series representations. Enrollment restricted to graduate students. The Staff

226B. Infinite Dimensional Lie Algebras and Quantum Field Theory II. *
Continuation of course 226A: Kac-Moody and affine Lie algebras and their representations, integrable modules, representations via vertex operators, modular invariance of characters, and introduction to vertex operator algebras. Enrollment restricted to graduate students. The Staff

227. Lie Groups. W
Lie groups and algebras, the exponential map, the adjoint action, Lie's three theorems, Lie subgroups, the maximal torus theorem, the Weyl group, some topology of Lie groups, some representation theory: Schur's Lemma, the Peter-Weyl theorem, roots, weights, classification of Lie groups, the classical groups. Prerequisite(s): courses 200, 201, 204, and 208. Enrollment restricted to graduate students. The Staff

228. Lie Incidence Geometries. *
Linear incidence geometry is introduced. Linear and classical groups are reviewed, and geometries associated with projective and polar spaces are introduced. Characterizations are obtained. Enrollment restricted to graduate students. The Staff

229. Kac-Moody Algebras. *
Theory of Kac-Moody algebras and their representations. The Weil-Kac character formula. Emphasis on representations of affine superalgebras by vertex operators. Connections to combinatorics, PDE, the monster group. The Virasoro algebra. Enrollment restricted to graduate students. The Staff

232. Morse Theory. *
Classical Morse Theory. The fundamental theorems relating critical points to the topology of a manifold are treated in detail. The Bott Periodicity Theorem. A specialized course offered once every few years. Prerequisite(s): Courses 208, 209, 210, 211, and 212 recommended as preparation. Enrollment restricted to graduate students. The Staff

233. Random Matrix Theory. *

Classical matrix ensembles; Wigner semi-circle law; method of moments. Gaussian ensembles. Method of orthogonal polynomials; Gaudin lemma. Distribution functions for spacings and largest eigenvalue. Asymptotics and Riemann-Hilbert problem. Painleve theory and the Tracy-Widom distribution. Selberg's Integral. Matrix ensembles related to classical groups; symmetric functions theory. Averages of characteristic polynomials. Fundamentals of free probability theory. Overview of connections with physics, combinatorics, and number theory. Prerequisite(s): courses 103, 204, and 205; course 117 recommended as preparation. Enrollment restricted to graduate students. The Staff

234. Riemann Surfaces. *
Riemann surfaces, conformal maps, harmonic forms, holomorphic forms, the Reimann-Roch theorem, the theory of moduli. Enrollment restricted to graduate students. The Staff

235. Dynamical Systems Theory. S
An introduction to the qualitative theory of systems of ordinary differential equations. Structural stability, critical elements, stable manifolds, generic properties, bifurcations of generic arcs. Prerequisite(s): courses 203 and 208. Enrollment restricted to graduate students. The Staff

238. Elliptic Functions and Modular Forms. W
The course, aimed at second-year graduate students, will cover the basic facts about elliptic functions and modular forms. The goal is to provide the student with foundations suitable for further work in advanced number theory, in conformal field theory, and in the theory of Riemann surfaces. Prerequisite(s): courses 200, 201, 202, and either 207 or 103A are recommended as preparation. Enrollment restricted to graduate students. The Staff

239. Homological Algebra. S
Homology and cohomology theories have proven to be powerful tools in many fields (topology, geometry, number theory, algebra). Independent of the field, these theories use the common language of homological algebra. The aim of this course is to acquaint the participants with basic concepts of category theory and homological algebra, as follows: chain complexes, homology, homotopy, several (co)homology theories (topological spaces, manifolds, groups, algebras, Lie groups), projective and injective resolutions, derived functors (Ext and Tor). Depending on time, spectral sequences or derived categories may also be treated. Courses 200 and 202 strongly recommended. Enrollment restricted to graduate students. The Staff

240A. Representations of Finite Groups I. F
Introduces ordinary representation theory of finite groups (over the complex numbers). Main topics are characters, orthogonality relations, character tables, induction and restriction, Frobenius reciprocity, Mackey's formula, Clifford theory, Schur indicator, Schur index, Artin's and Braver's induction theorems. Recommended: successful completion of courses 200-202. Enrollment restricted to graduate students. The Staff

240B. Representations of Finite Groups II. *
Introduces modular representation theory of finite groups (over a field of positive characteristic). Main topics are Grothendieck groups, Brauer characters, Brauer character table, projective covers, Brauer-Cartan triangle, relative projectivity, vertices, sources, Green correspondence, Green's indecomposability theorem. Recommended completion of courses 200-203 and 240A. Prerequisite(s): Courses 200, 201, 202, 203, and 240A recommended. Enrollment restricted to graduate students. The Staff

246. Representations of Algebras. *
Material includes associative algebras and their modules; projective and injective modules; projective covers; injective hulls; Krull-Schmidt Theorem; Cartan matrix; semisimple algebras and modules; radical, simple algebras; symmetric algebras; quivers and their representations; Morita Theory; and basic algebras. Prerequisite(s): courses 200, 201, and 202. Enrollment restricted to graduate students. The Staff

248. Symplectic Geometry. F
Basic definitions. Darboux theorem. Basic examples: cotangent bundles, Kähler manifolds and co-adjoint orbits. Normal form theorems. Hamiltonian group actions, moment maps. Reduction by symmetry groups. Atiyah-Guillemin-Sternberg convexity. Introduction to Floer homological methods. Relations with other geometries including contact, Poisson, and Kähler geometry. Prerequisite(s): course 204; courses 208 and 209 are recommended

as preparation. Enrollment restricted to graduate students. The Staff

249A. Mechanics I. *
Covers symplectic geometry and classical Hamiltonian dynamics. Some of the key subjects are the Darboux theorem, Poisson brackets, Hamiltonian and Langrangian systems, Legendre transformations, variational principles, Hamilton-Jacobi theory, godesic equations, and an introduction to Poisson geometry. Courses 208 and 209 are recommended as preparation. Courses 208 and 209 recommended as preparation. Enrollment restricted to graduate students. The Staff

249B. Mechanics II. *
Hamiltonian dynamics with symmetry. Key topics center around the momentum map and the theory of reduction in both the symplectic and Poisson context. Applications are taken from geometry, rigid body dynamics, and continuum mechanics. Course 249A is recommended as preparation. Enrollment restricted to graduate students. The Staff

249C. Mechanics III. *
Introduces students to active research topics tailored according to the interests of the students. Possible subjects are complete integrability and Kac-Moody Lie algebras; Smale's topological program and bifurcation theory; KAM theory, stability and chaos; relativity; quantization. Course 249B is recommended as preparation. Enrollment restricted to graduate students. Offered in alternate academic years. The Staff

252. Fluid Mechanics. *
First covers a basic introduction to fluid dynamics equations and then focuses on different aspects of the solutions to the Navier-Stokes equations. Prerequisite(s): courses 106 and 107 are recommended as preparation. Enrollment restricted to graduate students. The Staff

254. Geometric Analysis. *
Introduction to some basics in geometric analysis through the discussions of two fundamental problems in geometry: the resolution of the Yamabe problem and the study of harmonic maps. The analytic aspects of these problems include Sobolev spaces, best constants in Sobolev inequalities, and regularity and a priori estimates of systems of elliptic PDE. Courses 204, 205, 209, 212, and 213 recommended as preparation. Enrollment restricted to graduate students. The Staff

256. Algebraic Curves. *
Introduction to compact Riemann surfaces and algebraic geometry via an in-depth study of complex algebraic curves. Courses 200, 201, 202, 203, 204, and 207 are recommended as preparation. Enrollment restricted to graduate mathematics and physics students. The Staff

260. Combinatorics. *
Combinatorial mathematics, including summation methods, binomial coefficients, combinatorial sequences (Fibonacci, Stirling, Eulerian, harmonic, Bernoulli numbers), generating functions and their uses, Bernoulli processes and other topics in discrete probability. Oriented toward problem solving applications. Applications to statistical physics and computer science. Enrollment restricted to graduate students. The Staff

280. Topics in Analysis. S
Enrollment restricted to graduate students. May be repeated for credit. The Staff

281. Topics in Algebra. S
Enrollment restricted to graduate students. May be repeated for credit. The Staff

282. Topics in Geometry. S
Enrollment restricted to graduate students. May be repeated for credit. The Staff

283. Topics in Combinatorial Theory. *
Enrollment restricted to graduate students. May be repeated for credit. The Staff

284. Topics in Dynamics. *
Enrollment restricted to graduate students. May be repeated for credit. The Staff

285. Topics in Partial Differential Equations. *
Topics such as derivation of the Navier-Stokes equations. Examples of flows including water waves, vortex motion, and boundary layers. Introductory functional analysis of the Navier-Stokes equation. Enrollment restricted to graduate students. May be repeated for

credit. The Staff

286. Topics in Number Theory. S
Topics in number theory, selected by instructor. Possibilities include modular and automorphic forms, elliptic curves, algebraic number theory, local fields, the trace formula. May also cover related areas of arithmetic algebraic geometry, harmonic analysis, and representation theory. Courses 200, 201, 202, and 205 are recommended as preparation. Enrollment restricted to graduate students. May be repeated for credit. The Staff

287. Topics in Topology. *
Topics in topology, selected by the instructor. Possibilities include generalized (co)homology theory including K-theory, group actions on manifolds, equivariant and orbifold cohomology theory. Enrollment restricted to graduate students. May be repeated for credit. The Staff

292. Seminar (no credit). F,W,S
A weekly seminar attended by faculty, graduate students, and upper-division undergraduate students. All graduate students are expected to attend. Enrollment restricted to graduate students. The Staff

296. Special Student Seminar. F,W,S
Students and staff studying in an area where there is no specific course offering at that time. Enrollment restricted to graduate students. The Staff

297. Independent Study. F,W,S
Either study related to a course being taken or a totally independent study. Enrollment restricted to graduate students. The Staff

298. Master's Thesis Research. F,W,S
Enrollment restricted to graduate students. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to graduate students. The Staff

* Not offered in 2014-15

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Merrill College

2014-15 General Catalog

College Office
(831) 459-2144
merrill.ucsc.edu

For college description and list of faculty, see colleges.

Lower-Division Courses

10. Becoming a Successful Student (2 credits). W
An interactive course providing the opportunity to assess and revise methods of and purposes in studying. Critical, effective approaches to reading, writing, participating in lectures and sections, taking exams, balancing competing responsibilities, and utilizing campus resources are explored. Contact college office for interview-only criteria. Enrollment limited to 30. The Staff

20N. Re-Evaluation Counseling. *
Class introduces the fundamentals of re-evaluation counseling (co-counseling) and focuses on those aspects of the theory and practice which facilitate living in a diverse world. Interview with instructor before first class meeting. Enrollment limited to 20. Offered in alternate academic years. P. Roby

28. Peer Leadership in Co-Curricular Settings (2 credits). S
Introductory course for student leaders combining theoretical background and practical applications. Topics include: student-development theory; communication strategies; leadership-skills assessment; and intergroup relations. Includes readings, discussions, self-reflection, and lectures. Resident assistant (RA) pre-employment training course. Enrollment by interview only: approval of instructor required. Enrollment restricted to selection as resident assistant (RA), program assistant, or alternate for Merrill College. Enrollment limited to 30. May be repeated for credit. The Staff

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

80A. Introduction to University Discourse: Cultural Identities and Global Consciousness. F
Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Examines world poverty, imperialism, and nationalism; peoples' need to assert their cultural identities; and the benefits of individuals' absorption in worthy causes. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. (General Education Code(s): T3-Social Sciences, C1, E.) The Staff

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- Crown College
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- Russian
- Science Communication
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- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

80B. Rhetoric and Inquiry: Cultural Identities and Global Consciousness. F
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Examines world poverty, imperialism, and nationalism; peoples' need to assert their cultural identities; and the benefits of individuals' absorption in worthy causes. Incorporates outside research. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. (General Education Code(s): T3-Social Sciences, C2, E.) The Staff

80C. Merrill Seminar. W,S
Research-based seminar on a topic of particular cultural, historical, or contemporary interest, open to all undergraduate students, taught by either a Merrill College Fellow or other member of the UCSC faculty. (General Education Code(s): T5-Humanities and Arts or Social Sciences.) The Staff

83F. Topics in Foreign Policy (2 credits). S
Students read and evaluate mainstream and Internet media sources on foreign-policy topics of interest to them, and learn the craft of writing news columns--writing for a public audience--on their chosen foreign-policy topics. Prerequisite(s): Satisfaction of the college core course. Merrill students are offered first priority. Enrollment limited to 25. C. Hallinan

85B. Merrill Classroom Connection Field Study (3 credits). F,W,S
Supervised hands-on experience assisting in local K-12 school classrooms. Students attend UCSC class meetings, complete relevant readings in educational theory, and present a final assignment. Priority enrollment restricted to Merrill College members. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

85C. Merrill Classroom Connection Field Study (2 credits). F,W,S
Supervised hands-on experience assisting in local K-12 school classrooms. Students also attend UCSC course meetings, complete relevant readings in educational theory, and present a final assignment. Priority enrollment restricted to Merrill College members. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

90. Theory and Practice of Field Study. S
Course provides an opportunity for lower-division students to learn about Santa Cruz, Calif., its contemporary history, culture, and politics through classroom theoretical learning integrated with individual field studies. Course also examines social change, qualitative research, and community organizing. Enrollment restricted to Frosh and sophomore Merrill, Kresge, and Stevenson College students enrolled in College Challenge programs. Enrollment limited to 25. (General Education Code(s): PR-S.) M. Rotkin

90F. Merrill Field Study Practicum (2 credits). F,W,S
Offers Merrill students an opportunity for practical field study experience with preparation and support for practical skill development and critical reflection on service-learning experience. Enrollment restricted to sophomore, junior, and senior college members. Enrollment limited to 30. (General Education Code(s): PR-S.) M. Rotkin

91F. Challenge Speakers Colloguium (2 credits). F
Eight lectures, six by faculty about research problems in their disciplines. Students attend two dinners with the speakers; respond to research papers in each speaker's field; conduct a research interview with a professor; and investigate a research question. (Also offered as Stevenson College 91F. Students cannot receive credit for both courses.) Prerequisite(s): course 90, or Stevenson 90, or Kresge 171. E. Abrams

93. Field Study. F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Up to three such courses may be taken for credit in any one quarter. Approval of student's adviser and provost required. The Staff

93F. Field Study (2 credits). F,W,S
Provides for individual program of study sponsored by the college and performed off campus. Approval of instructor required. May be repeated for credit. The Staff

93G. Field Study (3 credits). F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Approval of instructor required. May be repeated for credit. The Staff

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Teaching and Administrative Staff

Appendixes

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99. Tutorial. F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits). F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

120. Personal Empowerment. W
Intensive course on individual goal-oriented behavior, commonly called problem solving. Focus on purpose, goals, meaning, emotions, languages, model-building, reality, thinking, logic, creativity, the steps of problem solving, common blocks, and techniques of unblocking. Meet with instructor prior to advance enrollment; priority given to upper-level students. Enrollment limited to 20. F. Andrews

180. Research Skills for College and Beyond (2 credits). W
Focuses on exploration/development of skills for planning, study habits, research, networking, and communication skills for college, graduate and professional school, and beyond. Primary focus is on writing, public speaking, and academic and professional research. Enrollment restricted to junior and senior college members. Enrollment limited to 15. S. Amador

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar by an upper-division student under faculty supervision. (See course 42.) Students submit petition to sponsoring agency, supported by faculty member willing to supervise. The Staff

193. Field Study. F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Up to three such courses may be taken for credit in one quarter. Approval of student's adviser and provost required. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Up to three such courses may be taken for credit in one quarter. Approval of student's adviser and provost required. May be repeated for credit. The Staff

193G. Field Study (3 credits). F,W,S
Provides for individual programs of study sponsored by the college and performed off campus. Up to three such courses may be taken for credit in one quarter. Approval of student's adviser and provost required. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty member. The Staff

195. Senior Research Project. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for college-sponsored individual study programs off campus, for which faculty supervision is not in person (e.g., supervision is by correspondence). Up to three such courses may be taken for credit in any one quarter. This may be a multiple-term course extending over two or three quarters; in this case the grade and evaluation submitted for the final quarter apply to all previous quarters. Petitions may be obtained at the Merrill College Office. Approval of student's adviser, certification of adequate preparation, and approval by the Merrill Provost required. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Microbiology and Environmental Toxicology

2014-15 General Catalog

430 Physical Sciences Building
Telephone (831) 459-4719
FAX (831) 459-3524
http://www.metx.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

80E. Aquatic Toxicology. F
An introduction to the sources, cycling, and impacts of toxicants in aquatic systems, including acid rain, ground water, fresh water rivers and lakes, estuaries, and the ocean. Emphasis is on the properties of toxic chemicals that influence their biogeochemical cycles and factors that influence their toxicity to aquatic organisms and humans. (General Education Code(s): SI, T-2 Natural Sciences.) A. Flegal

Upper-Division Courses

101. Sources and Fates of Pollutants. S
Presents in-depth important principles of environmental toxicology related to the introduction, transport, and fate of toxicants in aquatic and terrestrial environments, including environmental chemistry and biogeochemical cycles as well as exposure pathways and uptake by organisms. Additional emphasis placed on susceptibility and effects of toxicants across organ systems, toxicokinetic and biomarkers of exposure, and effects at the ecosystem level. Students cannot receive credit for this course and course 201. A. Flegal

102. Cell and Molecular Toxicology. W
Emphases of biochemical, cellular, and organ system basis of intoxication, including dose-response relationships, biotransformation of toxicants, biochemical mechanisms underlying toxicity, factors influencing toxic action, and biomarkers of exposure. Emphasizes effects of various classes of toxins, including heavy metals and persistent synthetic organics, with a focus on susceptible biochemical/cellular processes of the central nervous, immune, hepatic, and renal target organ systems. Designed for advanced undergraduates. Students cannot receive credit for this course and course 202. (Formerly Cellular and Organismal Toxicology.) Prerequisite(s): Biology 20A and 20B or equivalent; Biology 100, Biochemistry, and 110, Cell Biology, are recommended. Enrollment restricted to juniors and seniors. D. Smith

119. Microbiology. F,W
Cell and molecular biology of bacteria and their viruses, including applications in medicine,

- Community Studies
- Computer Engineering
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public health, agriculture, and biotechnology. Prerequisite(s): BIOL 100 or BIOC 100A. V. Stone, F. Yildiz

119L. Microbiology Laboratory. F,W,S
An introduction to the principles and practices of laboratory microbiology, with a substantial presentation of optical microscopy. Students are billed a materials fee. Prerequisite(s): previous or concurrent enrollment in course 119 required; satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to biological sciences and affiliated majors; biology minors; other majors by permission. (General Education Code(s): W.) C. Saltikov, K. Ottemann

125. Practicing Safe Science (2 credits). W
Introduces research safety principles and practices. Instructors and guest experts discuss research hazards and control measures. Students explore the safe use of research methods and materials via hands-on and outside exercises. Issues include compliance with hazardous waste and other environmental safety regulations. J. Schoonover

135. Functional Anatomy. S
A rigorous systems-based course in anatomy. Lectures provide an overview of functional anatomy at all levels from the systems to the tissues. Provides a mechanistic understanding of the structures of the body as a foundation for human-health oriented studies. (Formerly BIOL 135.) Prerequisite(s): courses 20A and Biology: Ecology and Evolutionary 20B.Concurrent enrollment in course 135L is required. Enrollment restricted to biological sciences majors and affiliated majors and biology minors. M. Camps

135L. Functional Anatomy Lab (2 credits). S
Complements lecture course 135. Emphasizes nomenclature and recognition; includes the embryology and histology of bones, muscles, and internal organs, and the interactions between the systems of the body. Students are billed a materials fee. (Formerly BIOL 135L.) Prerequisite(s): courses 20A and Biology: Ecology and Evolutionary 20B. Enrollment restricted to biological sciences majors and affiliated majors and biology minors. Enrollment limited to 24. M. Camps

138. Pathogenesis: Molecular Mechanisms of Disease. *
Overview of the pathogenic mechanisms underlying human disease at the physiological and molecular levels, with their implications for epidemiology, diagnosis, and treatment. Includes discussion of clinical cases and of emerging areas of research. Geared toward students interested in future research or clinical careers in the area of human or animal health. Students cannot receive credit for this course and Microbiology and Environmental Toxicology 238. (Also offered as Biology: Molecular Cell & Dev 118. Students cannot receive credit for both courses.) Prerequisite(s): Biology 130. Enrollment restricted to students majoring in biology; health sciences; molecular, cell, and developmental biology; biochemistry and molecular biology; or neuroscience and behavior. Offered in alternate academic years. M. Camps

140. Molecular Biology of Prokaryotes. *
Focuses on several aspects of prokaryotic molecular biology. Covers transcriptional regulation, translational regulation, DNA replication and segregation, protein secretion, transport of small molecules, control of metabolism, stress response, bacterial differentiation, signal transduction, biofilm formation, and motility. Strong focus on experimental techniques and approaches used in prokaryotic molecular biology. Focus on model bacteria such as Escherichia coli and Bacillus subtilis. Students cannot receive credit for this course and course 240. Prerequisite(s): Biology 119. K. Ottemann

144. Groundwater Contamination. S
Analyses of contemporary problems in groundwater contamination, based on current scientific understanding of contaminant transport in aquifers. Topics include both theoretical concepts and case studies. To be offered in alternate academic years. Prerequisite(s): Earth Science 110B. A. Flegal

145. Medical Geology. *
An interdisciplinary analysis of natural geochemical processes that impact human health and of anthropogenic processes that exacerbate those impacts. Prerequisite(s): Chemistry 1A, 1B, 1C, 1M, and 1N. A. Flegal

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150. Introduction to Research and Experimental Design. *
Lecture-based course for advanced undergraduates actively engaged in undergraduate research (e.g., independent study or senior thesis). Emphasizes basic lab skills, including laboratory safety and handling of laboratory equipment; experimental design; scientific record keeping; and literature searching, review, and management. K. Ottemann, (FWS) The Staff

151. Scientific Writing and Presentation. *
For advanced undergraduates who are actively engaged in undergraduate research (e.g., independent study or senior thesis). Emphasizes the collection, reduction, analysis, management, and interpretation of scientific data; the presentation of scientific data in written and oral formats; and further development of critical thinking. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): W.) The Staff

160. Coastal Environmental Toxicology and Policy (3 credits). *
Interdisciplinary analysis of the scientific basis and policy development to regulate and manage environmental pollutants in coastal waters. Focuses on case studies involving aspects of environmental toxicology and policy including environmental monitoring and regulatory programs; ecosystem restoration; and regulating the environmental impacts of coastal development. Enrollment restricted to sophomores, juniors, seniors, and graduate students. M. Connor, G. Griggs, A. Flegal

170. Drug Action and Development. *
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and course 270. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Biomolecular Engineering 170. Students cannot receive credit for both courses.) Prerequisite(s): Biology 100 or Chemistry 103 or Biochemistry 100A. Biology 110 and 130/L or 131/L are recommended. Enrollment restricted to juniors and seniors. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

195. Senior Thesis. F,W,S
An individually supervised course, with emphasis on independent research culminating in a senior thesis. May be repeated for credit. The Staff

195F. Senior Thesis (2 credits). F,W,S
An individually supervised course with emphasis on independent research culminating in a senior thesis. May be repeated for credit. The Staff

198. Independent Study. F,W,S
Provides for individual programs of study (a) by means other than the usual supervision in person or (b) when the student is doing all or most of the course work off campus. With permission of the department, two or three courses may be taken concurrently, or the course repeated for credit. May be repeated for credit. The Staff

198F. Independent Study (2 credits). F,W,S
Provides for individual programs of study (a) by means other than the usual supervision in person or (b) when the student is doing all or most of the coursework off campus. With permission of the department, two or three courses may be taken concurrently, or the course repeated for credit. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Reading, discussion, written reports, and laboratory research on selected topics. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Reading, discussion, written reports, and laboratory research on selected topics. Enrollment limited to 4. May be repeated for credit. The Staff

Graduate Courses

200. Interdisciplinary Approaches in Environmental Toxicology. F
Introduction to interdisciplinary, case-based approaches to problem-solving. Course

demonstrates how important, current problems in environmental and human health have been addressed and solved. Assigned problems that integrate the different organization levels (environmental, molecular/cellular, organismal/public health) inherent to environmental and human health are presented. Students work in collaborative teams to analyze each problem and create a proposal for a research plan/solution. Enrollment restricted to graduate students. C. Saltikov, A. Flegal

201. Sources and Fates of Pollutants. *
Presents in-depth important principles of environmental toxicology related to the introduction, transport, and fate of toxicants in aquatic and terrestrial environments including environmental chemistry and biogeochemical cycles as well as exposure pathways and uptake by organisms. Additional emphasis will be placed on the susceptibility and effects of toxicants across organ systems, toxicokinetics and biomarkers of exposure, and effects at the ecosystem level. Students cannot receive credit for this course and course 101. Enrollment restricted to graduate students; qualified undergraduate science majors may enroll with permission of instructor. A. Flegal

202. Cell and Molecular Toxicology. W
Emphasizes biochemical, cellular, and organ system basis of intoxication, including dose-response relationships, biotransformation of toxicants, biochemical mechanisms underlying toxicity, factors influencing toxic action, and biomarkers of exposure. Emphasizes effects of various classes of toxins, including heavy metals and persistent synthetic organics, with a focus on susceptible biochemical/cellular processes of the central nervous, immune, hepatic, and renal target organ systems. Students cannot receive credit for this course and Microbiology and Environmental Toxicology 102 or BIOL 122.. (Formerly "Cellular and Organismal Toxicology.") Enrollment restricted to graduate students. D. Smith

203. Cellular and Molecular Toxicology. *
Presents in-depth cellular and molecular principles of environmental toxicology. These include modes of action and cellular and molecular targets of toxicants, as well as mechanisms of cellular and molecular responses to toxicants and their detoxification. State-of-the-art biological methodologies and approaches to identify and study cellular targets of toxicants. Designed to provide students with a broad and deep understanding of the biological aspects of toxicology at both cellular and molecular levels, and the skills to approach emerging challenges in the field. Enrollment restricted to graduate students; qualified undergraduates may enroll with instructor's permission. (FWS) The Staff

205. Scientific Skills, Ethics, and Writing. S
Course provides fundamental training of graduate students in the scientific method, experimental design, ethics in science, grant proposal and scientific writing, data presentation, and scientific speaking. Students are evaluated on class participation, performance, and a written NIH/NSF style research proposal. Enrollment restricted to graduate students. The Staff

206A. Advanced Microbiology. W
Focuses on aspects of bacterial molecular biology. Covers four main areas: (1) metabolism-catabolism, anabolism, building-block precursors; (2) transcription/signal transduction; (3) replication/plasmid biology/division; (4) translation/protein processing/secretion/cell structure. Strong focus on experimental techniques and approaches used in molecular biology, and on model bacteria, such as Escherichia coli and Bacillus subtilis . Enrollment restricted to graduate students. Advanced undergraduates may enroll with permission of instructor. F. Yildiz, V. Stone, C. Saltikov, K. Ottemann

210. Molecular and Cellular Basis of Bacterial Pathogenesis. *
Focuses on the molecular basis of bacterial pathogenesis with specific emphasis on gene expression, regulation, and ecology and evolution. Enrollment restricted to graduate students. Advanced undergraduates with extensive background in microbiology and biology may enroll with permission of instructor. F. Yildiz

215. Seminar in Advanced Prokaryotic Molecular Biology (2 credits). *
Seminar focuses on aspects of prokaryotic molecular biology. Specific topics include transcriptional regulation, translational regulations, DNA replication, secretion of proteins, transport of small molecules, bacterial differentiation, signal transduction, biofilm formation, and motility. Discussions focus on model bacteria such as Escherichia coli and Bacillus subtilis. Enrollment restricted to graduate students. F. Yildiz, C. Saltikov, K.

Ottemann

238. Pathogenesis: Molecular Mechanisms of Disease. *
Overview of the pathogenic mechanisms underlying human disease at the physiological and molecular levels, with their implications for epidemiology, diagnosis, and treatment. Includes discussion of clinical cases and of emerging areas of research. Geared toward students interested in research or clinical careers in the area of human or animal health. Students cannot receive credit for this course and course 138. Enrollment restricted to graduate students. M. Camps

240. Molecular Biology of Prokaryotes. *
Focuses on several aspects of prokaryotic molecular biology. Covers transcriptional regulation, translational regulation, DNA replication and segregation, protein secretion, transport of small molecules, control of metabolism, stress response, bacterial differentiation, signal transduction, biofilm formation, and motility. Strong focus on experimental techniques and approaches used in prokaryotic molecular biology. Focus on model bacteria such as Escherichia coli and Bacillus subtilis. Students cannot receive credit for this course and course 140. K. Ottemann

250. Environmental Microbiology. S
How microbes interact with their environments. Topics include anaerobic metabolism; biotransformation of toxic metals and organic pollutants; geomicrobiology; life in extreme environments; water quality. Advanced undergraduates with extensive background in microbiology and biology may enroll with permission of instructor. Enrollment restricted to graduate students. Offered in alternate academic years. C. Saltikov

270. Drug Action and Development. *
Lectures and case studies explore principles and approaches in drug discovery and development, emphasizing concepts in pharmacology; medicinal chemistry; and genomics- and bioinformatics-based approaches to drug discovery to illustrate pathways from discovery through development for clinical use. Cannot receive credit for this course and course 170. (Formerly Frontiers in Drug Action and Discovery.) (Also offered as Biomolecular Engineering 270. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. D. Smith, T. Holman, M. Camps, R. Linington, P. Berman

281A. Topics in Environmental Toxicology. *
Selected topics in environmental toxicology. Topics vary from year to year. Enrollment restricted to graduate students; qualified upper-division science majors may enroll with instructor's permission. May be repeated for credit. The Staff

281C. Topics in Environmental Microbiology (2 credits). F,W,S
Seminar and discussion focusing on mechanism of microbial transformation of metals. Participants present results from their research projects in a seminar format. Relevant journal articles presented and discussed. Enrollment restricted to graduate students; qualified undergraduates may enroll with instructor's permission. C. Saltikov

281F. Topics in Aquatic Toxicology (2 credits). F,W,S
Analyses of the sources and fates of aquatic pollutants. Discussions on processes at the air-water interface, within the water column, and in aquatic sediments. Topics vary from year to year. Enrollment restricted to graduate students; qualified upper-division science majors may enroll with instructor's permission. May be repeated for credit. A. Flegal

281M. Topics in Molecular Toxicology (2 credits). F,W,S
Seminar and discussion on the mechanisms of toxicity in DNA alkylating agents. Participants present results from their research, and relevant journal articles are discussed. Enrollment restricted to graduate students. Undergraduates may enroll with instructor's permission. Enrollment limited to 5. May be repeated for credit. M. Camps

281O. Topics in Bacterial Pathogenesis (2 credits). F,W,S
Intensive seminar focusing on mechanisms of bacterial pathogenesis of the ulcer-causing bacterium Helicobacter pylori. Participants are required to present results from their own research and relevant journal articles. (Also offered as Biology: Molecular Cell & Dev 280O. Students cannot receive credit for both courses.) Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 20. May be repeated for credit. K. Ottemann

281S. Cellular and Organismal Responses to Toxicants (2 credits). F,W,S
Intensive research seminar on the concepts, theory, and techniques in deriving physiologically based pharmacokinetic models of toxin exposure, metabolism, and efficacy of therapeutic treatment in mammalian models of human metal toxicity. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. D. Smith

281V. Topics in Bacterial Pathogenesis and Innate Immunity (2 credits). F,W,S
Focuses on the interplay between the human gut bacterial pathogen Yersinia pseudotuberculosis and the innate immune system of the host. Participants are required to present the goals, results, and conclusions from their own research. Participation in the general discussion during others' presentations is also required. Enrollment restricted to graduate students. Qualified undergraduates performing research under the supervision of the instructor may enroll with instructor's permission. May be repeated for credit. V. Stone

281Y. Biofilms: Processes and Regulation (2 credits). F,W,S
Intensive seminar series focusing on the most current work on genes and the processes that regulate biofilm development dynamics as well as on the recent developments on visualization of biofilms. Presentation and discussion based. Enrollment restricted to graduate students. Qualified undergraduate students may enroll with instructor's permission. May be repeated for credit. F. Yildiz

282. Current Approaches to Molecular Pathogenesis (2 credits). *
Graduate level seminar focusing on the mechanisms by which bacterial pathogens cause disease. Specific topics include basic concepts of virulence and virulence factors, virulence factor regulation, toxins, and interactions of pathogens with mammalian cells and organs. Discussions focus on several key pathogens, including Helicobacter pylori, Vibrio cholerae, Salmonella typhimuruim, and Listeria monocytogenes. May be repeated for credit. K. Ottemann

290. Proseminar. *
Special topics offered from time to time by faculty, visiting professors, or staff members. Enrollment restricted to graduate students; qualified undergraduates may enroll with instructor's permission. May be repeated for credit. The Staff

290A. Epidemiology and Risk Assessment. *
Approaches different techniques of biological monitoring and the exposure and effect of biomarkers related to occupational and environmental exposure to chemicals. Available methods for risk assessment and identification of protective exposure limits also considered. (Formerly Biological Impact of Chemical Exposures .) The Staff

292. Introductory Graduate Seminar (no credit). F,W,S
Weekly seminars by academic and research faculty on their areas of special interest. Students write weekly abstracts on articles covered by the seminars. Enrollment restricted to graduate students; qualified undergraduates may enroll with instructor's permission. The Staff

297. Independent Study. F,W,S
Independent study for graduate students who have not yet settled on a research area for the thesis. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Molecular, Cell, and Developmental Biology

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Molecular, Cell, and Developmental Biology Department
225 Sinsheimer Laboratories
(831) 459-2385
http://www.mcd.ucsc.edu

Physical and Biological Sciences Undergraduate Affairs Office
142 Jack Basking Engineering Bldg.
(831) 459-4143
http://undergrad.pbsci.ucsc.edu

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Lower-Division Courses

15. Undergraduate Research Reports (1 credit). F,W,S
Undergraduate students who work in faculty research laboratories present the results of their projects. Organized by the Minority Undergraduate Research Program and the Minority Access to Research Careers Program. Designed for students with membership in the above-mentioned programs. Prerequisite(s): qualifications as determined by instructor at first class meeting. May be repeated for credit. A. Zahler, M. Jurica

20A. Cell and Molecular Biology. F,W,S
Introduction to molecular biology, cell physiology, and genetics. Prerequisite(s): Chemistry 1A and 1B. (General Education Code(s): IN.) J. Tamkun, M. Rexach, The Staff

20L. Experimental Biology Laboratory (2 credits). F,W,S
Provides biology majors with the theory and practice of experimental biology. A wide range of concepts and techniques used in the modern laboratory are included in the exercises. Designed to satisfy the introductory biology lab requirement of many medical and professional schools. Students are billed a materials fee. Prerequisite(s): BIOL 20A and previous or concurrent enrollment in BIOE 20B. Enrollment restricted to human biology and health sciences majors; other majors by permission. Enrollment limited to 20. L. Ogren

80A. Female Physiology and Gynecology. S
Biochemical, medical, social, and clinical aspects of the female body. Emphasis will be on biological-chemical interactions in the female organs. Topics include female anatomy, cell physiology, endocrine functions, sexuality and intimacy, sexually transmitted diseases, puberty, pregnancy, menopause, birth control, abortion, immunity, cancer. (General Education Code(s): SI, T-2 Natural Sciences.) M. Zavanelli

80E. Evolution. *
Introduction to Darwinian evolution including how the theory was devised and a discussion

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of other theories proposed at the time. Explores the facts and evidence of evolutionary processes and the insights they provide in biological diversity, consequences of extinction, and emergence of new diseases. Includes a discussion of evolution and spirituality. (General Education Code(s): SI, T-2 Natural Sciences.) M. Zavanelli

80J. Biology of AIDS. W
An overview of the biology of the acquired immunodeficiency syndrome (AIDS) and the social and legal issues that surround it are explored in a series of lectures by biology faculty and experts in the field. (General Education Code(s): SI, T-2 Natural Sciences.) M. Zavanelli

Upper-Division Courses

100. Biochemistry. F,W
An introduction to biochemistry including biochemical molecules, protein structure and function, membranes, bioenergetics, and regulation of biosynthesis. Provides students with basic essentials of modern biochemistry and the background needed for upper-division biology courses. Students who plan to do advanced work in biochemistry and molecular biology should take the Biochemistry and Molecular Biology 100 series directly. Students cannot receive credit for this course after they have completed any two courses from the BIOC 100A, 100B, and 100C sequence. Prerequisite(s): BIOL 20A and BIOE 20B; and CHEM 108A or 112A. J. Sanford, D. Kellogg

100L. Advanced Biochemistry Laboratory. F,W,S
Basic techniques and principles of laboratory biochemistry including isolation and characterization of a natural product, manipulation of proteins and nucleic acids to demonstrate basic physical and chemical properties; and characterization of enzyme substrate interactions. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors; non-majors by instructor permission. Prerequisite(s): BIOL 100 or BIOC 100A, and BIOL 100K or BIOL 20L or BIOL 101L; satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. (General Education Code(s): W.) M. Zavanelli

101. Molecular Biology (3 credits). W,S
Covers the basic molecular mechanism of DNA replication and transcription, protein synthesis, and gene regulation in bacterial and eukaryotic organisms. The experimental techniques used to determine these mechanisms are emphasized. Unless students have already passed course 20L, they are strongly encouraged to enroll in course 101L. Prerequisite(s): course 100. M. Jurica, G. Hartzog

101L. Biochemistry Laboratory (2 credits). F,W,S
Laboratory course providing hands-on experience with, and covering conceptual background in, fundamental techniques in molecular biology and biochemistry, including DNA cloning, PCR, restriction digest, gel electrophoresis, protein isolation, protein quantification, protein immunoblot (Western) analysis, and use of online bioinformatics tools. Students are billed a materials fee. (Formerly course 100K.) Previous or concurrent enrollment in BIOL 100, 101, or BIOC 100A is required. Students cannot receive credit for this course and BIOL 20L. J. Lee

105. Genetics. F,W,S
Mendelian and molecular genetics; mechanisms of heredity, mutation, recombination, and gene action. Prerequisite(s): BIOL 20A and BIOE 20B. N. Bhalla, S. Strome, R. Kamakaka

105L. Eukaryotic Genetics Laboratory. F,W,S
Classical and newly developed molecular-genetic techniques used to explore genetic variation in wild populations of the fruit fly Drosophila melanogaster. Topics include Mendelian fundamentals, mapping, design of genetic screens, bio-informatic and database analysis, genetic enhancers, and population genetics. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors; non-majors by instructor permission. Prerequisite(s): BIOL 100 or BIOC 100A; BIOL 100K or BIOL 20L or BIOL 101L; BIOL 105; satisfaction of Entry Level Writing and Composition Requirements. (General Education Code(s): W.) W. Sullivan, The Staff

105M. Microbial Genetics Laboratory. *
Exploration of basic genetics processes such as replication, mutation, DNA repair,

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recombination, gene exchange, population genetics, and evolution using microbial model organisms; classic techniques in microbial genetics and contemporary molecular techniques presented. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors. Non-majors enroll by instructor permission. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L, and BIOL 105. Satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 16. (General Education Code(s): W.) The Staff

109L. Yeast Molecular Genetics Laboratory. F
The powerful genetic and molecular techniques available for yeast combined with the complete genomic DNA sequence offers opportunity for discovery of fundamental aspects of eukaryotic life. Lab providing practical experience in using yeast as an experimental system. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors. Non-majors enroll by instructor permission. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L, and BIOL 105. Satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 15. (General Education Code(s): W.) G. Ruben

110. Cell Biology. F,S
Covers the structure, organization, and function of eukaryotic cells. Topics include biological membranes, organelles, protein and vesicular trafficking, cellular interactions, the cytoskeleton, and signal transduction. Requires a good understanding of basic biochemistry and molecular biology. Prerequisite(s): BIOL 100 or CHEM 103 or BIOC 100A, and BIOL 105. M. Rexach, W. Saxton

110L. Cell Biology Laboratory. *
Fundamental aspects of cell biology explored through experimentation in a modern laboratory setting. Research topics include the structure and function of biological membranes; intracellular transport and organelle biogenesis; the cell cycle; and the cytoskeleton. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors. Non-majors enroll by instructor permission. Prerequisite(s): BIOL 100 or BIOC 100A, and BIOL 100K or BIOL 20L or BIOL 101L, and previous or concurrent enrollment in BIOL 110. Satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 16. (General Education Code(s): W.) The Staff

111. Immunology. F
Immune systems--their manifestations and mechanisms of action. Prerequisite(s): BIOL 20A, BIOE 20B, BIOL 105, and BIOL 110. G. Ruben

111A. Immunology I. *
Principles and concepts of the innate and adaptive immune systems, with emphasis on mechanisms of action and molecular and cellular networks. The development, differentiation, and maturation of cells of the immune system are also discussed. Prerequisite(s): courses BIOE 20B, and BIOL 20A, 105, and 110. M. Zuniga

111B. Immunology II. *
The immune system in health and disease, including failures of host immune-defense mechanisms, allergy and hypersensitivity, autoimmunity, transplantation biology, the immune response to tumors, immune-system interactions with pathogens, and manipulation of the immune response. Prerequisite(s): courses BIOE 20B, and 20A, 105, 110, and 111A. M. Zuniga

113. Mammalian Endocrinology. S
Introduction to the major endocrine organs, their hormones, and their receptors. Emphasis is on the following topics: structural analysis of the hormones and receptors at the protein and molecular level, regulation of expression of hormones and their receptors, and the biological functions of hormones. Prerequisite(s): BIOL 20A, and BIOE 20B; and BIOL 100 or CHEM 103 or BIOC 100A; and BIOL 101L or BIOL 20L or BIOL 100K. L. Ogren

114. Cancer Cell Biology. S
Focuses on the molecular and cellular mechanisms behind cancer. Topics covered include oncogenes, tumor suppressor genes, cell growth genes, checkpoint genes, telomeres, and apoptosis. Students will gain experience in reading the primary scientific literature. Prerequisite(s): BIOL 110 or 115. (General Education Code(s): TA.) A. Zahler

115. Eukaryotic Molecular Biology. W
Covers eukaryotic gene and genome organization; DNA, RNA, and protein synthesis; regulation of gene expression; chromosome structure and organization; and the application of recombinant DNA technology to the study of these topics. Prerequisite(s): BIOL 100 or CHEM 103 or BIOC 100A, and BIOL 105. Enrollment restricted to biological sciences and affiliated majors, non-majors by permission of instructor. H. Boeger

115L. Eukaryotic Molecular Biology Laboratory. F,W,S
A laboratory designed to provide students with direct training in basic molecular techniques. Each laboratory is a separate module which together builds to allow cloning, isolation, and identification of a nucleic acid sequence from scratch. Students cannot receive credit for this course and course 187L or 287L. Students are billed a materials fee. Restricted to biological sciences/affiliated majors; biology minors; other majors by permission. Prerequisite(s): BIOL 100 or BIOC 100A or CHEM 3, and BIOL 100K or BIOL 20L or BIOL 101L, and previous or concurrent enrollment in BIOL 115. Satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. (General Education Code(s): W.) M. Zavanelli

116. Advanced Topics in Cell Biology (3 credits). S
Advanced course in cell biology featuring small-classroom discussion of topics related to the structure and function of cells and their organelles. Emphasis is given to experimental strategies used in cell biology research. Requires discussion of scientific literature and student-led presentations. Prerequisite(s): course 110. Enrollment restricted to senior human biology, molecular, cell, and developmental biology, and neuroscience majors. Other majors by permission of instructor. Enrollment limited to 30. M. Rexach

117. Neglected Tropical Diseases (3 credits). F
Neglected tropical diseases afflict more than 1 billion of the poorest individuals on the planet. This course covers the molecular basis and pathology of the most prevalent neglected diseases and emerging strategies to combat these diseases. Prerequisite(s): course 110. Enrollment restricted to senior human biology, molecular, cell, and developmental biology, and neuroscience majors. Other majors by permission of instructor. Enrollment limited to 30. W. Sullivan

118. Pathogenesis: Molecular Mechanisms of Disease. *
Overview of the pathogenic mechanisms underlying human disease at the physiological and molecular levels, with their implications for epidemiology, diagnosis, and treatment. Includes discussion of clinical cases and of emerging areas of research. Geared toward students interested in future research or clinical careers in the area of human or animal health. Students cannot receive credit for this course and Microbiology and Environmental Toxicology 238. (Also offered as Microbiol & Environ Toxicology 138. Students cannot receive credit for both courses.) Prerequisite(s): Biology 130. Enrollment restricted to students majoring in biology; human biology; molecular, cell and developmental biology; biochemistry and molecular biology; or neuroscience. Offered in alternate academic years. M. Camps

120. Developmental Biology. W
A description and analysis of selected developmental events in the life cycle of animals. Experimental approaches to understanding mechanisms are emphasized. (Formerly Development.) Prerequisite(s): BIOL 100 or CHEM 103 or BIOC 100A, and BIOL 105 and BIOL 110. The Staff

120L. Development Laboratory. W
Experimental studies of animal development using a variety of locally obtainable organisms. Approximately eight hours weekly, but it will often be necessary to monitor continuing experiments throughout the week. Students are billed a materials fee. Enrollment restricted to biological sciences and affiliated majors; biology minors; other majors by permission. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L; satisfaction of the Entry Level Writing and Composition requirements. Previous or concurrent enrollment in BIOL 120 is required. J. Lee

121L. Environmental Phage Biology Laboratory. *
Introduction to hypothesis-driven laboratory research. Students isolate a unique bacteriophage and characterize its structure and genome. An understanding of molecular

biology and basic genetics required. Students are billed a materials fee. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to biological sciences and affiliated majors with sophomore standing or higher. Enrollment by application and permission of instructor. Enrollment limited to 20. G. Hartzog

125. Introduction to Neuroscience. W
The structure and function of the nervous system. Topics include elementary electrical principles, biophysics and physiology of single nerve and muscle cells, signal transduction at synapses, development of the nervous system, and neural basis of behavior. Requires a good understanding of basic biochemistry, cell biology, and molecular biology. Prerequisite(s): BIOL 20A, BIOE 20B; and BIOL 100 or BIOC 100A or CHEM 103. B. Chen

126. Advanced Molecular Neuroscience. S
Explores in detail cellular and molecular events that underlay the function of the nervous system. Topics include neural development, axon guidance and regeneration, advanced electrical principles (synaptic transmission through a variety of receptors), synaptic plasticity, learning and memory, as well as several neural disorders. Prerequisite(s): BIOL 125. (General Education Code(s): TA.) D. Feldheim

127. Mechanisms of Neurodegenerative Disease. *
Focuses on cellular and molecular processes that underlie neurodegenerative diseases. Includes lectures, student oral presentations, discussions, a term paper, and exams. Prerequisite(s): BIOL 105 and 110. (General Education Code(s): TA.) W. Saxton

130. Human Physiology. F,W
Function, organization, and regulation of the major organ systems of humans, with emphasis on integration among systems. Students cannot receive credit for this course and course 131. Prerequisite(s): BIOL 110. L. Ogren

130L. Human Physiology Laboratory (2 credits). F,W
Examines fundamental principles of systemic physiology focusing on the human. Students cannot receive credit for this course and BIOE 131L. Students are billed a materials fee. Enrollment is restricted to biological sciences and affiliated majors; biology minors; other majors by permission. Prerequisite(s): Satisfaction of Entry Level Writing and Composition requirements; BIOL 110; previous or concurrent enrollment in BIOL130 is required. L. Ogren

140. Biophysics. S
Physical principles and techniques used in biology: X-ray diffraction; nuclear magnetic resonance; statistics, kinetics, and thermodynamics of macromolecules; viscosity and diffusion; DNA/RNA pairing; electrophoresis; physics of enzymes; biological energy conversion; optical tweezers. (Also offered as Physics 180. Students cannot receive credit for both courses.) Enrollment restricted to juniors and seniors. (General Education Code(s): PR-E.) J. Deutsch

178. Stem Cell Biology. W
Basic concepts, experimental approaches, and therapeutic potential are discussed. Students gain experience in reading the primary scientific literature. (Also offered as Biomolecular Engineering 178. Students cannot receive credit for both courses.) Prerequisite(s): BIOL 110; BIOL 115 recommended. C. Forsberg

178L. Protocols in Stem Cell Biology. *
Provides hands-on experience in embryonic stem cell culture methods and techniques. Students grow and passage mouse embryonic stem (mES) cells and perform established protocols that differentiate mES cells into cardiac muscle cells and neurons. Enrollment restricted to biological sciences and affiliated majors; biology minors; non-majors by permission. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K; satisfaction of the Entry Level Writing and Composition requirements; previous or concurrent enrollment in course 178. Enrollment limited to 16. The Staff

179. Biotechnology and Drug Development. W
Recommended for students interested in careers in the biopharmaceutical industry. Focuses on recombinant DNA technology and the drug-development process, including discovery research; preclinical testing; clinical trials; and regulatory review, as well as

manufacturing and production considerations. Students may not receive credit for this course and Biomolecular Engineering 255 and Chemistry 255. (Also offered as Biomolecular Engineering 155. Students cannot receive credit for both courses.) Prerequisite(s): BIOL 20A and BIOL 100 or CHEM 103 or BIOC 100A. Enrollment limited to 15. P. Berman

180. Research Programming in the Life Sciences. S
No programming experience is required, but basic computer and molecular biology understanding is assumed. Students learn programming in Python to manipulate biological data. Programming assignments comprise the majority of the assignments, and a final project using skills developed in this course is required. BioPython and other modules introduced for use in the final project. (Formerly Research Programming for Biologists and Biochemists.) (Also offered as Biomolecular Engineering 160. Students cannot receive credit for both courses.) Prerequisite(s): BIOL 20A or BIOL 21A. Concurrent enrollment in BIOL 180L is required. (General Education Code(s): MF.) The Staff

180L. Research Programming in the Life Sciences Laboratory (1 credit). S
Laboratory sequence illustrating topics covered in course 160. One two-hour laboratory per week. (Formerly Research Programming for Biologists and Biochemists Laboratory.) (Also offered as Biomolecular Engineering 160L. Students cannot receive credit for both courses.) Prerequisite(s): BIOL 20A or BIOL 21A. Concurrent enrollment in BIOL 180 is required. The Staff

181. Computational Biology Tools. F,W
Hands-on lectures and laboratory geared to teach basic tools and skills used in computational biology (genome browsers, sequence database searching, motif analysis, multiple sequence alignment, gene finders, phylogenetics analysis, protein structure visualization, and others). Web-based tools/databases are used on student laptops. Open to all science students; no prior programming or Unix experience required. (Also offered as Biomolecular Engineering 110. Students cannot receive credit for both courses.) Prerequisite(s): course 100, 105, Biochemistry 100A, or Chemistry 103 or declared Bioinformatics majors. Enrollment limited to 25. T. Lowe, The Staff

182. Genomes. F,S
Advanced elective for biology majors, examining biology on the genome scale. Topics include genome sequencing; large scale computational and functional analysis; features specific to prokaryotic, eukaryotic, or mammalian genomes; proteomics; SNP analysis; medical genomics; and genome evolution. (Also offered as Biomolecular Engineering 130. Students cannot receive credit for both courses.) Prerequisite(s): BIOL 100 or CHEM 103 or BIOC 100A; and BIOL 105; or approval of instructor. Enrollment limited to 30. R. Green

186F. Undergraduate Research in MCD Biology (2 credits). F,W,S
Supervised undergraduate research in laboratory of an MCD biology faculty member accompanied by weekly lectures on ethical and practical scientific issues. Topics include: laboratory safety; the scientific method; the collection, treatment, and presentation of data; critical evaluation of scientific literature; scientific misconduct; and peer review. Career issues, including how to apply for admission to graduate and professional schools, is also discussed. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L. Each enrolled student must have a committed MCD faculty sponsor by the first class meeting. Enrollment restricted to biology and affiliated majors. May be repeated for credit. B. Chen, R. Ludwig, M. Rexach

186L. Undergraduate Research in MCD Biology. F,W,S
Supervised undergraduate research in laboratory of an MCD biology faculty member accompanied by weekly lectures on ethical and practical scientific issues. Topics include: laboratory safety; the scientific method; the collection, treatment, and presentation of data; critical evaluation of scientific literature; scientific misconduct; and peer review. Career issues, including how to apply for admission to graduate and professional schools, are also discussed. Prerequisite(s): Entry Level Writing and Composition requirements; BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L. Each enrolled student must have a committed MCD faculty sponsor by the first class meeting. Enrollment restricted to biology and affiliated majors. (General Education Code(s): W.) B. Chen, R. Ludwig, M. Rexach

186R. Undergraduate Research in MCD Biology. F,W,S
Supervised undergraduate research in the laboratory of an MCD biology faculty member accompanied by weekly lectures on practical scientific issues. Topics include: laboratory

safety; the scientific method; the collection, treatment, and presentation of data; critical evaluation of scientific literature; ethics and scientific misconduct; and peer review. Career issues, including how to apply for admission to graduate and professional schools, are discussed. Students cannot receive credit for this course and course 186L. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K or BIOL 20L or BIOL 101L; previous completion of the Disciplinary Communication requirement. Each enrolled student must have a committed MCD faculty sponsor by the first class. Enrollment restricted to majors. May be repeated for credit. B. Chen, R. Ludwig, M. Rexach

187L. Molecular Biotechnology Laboratory. *
An intensive molecular biology laboratory that presents procedures used in molecular and biotechnology research. Topics and procedures include DNA/RNA isolation, cloning and library construction, southern and northern hybridization, DNA fingerprinting, PCR, manual and automated sequencing, and computer methods for analyzing molecular data. New procedures currently being developed in biotechnology industries are presented by industry representatives. Students cannot receive credit for this course and BIOL 115L or BIOL 287L. Students are billed a materials fee. Prerequisite(s): BIOL 100 or BIOC 100A; and BIOL 100K and BIOL 110; satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 20. The Staff

188. Life in Healthcare (2 credits). S
Students explore healthcare from the perspectives of both clinicians and patients. The class focuses on medicine's cognitive, emotional, and spiritual elements, with the goal of understanding the rewards and costs of healthcare practice. Enrollment restricted to junior and senior human biology majors, and others by permission of instructor. Enrollment limited to 30. May be repeated for credit. The Staff

189. Health Sciences Internship (3 credits). F,W,S
Structured off-campus learning experience providing experience and pre-professional mentoring in a variety of health-related settings. Interns are trained and supervised by a professional at their placement and receive academic guidance from their faculty sponsor. Students spend 8 hours per week at their placement, participate in required class meetings on campus, and keep a reflective journal. Enrollment by application. Students interview with health sciences internship coordinator; applications are due one quarter in advance to the Health Sciences Internship Office. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; concurrent enrollment in course 189W is required. Enrollment restricted to human biology majors. M. Rexach, L. Hinck

189W. Disciplinary Communication: Human Biology (2 credits). F,W,S
Writing-intensive course offered in conjunction with the health sciences internship. Weekly class meetings include academic guidance and mentoring as well as discussion of the mechanisms and conventions of academic writing about heath and health care. Students complete multiple writing assignments, culminating in a term paper in the format of a scholarly article. Enrollment by application. Students interview with the health-sciences internship coordinator; applications are due one quarter in advance to the Health Care Sciences Internship Office. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Previous or concurrent enrollment in course 189 is required. Enrollment restricted to human biology majors. L. Hinck, M. Rexach

190. Senior Seminar (2 credits). S
Satisfies the senior exit requirement for all biological sciences majors. (Also offered as Biology:Ecology & Evolutionary 190. Students cannot receive credit for both courses.) J. Lee

191. ACE Program Service Learning (2 credits). F
Students participate in training and development to co-facilitate collaborative learning in ACE chemistry discussion sections and midterm/exam review sessions. Students are role models for students pursuing science- and math-intensive majors. Prerequisite(s): Prior participation in ACE; good academic standing; no non-passing grades in prior quarter. Enrollment restricted to sophomores, juniors, and seniors. (Formerly course 182.) Enrollment limited to 10. (General Education Code(s): PR-S.) The Staff

195. Senior Thesis Research. F,W,S
An individually supervised course, with emphasis on independent research, to culminate in a senior thesis. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for individual programs of study (a) by means other than the usual supervision in person, or (b) when the student is doing all or most of the course work off campus. With permission of the department, may be repeated for credit, or two or three courses taken concurrently. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for two units of independent field study (a) by means other than the usual supervision in person, or (b) when the student is doing all or most of the course work off campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Reading, discussion, written reports, and laboratory research on selected biological topics, using facilities normally available on campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Two-unit Tutorial. Reading, discussion, written reports, and laboratory research on selected biological topics, using facilities normally available on campus. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200A. Critical Analysis of Scientific Literature. F
Development of critical thinking skills via discussion of research articles on a broad range of topics. Prepares students to critically evaluate research publications, and improves their ability to organize effective oral presentations and to evaluate the oral presentations of other scientists. Enrollment restricted to graduate students in MCD biology, or by permission of instructor. Enrollment limited to 20. J. Sanford, J. Tamkun

200B. Advanced Molecular Biology. F
An in-depth coverage of the structure, function, and synthesis of DNA, RNA, and proteins. Discussion of the roles of macromolecules in the regulation of information in the cell. Prerequisite(s): Enrollment restricted to graduate students. R. Kamakaka

200C. Advanced Cell Biology. W
An in-depth coverage of topics in cellular and subcellular organization, structure, and function in plants and animals. Emphasis on current research problems. Prerequisite(s): BIOL 200B. Enrollment restricted to graduate students. D. Kellogg

200D. Developmental Biology. S
Key topics in developmental biology, including developmental genetics, epigenetics, stem cell biology, and developmental neurobiology. Lectures are accompanied by critical analysis and discussion of recent publications. Enrollment restricted to graduate students in MCD biology, or by permission of instructor. Enrollment limited to 20. Y. Zuo

201. RNA Processing. *
An advanced graduate-level course on biological aspects of RNA function and processing in eukaryotes. Lectures and discussions will be developed using the current literature. Prerequisite(s): BIOL 200B or permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 15. M. Jurica, M. Ares

203. Ribosomes and Translation. *
Covers the field of ribosome research in depth, including the structure and function of ribosomes and the molecular mechanisms of protein synthesis. Begins with historical review of the ribosome field and proceeds to the most recent findings. Focus is on central questions: (1) How is the accuracy of the aminoacyl-tRNA selection determined? (2) What is "accommodation"? (3) What is the mechanism of peptide bond formation (peptidyl transferase)? (4) What is the mechanism of translocation? (5) What are the mechanistic roles of the ribosome and translation factor EF-G in translocation? (6) To what extent is the mechanism of translation determined by RNA? (7) Why is RNA so well suited for the ribosome? (8) How did translation evolve from an RNA world? Prerequisite(s): BIOC 100A,BIOL 200B or permission of instructor. Enrollment restricted to graduate students.

The Staff

204. Chromatin. *
Eukaryotic DNA is complexed with histones to form chromatin. This course focuses on the ways in which chromatin influences and is manipulated to regulate gene expression. Prerequisite(s): BIOL 105 and BIOL 115; undergrads by permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 15. Offered in alternate academic years. J. Tamkun, G. Hartzog

205. Epigenetics. *
In-depth coverage of epigenetics focusing on how alterations in chromatin structure and DNA methylation establish and maintain heritable states of gene expression. Lectures are supplemented with critical discussion of recent publications. Prerequisite(s): BIOL 105 and BIOL 115, or permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 20. S. Strome, J. Tamkun

206. Introduction to Stem Cell Biology. *
Fundamental concepts, experimental approaches, and current advances in stem cell biology, with consideration of key ethical issues. Topics include: self-renewal and differentiation; the microenvironment; epigenetics; cell-cycle regulation; and how basic research translates to medical therapeutics. Ethical, moral, and political issues surrounding stem cell research are discussed with lectures from philosophy and other relevant disciplines. Enrollment restricted to graduate students. Enrollment limited to 15. W. Sullivan

206L. Current Protocols in Stem Cell Biology. *
Provides students with hands-on experience in embryonic stem cell culture methods. Enrollment restricted to graduate students; qualified undergraduates may enroll by permission of instructor. Enrollment limited to 10. Y. Zuo, D. Feldheim

208. Cellular Signaling Mechanisms. *
All eukaryotic cells utilize intricate signaling pathways to control such diverse events as cell-cell communication, cell division, and changes in cell morphology. This course covers the molecular basis of these cellular signaling pathways, focusing on the most current research. Prerequisite(s): BIOL 105, BIOL 110, and BIOL 115. Enrollment restricted to seniors and graduate students. Enrollment limited to 15. Offered in alternate academic years. D. Kellogg

214. Advances in Cancer Biology. *
Provides students with knowledge of the latest concepts in cancer biology and cancer therapeutics, and a general appreciation of the rapid advances being made in this area of biomedicine. Prerequisite(s): course 200B or by permission of instructor. Enrollment restricted to graduate students. Enrollment limited to 15. L. Hinck

215. Applied Statistics for Molecular, Cell, and Developmental Biology. *
For experimental biologists: focuses on resolving practical statistical issues typically encountered in molecular, cellular, and developmental biology lab research. No prior experience in statistics or programming is necessary. Enrollment restricted to graduate students in molecular, cellular, and developmental biology. Enrollment limited to 20. The Staff

226. Advanced Molecular Neuroscience. S
Basis of neural behavior at the cellular, molecular and system levels. First half of course focuses on cellular, molecular, and developmental aspects of the nervous system and covers two sensory systems: olfaction and auditory. Last half of course concerns higher-level functions of the nervous system, such as processing and integrating information. Discusses human diseases and disorders. Enrollment restricted to graduate students. D. Feldheim

280A. Topics in Research on Molecular Genetics of Yeast (2 credits). F,W,S
Intensive research seminar on the structure and function of the gene expression machinery in the simple eukaryote Saccharomyces cervisiae and its relationship to the human gene expression machinery. Enrollment restricted to graduate students; qualified undergraduates may enroll with approval of instructor. May be repeated for credit. M. Ares

280B. Chromatin Structure and Transcriptional Regulation (2 credits). F,W,S
Weekly seminar on structure and gene regulatory function of chromatin. Discusses research

of participants and relevant scientific literature. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. H. Boeger

280C. Mammalian Brain Development (2 credits). F,W,S
Seminar covers research into the development of the mammalian brain. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. B. Chen

280D. RNA Processing (2 credits). F,W,S
A discussion of current research and literature concerning the regulation of precursor messenger RNA processing. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. A. Zahler

280E. Meiotic Chromosome Dynamics (2 credits). F,W,S
Intensive course on the molecular mechanisms underlying homolog pairing, synapses, and recombination; and how they are regulated, coordinated, and monitored to ensure accurate meiotic chromosome segregation. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. May be repeated for credit. N. Bhalla

280F. Development of Vertebrate Neural Connections (2 credits). F,W,S
Intensive research seminar on molecular mechanisms by which neural connections are established during mouse development. Special focus on topographic maps and role of Eph receptors and ephrins in this process. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. D. Feldheim

280H. Topics on Research into Chromatin and Transcription (2 credits). F,W,S
Seminar covering research into the effects of chromatin on transcription in yeast. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. G. Hartzog

280I. Epigenetic Gene Silencing and Insulators (2 credits). F,W,S
Intensive course on molecular mechanisms by which insulator elements regulate epigenetic gene silencing. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. R. Kamakaka

280J. Structures of Macromolecular Complexes (2 credits). F,W,S
Focuses on structure and function of the spliceosome using electron microscopy and x-ray crystallography. Participants present results from their own research and relevant journal articles. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 20. May be repeated for credit. M. Jurica

280K. Topics in Cell Cycle Research (2 credits). F,W,S
An intensive seminar focusing on current research on the molecular mechanisms that control cell division. Participants are required to present results of their own research or to review journal articles of interest. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. D. Kellogg

280L. Development (2 credits). F,W,S
Seminar covering research into breast development and cancer. (Formerly Topics on Neural Development.) Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. L. Hinck

280M. Post-Transcriptional Control of Mammalian Gene Expression (2 credits). F,W,S
Intensive course on the molecular mechanisms by which RNA binding proteins regulate gene expression. Enrollment restricted to graduate students; qualified undergraduates may enroll with the permission of the instructor. Enrollment limited to 8. May be repeated for credit. J. Sanford

280N. Structure and Function of Ribosomes (2 credits). F,W,S
An intensive and advanced course focusing on the structure and function of ribosomes. Participants present research findings in an organized, critical fashion, in the context of

current research literature in the ribosome field. Enrollment restricted to graduate students; qualified undergraduate students may enroll with permission of the instructor. Enrollment limited to 20. May be repeated for credit. H. Noller

280O. Topics in Bacterial Pathogenesis (2 credits). F,W,S
Intensive seminar focusing on mechanisms of bacterial pathogenesis of the ulcer-causing bacterium Helicobacter pylori. Participants are required to present results from their own research and relevant journal articles. (Also offered as Microbiol & Environ Toxicology 281O. Students cannot receive credit for both courses.) Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 20. May be repeated for credit. K. Ottemann

280Q. Cell Biology of Oocytes, Embryos, and Neurons (2 credits). F,W,S
Weekly seminar and round-table discussion about research problems and recent advances in molecular motor proteins, cytoskeletons, and the control of force-producing processes. Each participant reports recent advances in their field from current literature, their own primary research questions, current approaches to answering those questions, and their research progress. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. W. Saxton

280R. Structure and Function of the Nuclear Pore Complex (2 credits). F,W,S
Intensive and advanced course focusing on structure and function of the nuclear pore complex. Participants present research findings in an organized critical fashion in the context of current research literature in the nucleo-cytoplasmic transport field. Enrollment restrIcted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. M. Rexach

280S. Chromatin and RNA Regulation in C. elegans (2 credits). F,W,S
Intensive research seminar about regulators of chromatin organization; the composition and function of germ granules; and the roles of both levels of regulation in germline development in C. elegans . Participants present their research results and report on related journal articles. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. S. Strome

280T. Molecular Biology of Drosophila Development (2 credits). F,W,S
An intensive seminar concerning the molecular genetics of Drosophila. Recent research is discussed weekly, with an emphasis on gene regulation and development. Students present their own research or critical reviews of recent articles at least once during the quarter. Enrollment restricted to graduate students. Qualified undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. J. Tamkun

280U. Discussions on the Development of the Drosophila Embryo (2 credits). F,W,S
Involves a two-hour weekly meeting in which the students discuss topics concerning the cell cycle, early embryonic development, and the cytoskeleton. These discussions critically evaluate ongoing research in this area. Material is drawn from student research and recently published journal articles. Students are also expected to meet individually with the instructor two hours weekly. In addition to a three-five page research proposal, each student gives two one-hour oral presentations. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. May be repeated for credit. W. Sullivan

280W. Membrane Proteins (2 credits). F
Seminar on recent research on membrane proteins, with an emphasis on ion-pumping ATPase. Enrollment restricted to graduate students; qualified undergraduates may enroll with permission of instructor. Enrollment limited to 20. May be repeated for credit. B. Bowman

280X. Mammalian Developmental and Stem Cell Biology (2 credits). F,W,S
Explores topics in developmental and stem cell biology, with emphasis on mammalian systems. Students present results of independent research projects in the context of relevant publications and other background information. Course meets once each week. Enrollment restricted to graduate students. May be repeated for credit. A. Ralston

280Y. Activity-Dependent Synaptic Plasticity (2 credits). F,W,S
Research seminar covering the regulation of synaptic plasticity in the mammalian nervous system, focusing on how the activity regulates the structural and functional dynamics of synapses. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. Enrollment limited to 10. May be repeated for credit. Y. Zuo

289. Practice of Science. W
Examination of ethical and practical scientific issues, including the collection and treatment of data, attribution of credit, plagiarism, fraud, and peer review. Career issues, including how to apply for grants and positions in industry or academia, will be discussed. Prerequisite(s): BIOL 200A, BIOL 200B, and BIOL 200C or permission of instructor. Enrollment restricted to graduate students; undergraduates may enroll with permission of the instructor. Enrollment limited to 20. D. Feldheim

291. Molecular, Cellular, and Developmental Biology Seminar (2 credits). F,W,S
Topics of current interest in molecular, cellular, and developmental biology are presented weekly by graduate students, faculty, and guest speakers. Enrollment restricted to graduate students. Enrollment limited to 60. May be repeated for credit. The Staff

292. MCD Seminar (no credit). F,W,S
Various topics by weekly guest speakers. Enrollment restricted to graduate students. The Staff

296. Laboratory Research in Molecular, Cell, and Developmental Biology. F,W,S
Independent laboratory research in molecular, cellular, and developmental biology. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study for graduate students who have not yet settled on a research area for their thesis. Students submit petition to sponsoring agency. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. The Staff

* Not offered in 2014-15

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Music

2014-15 General Catalog

244 Music Center
(831) 459-2292
music@ucsc.edu
http://music.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1A. Women's Chorale (2 credits). *
Study of vocal and choral techniques in the context of ensemble rehearsals, often culminating in public performance. Repertoire to include varied works for treble choir, both a cappella and with instrumental accompaniment. Familiarity with basic music notation recommended. Some additional rehearsal time, both individually and with the group is required. Students are billed a materials fee. Admission by audition with conductor prior to first class meeting. May be repeated for credit. (General Education Code(s): A.) The Staff

1C. University Concert Choir (2 credits). F,W,S
A study of selected works for mixed chorus, with emphasis on masterworks for chorus and orchestra, culminating in one or more public concerts. Familiarity with basic music notation recommended. Admission by audition with conductor prior to first class meeting. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): PR-E, A.) The Staff

2. University Orchestra (2 credits). F,W,S
A study of selected works for orchestra, culminating in one or more public concerts. Admission by audition with conductor prior to first class meeting. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): PR-E, A.) The Staff

3. Large Jazz Ensemble (2 credits). F,W,S
Instruction in performance in large jazz ensembles with written arrangements. Prepares a specific repertory for public performance. Admission by audition with instructor prior to first class meeting. Students are billed a materials fee. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) The Staff

4A. Latin American Ensemble: "Voces" (2 credits). *
Instruction in diverse musical traditions, and their culturally-grounded performance contexts, of Native American, Ibero-American, and African American music cultures of Latin America, including texted music in Spanish and Quechua or other regional languages. The class forms an ensemble that prepares varying cultural and national repertoires for public performance. Some Spanish language ability is recommended. Attend first class meeting. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) The Staff

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
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- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

4B. Latin American Ensemble: "Taki Ñan" (2 credits). *
Development of Latin American, Native American, Ibero-American, African American, and/or Nueva Canción (New Song) repertoire in a small ensemble setting. Three quarters of course 4A or previous enrollment in course 4B required prior to enrolling in this course. Admission by audition with instructor at first class meeting. Enrollment limited to 10. May be repeated for credit. (General Education Code(s): A.) The Staff

5A. West Javanese Gamelan Ensemble: Beginning (2 credits). F,W,S
Instruction in practice and performance of gamelan music from Java or Sunda. Preparation of several works for public presentation. Attend first class meeting. May be repeated for credit. (General Education Code(s): A.) U. Sumarna

5B. West Javanese Gamelan Ensemble: Intermediate (2 credits). F,W,S
Instruction in practice and performance of gamelan music from Java or Sunda. Preparation of several works for public presentation. Attend first class meeting. May be repeated for credit. (General Education Code(s): A.) U. Sumarna

5C. West Javanese Gamelan Ensemble: Advanced (2 credits). F,W,S
Instruction in practice and performance of gamelan music from Java or Sunda. Preparation of several works for public presentation. Attend first class meeting. May be repeated for credit. (General Education Code(s): A.) U. Sumarna

6. Classical Guitar Ensemble (2 credits). *
Study of selected repertoire and instruction in performance for classical guitar ensemble. Ensembles for guitar and other instruments will prepare works for public performances both on and off campus. All students enrolled in individual guitar lessons are expected to enroll. Students of other instruments or voice may also audition. Some additional rehearsal time, individually and with the group, is required. Admission by audition with instructor prior to first class meeting. May be repeated for credit. (General Education Code(s): A.) The Staff

8. Balinese Gamelan Ensemble (2 credits). F,W,S
Instruction in practice and performance of gamelan music from Bali and Indonesia, including ritual and new music. Preparation of several works for public presentation. Attend first class meeting. Prerequisite(s): course 5A or 5B or 5C , or by permission of instructor at first class meeting. May be repeated for credit. (General Education Code(s): A.) The Staff

9. Wind Ensemble (2 credits). F,W,S
A study of selected advanced-level works for wind ensemble, culminating in one or more public concerts. Admission by audition with conductor prior to first class meeting. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): PR-C, A.) The Staff

10. Eurasian Ensemble (2 credits). W,S
Performing ensemble focusing on the vernacular and art musics of the Eurasian continent, with emphasis on Central Asia. Admission by instructor determination at first class meeting. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): PR-C, A.) T. Merchant

11A. Classical Music from the Middle Ages to the Present. *
A study of significant works of classical music from Gregorian chant to the present day in relation to the historical periods which they represent. Emphasis upon the listening experience and awareness of musical style and structure. Illustrated lectures and directed listening. (General Education Code(s): IM, IH, A.) A. Leikin, N. Treadwell, L. Miller

11B. Introduction to Jazz. *
Designed to provide students with thorough and comprehensive background in history and roots of jazz as a musical style from its African roots to the present. Essential jazz styles and traditions are discussed through lectures, required listening, readings, lecture demonstrations, and film presentations. (General Education Code(s): IH, A, E.) K. Hester

11C. Introduction to American Popular Music. *
Survey of American popular music, from the beginnings of mass media to the late-twentieth century and beyond. Areas of focus will include early African-American styles (the blues, gospel and ragtime), vaudeville songs, a variety of immigrant traditions and folk

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Appendixes

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Nondiscrimination Statement

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movements, rock and roll, soul, R & B, hip-hop, and others. Musical experience helpful but not required. (General Education Code(s): IH, A.) B. Carson

11D. Introduction to World Music. *
Covers topics reflecting distinctive features of selected world music cultures. Introduces content, scope, and method of ethnomusicology. Focuses on understanding the musical styles, performance practices, and cultural functions of these musical traditions. Incorporates live class performance of selected music. (General Education Code(s): CC, IH, A, E.) T. Merchant

15. Preparatory Musicianship. S
Basic studies in musicianship related to Western European notation and literature. Students with prior training in music notation develop literacy in basic tonal melody and harmony. Skills include dictation and sight-reading. Simple composition and analysis exercises accompany the training. Enrollment by placement examination and permission of instructor. May be repeated for credit. H. Kim, B. Carson

30A. Theory, Literature, and Musicianship. F
Integrated musicianship, theory, and analysis. Species counterpoint and fundamentals of tonal harmony. Analysis of literature from the Middle Ages and Renaissance. Ear-training, taught in smaller sections, emphasizes recognition of triad and dominant-seventh inversions, dictation of diatonic melodies, and aural analysis of simple diatonic interval and chord progressions. Most of the ear-training materials consist of homophonic and polyphonic examples from music literature performed live in class. Prerequisite: admission by core curriculum placement examination. Enrollment limited to 60. A. Leikin

30B. Theory, Literature, and Musicianship. W
Integrated musicianship, theory, and analysis. Diatonic harmony and fundamentals of chromatic harmony and musical form, with an emphasis on early 18th-century styles. Ear-training, taught in smaller sections, emphasizes recognition of triad and seventh-chord qualities and inversions, dictation of moderately complex melodies and multi-voice chorales, and aural analysis of chord progressions including secondary functions. Most of the ear-training materials consist of homophonic and polyphonic examples from music literature performed live in class. Prerequisite(s): course 30A; instructor determination at first class meeting. Enrollment limited to 60. A. Leikin

30C. Theory, Literature, and Musicianship. S
Integrated musicianship, theory, and analysis. Chromatic harmony and large forms, with emphasis on late 18th- and early 19th-century styles. Ear-training, taught in smaller sections, emphasizes melodic and multi-voice dictation, as well as aural analysis of chord progressions, with materials including digressions, modulations, and advanced chromatic idioms. Most of the ear-training materials consist of homophonic and polyphonic examples from music literature performed live in class. Prerequisite(s): course 30B; instructor determination at first class meeting. Enrollment limited to 60. A. Leikin

42. Student-Directed Seminar. *
Seminars taught by upper-division students under faculty supervision. (See course 192.) Students submit petition to sponsoring agency. The Staff

51. Vocal Repertoire Class (2 credits). F,W,S
The study and performance of vocal repertoire from 1400 to the present, including solo song, oratorio, opera, ensemble music. Emphasis is given to the development of effective performance skills, culminating in public performance. Attend first class meeting; concurrent enrollment in individual voice lessons with instructor of this course is required. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): A.) P. Maginnis, B. Staufenbiel

54. North Indian Music Workshop (2 credits). S
A course covering the music of North India taught using the oral traditions of Indian music. For beginners as well as more experienced students, this course is well suited for instrumentalists and vocalists. Interview; instructor determination at first class meeting. May be repeated for credit. (General Education Code(s): A.) A. Khan

60. Fundamental Keyboard Skills (2 credits). *
Elementary instruction in piano technique, including group and individual performance

experience. A minimum of six hours per week of individual practice is required. Curriculum is coordinated with keyboard requirements of course 30A. Concurrent enrollment in course 30A is required. Students are billed a course fee. Prerequisite(s): Instructor determination at first class meeting. (Formerly Group Instruction in Piano.) Enrollment limited to 8. May be repeated for credit. E. Arulanantham

61. Individual Lessons: Half Hour (2 credits). F,W,S
One-half hour of individual instrumental or vocal instruction. Repertory, technique, and performance practice. A minimum of six hours per week of individual practice is required. Concurrent enrollment in an ensemble in the lesson instrument or voice is required. Students are billed a course fee. Admission by audition with the instructor prior to first class meeting. Enrollment priority given to music majors and minors. May be repeated for credit. The Staff

62. Individual Lessons: One Hour (3 credits). F,W,S
One hour of individual instrumental or vocal instruction. Repertory, technique, and performance practice. A minimum of nine hours per week of individual practice is required. Concurrent enrollment in an ensemble in the lesson instrument or voice is required. Students are billed a course fee. Admission by audition with the instructor prior to first class meeting. Enrollment priority given to music majors and minors. May be repeated for credit. The Staff

63. Group Instrumental and Vocal Lessons (2 credits). *
Elementary group instruction in instrumental (excluding piano) or vocal techniques, including group and individual performance experience. A minimum of six hours per week of individual practice is required. Students are billed a course fee. Admission by audition with the instructor prior to first class meeting. Enrollment limited to 6. May be repeated for credit. The Staff

75. Beginning Improvisational Theory. *
Studies in the modes, scales, chord alternations and extensions, chord voicings, chord progressions, and forms that underlie jazz improvisation, composition, and arranging in a variety of styles. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): A.) The Staff

80A. Music of the Silk Road. *
Exploration of the commonalities between music cultures found along ancient trade routes through Asia. (General Education Code(s): CC, T4-Humanities and Arts, A, E.) T. Merchant

80C. History, Literature, and Technology of Electronic Music. *
This survey of electronic music from previous centuries to the present studies the works and aesthetics of important composers, acoustics, musical perception, the effects of technological innovation on cultural evolution, and the development of synthesizers and computer music. (General Education Code(s): PE-T, T6-Natural Sciences or Humanities and Art, A.) The Staff

80E. Race and American Music. *
Survey of American music and its dynamic formation through cultural constructions of racial difference. Students hear music as contentious signals of identity, power, and transgressions, contextualized by wide-ranging testimony on racial difference, ethnicity, gender, sexuality, and musical practice. (General Education Code(s): ER.) B. Carson

80F. Music in Latin American Culture: Regional Traditions. *
In-depth study of select music cultures of Mexico, Central America, and Caribbean, Brazil, Chile, Argentina, Colombia, and Peru. Characteristic regional genres, ensembles, instruments, and music rituals. Case studies by ethnomusicologists with expertise in specific regional musics. Also Latin American Nueva Canción, women's musics, and overarching themes in Latin American music, as a whole. Offered on a rotational basis with other non-Western courses in the 80 series. (General Education Code(s): T4-Humanities and Arts, A, E.) The Staff

80G. American Musical Theater. *
Surveys American musicals from operetta through rock musicals with a historical approach focusing on selected examples from the literature. Music reading or musical experience helpful but not required. Offered in alternate academic years. (General Education Code(s):

IM, T4-Humanities and Arts, A.) The Staff

80H. The Hollywood Musical. *
Introductory study of the Hollywood music film, exploring the theory of film sound, the musical genre, and representative works from the 1920s to the present. Students expected to view about two films each week, read assigned section of texts, and contribute to class discussions. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80I. Music of Modern Israel. *
Historical, musicological, and anthropological study of the many (and often conflicting) worlds brought together by Israeli popular and art music: Jewish and Arabic traditions, Western ideals, and modern beats. Enrollment limited to 40. (General Education Code(s): CC, T4-Humanities and Arts, A, E.) A. Tchamni

80J. American Folk Music. *
Surveys American folk music, both instrumental and vocal, by region and period. Approach is primarily through listening. Previous musical experience helpful, but not required. Offered in alternate academic years. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80L. Artificial Intelligence and Music. *
An introduction to basic concepts in music and artificial intelligence, and to algorithmic composition (composition by a set of explicit instructions, often using the computer). Other topics include basic introductions to related concepts in linguistics, mathematics, neural nets, pattern matching, genetic algorithms, fuzzy logic, and interactive systems. Previous experience in one or more of these topics is helpful but not required. Students produce a project based on one of the models presented in class. Offered in alternate academic years. (General Education Code(s): MF, T-6 Natural Scienes or Humanities and Arts, A.) The Staff

80M. Film Music. *
A survey of film music including a discussion of current trends and film composers. Techniques and styles of film music are explored through lectures, required listenings, readings, and viewing of relevant films. A musical background, including the ability to read music, is helpful but not necessary. Offered in alternate academic years. (General Education Code(s): IM, T4-Humanities and Arts, A.) N. Treadwell, The Staff

80N. Music of the Grateful Dead. *
In-depth exploration of the music of the Grateful Dead. Contextual study of the sociology and history of the late 1960s psychedelic movement supplies background for study of the music as the band evolved through time. Offered in alternate academic years. (General Education Code(s): IM, T4-Humanities and Arts, A.) The Staff

80O. Music, Politics, and Protest. *
Examination of relationship between music, politics, and protest in the U.S. in the 20th century, with focus on how music commented upon and reflected different eras in American cultural and political life. (General Education Code(s): IM, T4-Humanities and Arts, A.) D. Neuman

80P. History of Jewish Music. *
Survey of the diverse and rich musical traditions of Jewish music in the diaspora from biblical times to the present. Examines the historical, social, and anthropological aspects of the different communities from sacred music through art and popular songs. Enrollment limited to 40. (General Education Code(s): CC, T4-Humanities and Arts, A, E.) A. Tchamni

80Q. A Survey of African Music. *
Traces the various stylistic musical areas throughout the African continent and explores the development of traditional African music from antiquity into the 20th century. Offered in alternate academic years. (General Education Code(s): CC, T4-Humanities and Arts, A, E.) K. Hester

80R. Music and the World Wide Web. *
A survey of musical applications of the World Wide Web and the technologies they employ: tools for musical research, playback, composition, performance, and publishing. Historical perspectives and artistic ethics also discussed. Students prepare a creative project using software tools, techniques, sound sources available on the web, and learn how to publish the results on the web. Enrollment limited to 44. Offered in alternate academic years.

(General Education Code(s): T6-Natural Sciences or Humanities and Arts, A.) The Staff

80S. Women in Music. F
An exploration of the sociological position of women as composers and performers in Western and non-Western musics, with a focus on both ethnographic and historical sources. (Also offered as Feminist Studies 80S. Students cannot receive credit for both courses.) Offered in alternate academic years. (General Education Code(s): CC, T4-Humanities and Arts, A.) T. Merchant

80T. Mizrach: Jewish Music in the Lands of Islam. *
A survey of the musical traditions of the Jews of North Africa and the Middle East. Based on the "Maqamat," the Arabic musical modes, Jewish music flourished under Islamic rule, encompassing the fields of sacred, popular, and art music. (General Education Code(s): CC, T4-Humanities and Arts.) A. Tchamni

80V. The Music of the Beatles. *
The most significant group in the history of popular music, the Beatles spanned the gamut of styles from hard-edged R & B to sophisticated art-rock. This course explores their work in detail, in its own terms, and in the historical/cultural/technological contexts. Students cannot receive credit for both this course and course 180V in the same quarter. Course 11C is recommended but not required as preparation. (General Education Code(s): IM, T4-Humanities and Arts, A.) The Staff

80W. Music Business. *
Explores the many facets of the music industry: history, technology, economics, sociology, and legislation. Provides both a broad understanding of the industry and a pragmatic survey of available career paths. Students cannot receive credit for both this course and course 180W in the same quarter. Offered in alternate academic years. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80X. Music of India. *
A survey course in Hindustani (North Indian) and Karnatak (South Indian) music covering the Raga (modal system) and Tala (metric system) as they have developed in the two traditions. Consideration is given to the historical development of the music, from Vedic chanting to the modern Raga system; social functions of the music throughout history; and instrumental and vocal forms with an emphasis on listening. (General Education Code(s): CC, T4-Humanities and Arts, A, E.) D. Neuman

80Y. Music, Anti-Semitism, and the Holocaust. *
The musical legacy of the Holocaust: music and anti-Semitism in the 19th century; morality, collaboration, and composing in the Third Reich; music in the ghettos and concentration camps; impact on post-war music; second-generation composers' trauma; music in Holocaust films. Enrollment limited to 85. (General Education Code(s): IM.) A. Tchamni

80Z. Laptop Music. F
Basic digital audio editing and mixing; related concepts in the physics of sound, psychoacoustics, and the digital representation and computer control of audio. Musical notation of musical pulse, meter, and rhythm, and sonic realization via MIDI (musical instruction digital interface). Using their own computers, students complete projects involving recording and spectral analysis, creative editing and mixing of existing recordings, composition of polyphonic drum rhythms, and constructing a collaborative sonic environment. Enrollment limited to 30. (General Education Code(s): PR-C.) D. Jones

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Admission requires approval of department. The Staff

99. Tutorial. F,W,S
A program of directed study arranged with a department faculty member. Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits). F,W,S
A program of directed study arranged with a department faculty member. Class time is proportionally less than a five-credit course. Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

101A. History of Western Art Music. W
First quarter of a three-quarter chronological study of Western art music. Coordinated lectures, readings, listening, and analysis of representative works: Medieval, Renaissance, Baroque. Prerequisite(s): course 30A and satisfaction of the Entry Level Writing and Composition requirements. N. Treadwell, L. Miller

101B. History of Western Art Music. S
Second quarter of a three-quarter chronological study of Western art music. Coordinated lectures, readings, listening, and analysis of representative works: Baroque, Classical, Romantic. Prerequisite(s): course 30B. A. Leikin

101C. History of Western Art Music. F
Third quarter of a three-quarter chronological study of Western art music. Coordinated lectures, readings, listening, and analysis of representative works: Romantic, 20th Century. Prerequisite(s): course 30C and satisfaction of the Entry Level Writing and Composition requirements. A. Beal

102. University Orchestra (2 credits). F,W,S
A study of selected works for orchestra, culminating in one or more public concerts. Admission by audition with conductor prior to first class meeting. Students are billed a materials fee. Enrollment restricted to juniors and seniors. May be repeated for credit. (General Education Code(s): A.) Y. Samet

103. University Concert Choir (2 credits). F,W,S
A study of selected works for orchestra, culminating in one or more public concerts. Prerequisite(s): admission by audition with conductor prior to first class meeting. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): A.) N. Berman

105. Special Topics in History.

105A. Music of the United States. *
Traces major developments in the history of American music since the Revolutionary Era, focusing on what makes music in the United States unique. Material drawn from classical, popular, religious, jazz, and avant-garde traditions. Prerequisite(s): course 101A, 101B, or 101C, or by permission of the instructor. Enrollment restricted to juniors and seniors. Enrollment limited to 35. A. Beal, L. Miller

105E. Early Keyboard Music. *
Survey of four centuries of early keyboard music, including representative genres, instruments, composers, and compositions from the late-Gothic to the Classical period. Harpsichord, virginal, organ and fortepiano works studied through scores, recordings, and live performance. Social context, instrument tuning and representative performance practices will coordinate each unit. Prerequisite(s): course 101A or 101B or 101C. Enrollment restricted to junior and senior music majors. The Staff

105I. Improvisation and Collaborative Practices in the 20th Century. *
Study of music repertories and performance practices based on improvisation and collaborative approaches to real-time composition in the areas of jazz and other new music. Prerequisite(s): courses 30A, 30B, and 30C, and at least one course from the 101 series. Enrollment restricted to music majors. Enrollment limited to 40. A. Beal, K. Hester

105O. Opera from Peri to Pergolesi. W
Traces the development of opera from its origins in the late 16th century through the works of the early 18th century. Explores all aspects of this multimedia genre, with significant research and writing components. Prerequisite(s): courses 30C and 101A, or by permission of the instructor. N. Treadwell

105Q. The String Quartet from Haydn to Shostakovich. *
Traces the development of the string quartet from its origins in the mid-18th Century through the works of the mid-late 20th Century. Emphasis is on listening and analysis

with significant research and writing component. Prerequisite(s): course 30C and course 101B, or by permission of instructor. Enrollment limited to 35. L. Miller

111B. Seminar in Jazz Analysis. F
Analytic exploration of the evolution of "jazz" in America. The process involves independent listening, analysis, transcription, weekly seminar discussions, and oral presentation to students in course 11B. Prerequisite(s): course 30B and course 11B. Enrollment limited to 20. K. Hester

120. Seminar in Music Composition. W
Instruction in individual composition offered in the context of a group; composition in traditional large and small forms. Counts as one of two choices for a capstone course. Prerequisite(s): course 30C. Enrollment limited to 20. D. Jones, L. Polansky, H. Kim

121. Orchestration. F
A study of the nature of each instrument of the orchestra. Scoring for various small instrumental combinations, culminating in a transcription for full orchestra. (Formerly course 130.) Prerequisite(s): course 30C. Enrollment limited to 20. H. Kim

123. Electronic Sound Synthesis. W
Introduction to electronic music studio techniques, relevant electroacoustical studies, and procedures of electronic music composition. Practical experience in the UCSC electronic music studio with an analog synthesizer; mixing, equalization, multitrack recording equipment, and other sound processing. Application form available at department office during last two weeks of the previous quarter. Preference given to music majors, students in the film/video major, and those with substantial musical experience. Prerequisite(s): instructor determination via application; course 80C or course 30A placement. Enrollment limited to 25. The Staff

124. Intermediate Electronic Sound Synthesis. S
Composition with the use of small computers in the electronic music studio. Techniques covered include hybrid synthesis, digital synthesis, and MIDI-controlled systems. No programming is involved, but basic computer literacy is helpful. Prerequisite(s): course 123. Enrollment limited to 25. The Staff

125. Advanced Electronic Sound Synthesis. F
Continuing study in the electronic music studio, with concentration on compositional development. Includes advanced applications of skills developed in courses 123 and 124, expansion of background knowledge and relevant electroacoustical studies. Prerequisite(s): course 124. Enrollment limited to 25. The Staff

127. Sound, Listening, and Consciousness. S
This course is a hands-on practicum. Students explore the cutting edge of sound and consciousness from multiple perspectives, realizing inherent skills as listeners and music-makers through direct engagement--through attention to sound. Enrollment limited to 20. (General Education Code(s): PR-C.) J. Hoefs

130. Harmony and Form in 19th-Century and Early 20th-Century Music. F
Analysis, theory, musicianship, and aural skills associated with advanced tonal music. Study of chromaticism, larger forms, and other features of 19th-Century and early 20th-Century music. Prerequisite(s): course 30C and Piano Proficiency Exam. Enrollment limited to 20. (General Education Code(s): MF.) D. Jones, B. Carson

150. Special Topics in Theory.

150C. Special Topics in Music Theory: Tonal Counterpoint. S
Tonal counterpoint modeled on the music of J.S. Bach. Imitative and non-imitative forms including binary dance, invention, canon, and fugue. Discussion and analytical application of generalized intervallic and harmonic models. Development of related keyboard, singing, and aural skills, including dictation in two and three voices. Prerequisite(s): course 130. (General Education Code(s): IM.) D. Jones, B. Carson

150I. Special Topics in Music Theory: Hindustani Music. *
In-depth introduction into the music, culture, and theory of Hindustani music. Prerequisite(s): course 130. Enrollment restricted to junior and senior music majors. (General Education Code(s): CC.) D. Neuman

150P. Special Topics in Music Theory: 20th-Century Popular Song. *
Analysis and composition in two 20th-century popular song genres. Part one (of two) is drawn from 1930s swing or Tin-Pan Alley standards. Part two varies according to instructor and may include genres outside the United States. Prerequisite(s): course 30C or permission of instructor. Enrollment restricted to music majors. (General Education Code(s): IM.) B. Carson

150S. Focus on Spontaneous Composition. S
Examines both music and musical composition, and the characteristics they share with science, mathematics, and the natural world. Written for upper-division and graduate courses, the course text shows that music is part of an interdisciplinary collection of artistic modes of expression, and that these modes can be better understood in the context of what students observe in the real world. Thinking about music, through a variety of angles, students aim to understand that creativity is a vehicle through which to explore the evolution and interconnectedness of music as well as other phenomena in our universe. Prerequisite(s): course 130. Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 35. K. Hester

150X. Theoretical Practices of American Music. *
Examines theoretical practices and compositional methods of 20th-Century American composers including Charles Ives, Henry Cowell, Ruth Crawford, Johanna Beyer, Harry Patch, Conlon Nancarrow, John Cage, James Tenney, Kenneth Gaburo, George Russell, and Ornette Coleman. Prerequisite(s): courses 30A, 30B, and 30C. Enrollment restricted to music majors. Enrollment limited to 25. (General Education Code(s): IM.) D. Jones, L. Polansky, A. Beal

159A. Opera Workshop (2 credits). F,W
A workshop for singers, accompanists, and directors, the course develops a wide variety of skills related to opera through scenework. Attention will be given to movement, acting, coaching, and operatic stage-directing technique. Instruction culminates in studio productions of scenes from operas and musicals. Admission by permission of vocal instructor, or by audition with instructor prior to first class meeting. Students are billed a materials fee. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): A.) B. Staufenbiel

160. University Opera Theater. S
A production workshop, culminating in one or more staged performances of an entire opera or selected scenes from the operatic repertory. Admission by audition with instructor prior to first class meeting; auditions usually take place in fall quarter. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): A.) B. Staufenbiel

161. Individual Lessons: One Hour (3 credits). F,W,S
One hour of individual instrumental or vocal instruction. Repertory, technique, and performance practice. A minimum of nine hours per week of individual practice is required. Concurrent enrollment in an ensemble in the lesson instrument or voice is required. Students are billed a course fee. Admission by audition with the instructor prior to first class meeting. Enrollment priority given to music majors and minors. May be repeated for credit. The Staff

162. Advanced Individual Lessons: One Hour. F,W,S
One hour of individual instruction for advanced students. Study of repertory, technique, and performance practice. A minimum of 18 hours per week of individual practice and at least one 30-minute recital are required. May be taken three times for credit. Concurrent enrollment in an ensemble in the lesson instrument or voice is required. Students are billed a course fee. Admission by juried audition. May be repeated for credit. The Staff

163. Early Music Consort (2 credits). *
A study of selected works for varied early music instrumental and vocal resources, culminating in one or more public concerts. Individual lessons are recommended in conjunction with consort work. Recommended for students who have instrumental or vocal competence and music literacy. Admission by audition with instructor prior to first class meeting. May be repeated for credit. (General Education Code(s): PR-C.) N. Treadwell

164. Jazz Ensembles (2 credits). F,W,S
Instruction in combo performance and techniques of the jazz idiom. The class forms

several ensembles that prepare a specific repertory for public performance. Admission by audition with instructor prior to first class meeting. May be repeated for credit. S. Poplin

165. Chamber Music Workshop (2 credits). F,W,S
A study of selected works for various small combinations of instruments, culminating in one or more public concerts. Admission by audition with instructor prior to first class meeting. May be repeated for credit. The Staff

166. Chamber Singers (2 credits). F,S
The study of selected works for small vocal ensemble from the 15th through 20th centuries, with performances on and off campus throughout the academic year. Students must have demonstrated vocal and music reading skills. Admission by audition with instructor prior to first class meeting. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): PR-C, A.) The Staff

167. Workshop in Electronic Music (2 credits). F,W,S
Continuing studio work in electronic music. Students carry out individual projects, meeting in weekly seminar to share problems and discoveries. Relevant advanced topics are covered, including new developments in the art. Prerequisite(s): course 124. Enrollment limited to 20. May be repeated for credit. The Staff

168. Contemporary Music Ensemble (2 credits). *
A study of selected works for various small combinations of instruments and voice, culminating in one or more public concerts. Admission by audition with instructor prior to first class meeting. May be repeated for credit. A. Beal, L. Miller

174. Intermediate Jazz Improvisation. *
Develops basic skills through a range of advanced bop, quasi-modal and post-bebop styles—including selected free jazz and "avant-garde" repertoire. Prerequisite(s): course 75; audition with instructor at first class meeting. Enrollment limited to 20. May be repeated for credit. K. Hester

175. Jazz Theory II. W
Through transcription, analysis, and performance of "jazz" standards, composition, arranging, improvisation, and spontaneous creation explored. Students write a series of improvisations, short compositions, and arrangements throughout the course. Prerequisite(s): course 75. Enrollment limited to 30. K. Hester

180A. Studies in World Musics: Asia and the Pacific. *
In-depth ethnomusicological studies of selected music cultures of East Asia, Southeast Asia, and the Pacific. Emphasizes comparison of historical, theoretical, contextual, and cultural features. Includes basic ethnomusicological points of reference, as regards organology, music ritual, notation and transcription, and aspects of field research. Prerequisite(s): course 30B. Concurrent enrollment in a non-Western performing ensemble is strongly recommended. Enrollment restricted to music majors and graduate students. Anthropology majors may enroll with permission of instructor. Enrollment limited to 30. (General Education Code(s): A, E.) T. Merchant, D. Neuman

180B. Studies in World Musics: Africa and the Americas. *
In-depth ethnomusicological studies of selected music cultures of sub-Saharan Africa and South and North America, including Native America. Emphasizes comparison of historical, theoretical, contextual, and cultural features. Includes basic ethnomusicological points of reference, as regards organology, music ritual, notation and transcription, and aspects of field research. Prerequisite(s): course 30B; concurrent enrollment in a non-Western performing ensemble is strongly recommended. Enrollment restricted to music majors and graduate students. Anthropology majors may enroll with permission of instructor. Enrollment limited to 30. (General Education Code(s): A, E.) The Staff

180C. Studies in World Musics: Central Asia. *
In-depth, ethnomusicologically oriented course on select music cultures in Central Asia. Compares theoretical, historical, and cultural aspects of music and culture from Uzbekistan, Tajikistan , Afghanistan, Kyrgyzstan, Kazakhstan, the Xinjiang region of China, Mongolia, and Tuva. Prerequisite(s): course 30A. Enrollment restricted to music majors. Enrollment limited to 36. T. Merchant

180D. Music of Insular Southeast Asia. S

Comparative studies of selected music cultures focusing on the cosmology, music rituals, and organology of varied cultures in Malaysia, Indonesia, Papua New Guinea, and the Philippines. Introduction to ethnomusicology field research and transcription, and hands-on ensemble workshops. Prerequisite(s): course 30A; concurrent enrollment in course 5B, 5C, or 8. Enrollment restricted to music majors. Anthropology majors may enroll with permission of instructor. (General Education Code(s): CC.) The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Upper-division standing and a proposal supported by a music faculty member willing to supervise required. The Staff

195A. Senior Thesis. F,W,S
Preparation of senior thesis over one or two quarters. If taken as a multiple-term course, the grade and evaluation submitted for the final quarter applies to the previous quarter. Students submit petition to sponsoring agency. The Staff

195B. Senior Thesis. F,W,S
Preparation of senior thesis over one or two quarters. If taken as a multiple-term course, the grade and evaluation submitted for the final quarter applies to the previous quarter. Students submit petition to sponsoring agency. The Staff

196A. Senior Recital Preparation (without individual lessons). F,W,S
Prerequisite(s): juried audition or approved composition portfolio. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

196B. Senior Recital Preparation (with individual lessons). F,W,S
Students are billed a course fee. Prerequisite(s): juried audition. May be repeated for credit. The Staff

199. Tutorial. F,W,S
A program of directed study arranged with a department faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
A program of directed study arranged with a department faculty member. Class time is proportionally less than a five-credit course. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200. Introduction to Research Methods. F
Practical introduction to graduate study in music focusing on research methods, music sources and bibliography, techniques of scholarly writing, and critical readings in the discipline. Culminates in a public oral presentation on the model of a professional conference paper. N. Treadwell, L. Miller

201. History of Music Theory from the Greeks Through Rameau. W
Study and analysis of pre-tonal and tonal music from the Greeks through the 18th century. Course combines a history of theory with analyses that utilize contemporaneous theoretical concepts. (Formerly Pretonal and Tonal Analysis .) Enrollment restricted to graduate students. Offered in alternate academic years. L. Miller

202. Tonal and Posttonal Analysis. W
Encompasses various forms of linear analysis, set theory, and selected topics in current analytical practice. Offered in alternate academic years. P. Nauert, H. Kim, D. Jones

203. Special Topics in Performance Practice. *
Investigation of primary and secondary sources of information about the culturally and historically accurate performance of music in various times and places. Undergraduates who have completed the appropriate course 101 courses may enroll in 203 courses by interview with the instructor. The Staff

203A. Performance Practice in the Middle Ages. *
A study of performance practices in medieval music from Gregorian chant to the 14th century. History of instruments and notation. Rhythmic interpretations of chant and a study of improvised practices in organum. Editing and performance of representative

works. Offered on a rotational basis with other courses in the 203 series. L. Miller

203B. Performance Practice in the Renaissance. *
A study of performance practices in Renaissance music, including concepts of mode, musica ficta, ornamentation, text underlay, tempo, and articulation. Basic principles of white notation and a brief history of instruments. Transcription, editing, and performance of a Renaissance work. Offered on a rotational basis with other courses in the 203 series. N. Treadwell, L. Miller

203C. Performance Practice in the Baroque. *
An examination of historically informed performance practice techniques in Baroque music, with attention to aspects of ornamentation, articulation, figured bass realization, dance choreography, rhythm and tempo, and organology. In-class performances and editing of source materials are included. Offered on a rotational basis with other courses in the 203 series. The Staff

203D. Performance Practice in the Classic Period. *
Issues in performance practice focusing on selected topics and styles from the time of C.P.E. Bach through Haydn. Development of selected genres and ensembles, sources and editing, and interpretation and improvisation. Offered on a rotational basis with other courses in the 203 series. The Staff

203E. Performance Practice in the Romantic Period. W
Interpretation of music from Beethoven to Scriabin through examinations of both the musical texts (form, genre, harmony, texture, orchestration, etc.) and the period performance practices. Topics range from interpretative analyses of selected compositions to critical assessments of modern as well as documented 19th- and early 20th-century performances. Offered on a rotational basis with other courses in the 203 series. A. Leikin

203F. Performance Practice in the 20th Century. *
Projects in analysis, notational studies, extended instrumental techniques, and the aesthetics and performance practices associated with composers from Debussy to the present. Reading and listening focuses on the writings and performances of the composers themselves and upon interpretive writings by informed performers of 20th-century music. Offered on a rotational basis with other courses in the 203 series. May be repeated for credit. B. Carson, A. Beal, D. Jones

203G. Concepts, Issues, and the Practice of Ethnomusicology. *
Ethnomusicological field methodology; vocal and instrumental performance practices as related to the ethnomusicological endeavor. Specific topics: philosophical paradigms, historical overview, and definitional issues of ethnomusicology; field research concepts and procedures; studies in instrumental and vocal performance practices of diverse cultures; selected writings of Charles Seeger; transcription and analysis issues; studies in micromusics. Offered on a rotational basis with other courses in the 203 series. The Staff

203H. Area Studies in Performance Practice. *
Intensive examination of the vocal and instrumental performance practices of living musical traditions of Indonesia, Latin America, or other regions. Topics may incorporate soloistic and ensemble traditions, secular and sacred traditions. Research rubrics include tuning, tone quality, performance posture and rhetoric, and improvisational and fixed patterns, as dictated by regional norms. May be repeated for credit in a different area. Offered on a rotational basis with other courses in the 203 series. May be repeated for credit. D. Neuman, H. Kim

205. Conceptual Foundations in Music Repertoire and Analysis. F,W,S
A series of 2-credit courses that build upon and advance the depth and breath of analytical skills with the aim of preparing graduate students fro advanced work in cultural musicology. The Staff

205A. Conceptual Foundations in Western Music Analysis (2 credits). F
Focused analysis of selected works from the Western classical music repertoire, Emphasis is on aural and analytical skills, the modal and tonal foundations of Western music, and the evolution of form and expression. Enrollment is restricted to graduate

students. A. Leikin, N. Treadwell, A. Beal, L. Miller

205B. Conceptual Foundations in World Music (2 credits). W
A broad survey of traditional and vernacular musical practices from around the world with an emphasis on aural analysis and critical listening skills. Enrollment is restricted to graduate students. Enrollment limited to 15. D. Neuman, N. Hammond, T. Merchant

206A. World Music Composition. W
Studies in the history, structure, and cultural function of music from cultures as diverse as Global African, central European, Korean, Latin American, Indonesian, and Indian traditions. Examines ways in which composers such as Bartok, Anthony Braxton, Chou Wen-Chung, Lou Harrison, and Takemitsu sought and integrated such influences. Students choose to write critical and analytic essays on musics exhibiting diverse cultural influences, or to compose music that takes a vernacular or non-European music as a model for a compositional/improvisational approach. Enrollment restricted to graduate students. Enrollment limited to 12. May be repeated for credit. K. Hester

206B. Computer-Assisted Composition. *
Study of techniques of algorithmic and computer-assisted composition in a variety of contemporary idioms. Topics may include stochastic methods, generative grammars, search strategies, and the construction of abstract compositional designs and spaces. Final project for course involves students formulating and algorithmically implementing their own theoretical assumptions and compositional strategies. (Also offered as Digital Arts and New Media 217. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. L. Polansky

206D. Music Perception and Cognition. *
Investigations in the psychology of musical listening and awareness. Topics include time and rhythm perception, auditory scene analysis, pattern recognition, and theories of linguistics applied to harmony, melody, and form in the music of diverse cultures. Explores applications of the cognitive sciences to music transcription, analysis, composition, interpretation, and performance practice. Students apply existing knowledge in the cognitive sciences to a developing creative or analytical project, or develop and conduct new experiments. Enrollment restricted to graduate students. Enrollment limited to 16. May be repeated for credit. B. Carson

219. Techniques in Composition. F
Short compositional exercises incorporating diverse contemporary techniques with emphasis on problem solving and development of compositional skills. Exercises focus on particular strategies for organizing and coordinating aspects of pitch, rhythm, timbre, and other musical dimensions, depending on interests of instructor and students. (Formerly course 219A.) Enrollment restricted to graduate students. May be repeated for credit. D. Jones

220. Graduate Seminar in Music Composition. S
Instruction in individual composition offered in the context of a group; composition in large forms of the 20th century with emphasis on techniques since 1950. May be taken by upper-division undergraduates for credit. Interview with instructor at first class meeting. Prerequisite(s): course 219. Enrollment limited to 16. May be repeated for credit. D. Jones, L. Polansky, H. Kim

228. Techniques of Modernity and Aesthetic Formations. *
Explores the transformations and aesthetic possibilities of the digital age through a study of perceptual shifts of the past, from orality to literacy, gift to commodity, pre-colonial to colonial, "pre-modern" to "modern," and the technological revolutions that accompanied these shifts. Enrollment restricted to graduate students; upper-division undergraduates may enroll with permission of instructor. Enrollment limited to 18. D. Neuman

252. Current Issues Colloquium (no credit). F,W,S
An interactive colloquium featuring presentations by faculty, graduate students, and visiting scholars on research projects in composition, musicology / ethnomusicology, and performance practice, followed by focused discussion. Enrollment restricted to graduate students. Undergraduate students may enroll with permission of instructor. L. Burman-Hall, A. Beal

253A. Pitch, Melody, and Tuning Systems. *
Focuses on pitch systems from Western and non-Western cultures, and on scholarly perspectives about them throughout the 20th and 21st centuries. Enrollment restricted to graduate students. Enrollment limited to 20. T. Merchant

253B. Rhythm, Time, and Form. *
Traditional and experimental rhythmic and temporal systems representing diverse cultures, with emphasis on unmeasured, divisive, additive, and multilayer practices in cultural context. Students examine rhythmic composition, improvisation, and rubato performance in selected cultures, including rhythmic notation and transcription systems. Prerequisite(s): course 200 or the equivalent, or consent of instructor. Enrollment restricted to graduate students. Enrollment limited to 10. B. Carson

253C. Music and Discourse. *
Addresses both song and musical performance as modes of discourse. For song: musical and textual phrase and verse structures and their interrelationships. For musical performances: musical performance as rhetoric and emblem. Enrollment restricted to graduate students. Enrollment limited to 5. The Staff

253D. Issues in the Ethnography of Music. *
Explores ethnography—the description of culture—as it relates to musicology and ethnomusicology, particularly where "culture" and cultural production are historically dynamic and geographically porous. Examines music with sensitivity to such complexities of context, and the disciplinary points of reference from which cultural difference is calculated. Considers the ideological imprint of methodology on cultural analysis: how to study an unfamiliar music in a way that transcends the measure of "difference from the familiar," and, conversely, how to conduct an "objective" study of a familiar music. Enrollment restricted to graduate students. Enrollment limited to 10. D. Neuman

254C. Performance Theory and Practice. *
"Performance" can describe activities in the arts, humanities, and social sciences. Recognizing the mappings of this concept, this course examines selected performances and performative behavior through theoretical and critical lenses. Emphasis is on investigating the act and practice of musical performance in multicultural context, and on analyzing scholarly writing as performative discourse. Enrollment restricted to graduate students. Enrollment limited to 10. N. Treadwell

254D. Organology and Acoustics. *
Comprehensive study of musical instruments including, but not limited to, physical and engineering concepts; theory and methods of description, analysis, systematic, and cultural classifications; physiology and performance techniques; cultural significance; anthropomorphic and zoomorphic symbolism; ritual usage; and more. Previous enrollment in introductory ethnomusicology course (e.g., course 11D) helpful, but not required. Enrollment by interview only, except music M.A. and Ph.D. students. Enrollment restricted to junior and senior music majors, electronic music minors, anthropology majors, or physics majors,and graduate students. Enrollment limited to 15. The Staff

254E. Asian Resonances in 20th-Century American and European Music. *
Explores the influence of Asian musics on Western composers from Debussy to Britten to American experimentalists such as Harrison, Cage, Riley, and Rudyard. Questions of cultural appropriation and originality are addressed through specific examples and critical readings. Enrollment restricted to graduate students. Enrollment limited to 10. L. Miller

254I. Empirical Approaches to Art Information. *
Reading and practice in empirical methods, as applied to the study of music, visual art, multimedia production, and performance arts. Topics include semiotics, critiques of empiricism, cultural determinants and contingents of perception, the psychophysics of information, sensory perception (visual and auditory), memory, pattern recognition, and awareness. Students apply existing knowledge in the cognitive sciences to a developing creative project, or develop and conduct new experiments. (Also offered as Digital Arts and New Media 254I. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 17. May be repeated for credit. B. Carson

254J. Jazz Historiography. *
Introduces the ways jazz history has been conceptualized, evaluated, and transmitted.

Examines the social, intellectual, and cultural formations that have influenced this historiography. Considers the interdisciplinary project of "new jazz studies" in relation to established and alternative historical narratives. Enrollment restricted to graduate students. Enrollment limited to 10. The Staff

254K. Music, Gender, and Sexuality. *
Seminar focuses on musicological and ethnomusicological work incorporating feminist and queer theories published since the late 1980s. Cross-cultural approach to the examination of music, gender, and sexuality, drawing examples from both Western and non-Western traditions. Enrollment restricted to graduate students. Enrollment limited to 10. T. Merchant

254L. John Cage: Innovation, Collaboration, and Performance Technologies. *
In-depth examination of John Cage's interdisciplinary work, his pioneering activity in live electronic technology, and his influence in current multimedia creativity. Approximately one-half of the seminary is devoted to student research and creative projects and reflect Cage's legacy. (Also offered as Digital Arts and New Media 254L. Students cannot receive credit for both courses.) Enrollment restricted to juniors, seniors, and graduate students. Upper-division undergraduates may enroll with permission of instructor. Enrollment limited to 12. A. Beal

254M. Music in San Francisco, 1850-1950. *
Explores San Francisco's musical life during the city's first century, including opera, symphony, Chinese music, musical theater, and other genres. Considerable emphasis on music and society, including issues of race. Enrollment restricted to graduate students. Enrollment limited to 15. L. Miller

254N. Cruising the Postcolony. F
Drawing on Jose Esteban Munoz's suggestion that queer politics is most radical when it is looking to the possibilities of the future rather than the pragmatics of the present, this course interrogates the radical vision of postcolonial and queer music-making. Enrollment restricted to graduate students. Enrollment limited to 18. N. Hammond

254Q. Dialogues and Questions in Digital Arts and Culture. S
Students engage in dialogues at the intersection of theory and practice with the goal of producing a pre-thesis proposal and essay. Readings and seminar discussions inform the development of project proposals and essays, which theoretically contextualize students' work. (Formerly Digital Arts and New Media 203.) (Also offered as Digital Arts and New Media 202. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. The Staff

261. Graduate Applied Instruction (3 credits). F,W,S
One hour of individual instrumental or vocal instruction for graduate students. Repertory, technique, and performance practice. A minimum of nine hours per week of individual practice is required. Students are billed a course fee. Admission by audition with the instructor prior to first class meeting; see the enrollment conditions section of the quarterly Schedule of Classes. May be repeated for credit. The Staff

265. Graduate Ensemble Participation (2 credits). F,W,S
Participation by graduate students in ensembles. Enrollment limit appropriate to the size of each ensemble. Admission by audition with the instructor prior to first class meeting; see the enrollment conditions section of the quarterly Schedule of Classes. May be repeated for credit. The Staff

267. Workshop in Computer Music and Visualization (2 credits). F,W,S
Graduate-level techniques and procedures of computer music composition and visualization. Practical experience in the UCSC electronic music studio with computer composition systems and software, including visualization and interactive performance systems. Extensive exploration of music and interactive graphic programs such as Max/MSP/Jitter. Enrollment by permission of instructor; appropriate graduate experience required. Enrollment restricted to graduate students. (Also offered as Digital Arts and New Media 267. Students cannot receive credit for both courses.) Enrollment limited to 12. May be repeated for credit. L. Polansky

295. Directed Reading. F,W,S

Directed reading, which does not involve a term paper. May be repeated once for credit. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study, creative work, or research for graduate students who have not yet begun work on their thesis. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

298. Graduate Recital. F,W,S
A public performance in the student's primary area of interest, related to the thesis or dissertation project, under the supervision of a faculty member. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. The Staff

299. Thesis Research. F,W,S
A thesis consisting of a substantive and original creative or scholarly work, related to the graduate recital, under the supervision of a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Oakes College

2014-15 General Catalog

College Office
(831) 459-2558
http://oakes.ucsc.edu

For college description and list of faculty, see colleges.

Lower-Division Courses

10. Academic Success (2 credits). S
Provides opportunity to assess and revise methods of and purposes in studying. Critical, effective approaches to reading, writing, participating in lectures and sections, taking exams, balancing competing responsibilities, and utilizing campus resources explored. Enrollment by permission of college adviser. The Staff

30. Thesis Writing and Editing (2 credits). S
Substantial writing and revision for a piece of writing relevant to a student's field. Focuses on academic research, documentation, editing, and revision. Enrollment restricted to junior and senior college members. Enrollment by permission of instructor. Enrollment limited to 20. May be repeated for credit. The Staff

42. Student-Directed Seminar.
Seminars taught by upper-division Oakes students under faculty supervision. (See course 192.) The Staff

60. Oakes Literary Journal: Further Reflections on a Diverse Society (2 credits). W
For publication in an Oakes College literary journal, students significantly refine an essay from the fall quarter Oakes College core course. Course work includes consideration of a substantive text that engages core course themes and promotes the focus of the essay. Prerequisite(s): course 80A or 80B. Enrollment restricted to first-year students. Enrollment limited to 20. May be repeated for credit. The Staff

67. The Politics of Food: Labor and Social Justice (2 credits). S
Engages the themes of Oakes College (respect for diversity and social justice) and the interests of UCSC's Center for Agroecology and Sustainable Food Systems. Topics include the racial politics of food, farm labor, organic farming, and activism. Prerequisite(s): successful completion of college core course 80A, 80B, 80C, 80D, or 80H. Enrollment restricted to college members. Enrollment limited to 25. May be repeated for credit. R. King, M. Baker

72. Building the Strength to Love and Dream: Oakes Oral History Project. W
Students study the founding and development of Oakes College's first 10 years through oral history. Students immerse themselves in thorough background research and build skills necessary to conduct oral histories with founding Oakes members, revising pieces suitable for publication. Prerequisite(s):satisfaction of Entry Level Writing and Composition

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

requirements. Enrollment restricted to College members. L. Lopez

73A. Oakes College Mentoring: Training Workshop (2 credits).
Students discuss texts, write responses, and share ideas as they prepare to become academic peer counselors for Oakes Core students in fall. Prerequisite(s): Oakes College Core course. Enrollment restricted to Oakes College members. Enrollment by permission of instructor. L. Knisely

73B. Oakes College Mentoring: Service Learning Practicum (2 credits). F
Mentors introduce first-years to campus resources, provide them with academic support, share academic successes and difficulties, and offer guidance on college adjustment. Prerequisite(s): course 73A. Enrollment restricted to Oakes College members. (General Education Code(s): PR-S.) L. Knisely

75. Oakes Student Development and Leadership Theory (2 credits). S
Overview of theories, methods, applications, skills, and special topics focusing on college student development and leadership. Uses a variety of learning modes including lecture, discussion, case studies, small group interaction, and presentations. Interview only: see Oakes coordinator for residential education during spring enrollment period. Enrollment restricted to Oakes College members. Enrollment limited to 30. May be repeated for credit. The Staff

80A. Introduction to University Discourse: Communicating Diversity for a Just Society. F
Explores rhetorical principles and conventions of university discourse providing intensive practice in analytical writing, critical reading, and speaking. Examines historical and contemporary aspects of multiculturalism in the U.S. Explores how social inequality based on ethnicity, race, class, and gender occurs among all levels of society. Students cannot receive credit for this course and course 80B. (Formerly Introduction to University Discourse: Values and Change in a Diverse Society.) Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C1, E.) R. Langhout

80B. Rhetoric and Inquiry: Communicating Diversity for a Just Society. F
Explores intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Examines historical and contemporary aspects of multiculturalism in the U.S. Explores how social inequality based on ethnicity, race, class, and gender occurs among all levels of society. Students cannot receive credit for this course and course 80A. (Formerly Rhetoric and Inquiry: Values and Change in a Diverse Society.) Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. Enrollment limited to 22. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C2, E.) R. Langhout

80C. Introduction to University Discourse: Communicating Diversity for a Just Society Writing Intensive 1. F
Explores rhetorical principles and conventions of university discourse and provides intensive practice in analytical writing, critical reading, and speaking. Examines historical and contemporary aspects of multiculturalism in the U.S. Explores how social inequality based on ethnicity, race, class, and gender occurs among all levels of society. More writing-intensive than course 80A; prerequisite to course 80D. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. The Staff

80D. Introduction to University Discourse: Communicating Diversity for a Just Society Writing Intensive 2. W
Continues to provide practice in analytical writing, critical reading, and speaking, and to examine issues relating to multiculturalism, diversity, and power. Prerequisite(s): course 80C. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 22. (General Education Code(s): C1.) The Staff

80H. Rainbow Theater Cultural Studies. S
Introduction to multicultural theater and multicultural plays that aims to bring cultural awareness to all students interested in theater discipline. Students are required to read and critically analyze contemporary plays of color with emphasis on race and culture in contemporary American society. Enrollment limited to 40. May be repeated for credit. (General Education Code(s): T4-Humanities and Arts, E.) D. Williams

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Teaching and Administrative Staff

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93. Field Study. F,W,S
Supervised off-campus study conducted under the immediate and direct guidance of a faculty supervisor. To be used primarily by lower-division students doing part-time off-campus study. Prerequisite(s): approval of student's adviser, certification of adequate preparation, approval of provost. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

95. Directed Reading. F,W,S
Directed reading on selected topics in literature. Students submit petition to sponsoring agency. The Staff

99. Tutorial. F,W,S
Individual study for lower-division students directed by a fellow of Oakes. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Independent Study (2 credits). F,W,S
Independent study on various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

128. Latino Media in the U.S. *
Explores the history and practice of Latino media in the U.S. with an emphasis on work created by, for, with, and about Latino constituencies. Course highlights the role that media plays in struggles for social change, political enfranchisement, creative self-expression, and cultural development. Course content varies with instructor. (Also offered as Latin American&Latino Studies 128. Students cannot receive credit for both courses.) Enrollment limited to 39. (General Education Code(s): IM, E.) The Staff

150. Queer History and Theory in the United States. S
Gives students a broad overview of the historical and social construction of gay and lesbian identities in the United States. The recent emergence of relatively stable LGBTQIA identities in the U.S. presents a compelling historical problem: how can we know about queer people in the past when they were often "hidden from history" or if they identified themselves in ways that may seem strange to us in the present? Students grapple with these questions as they chart the emergence and eclipsing of sexual identities in U.S. history and contribute to the project of documenting queer history in the present. Students also examine how queer theory addresses the meanings that U.S. politics and culture have placed on sexual orientation over time. (Formerly Gays and Lesbians in the United States.) Enrollment restricted to junior and senior Oakes College members. Enrollment limited to 30. P. Longo

151A. Corre la Voz: Community Literacies and Power (2 credits). F,W,S
Required seminar for Corre la Voz program interns and Oakes students working in English-language learners (ELL) (Spanish English) community-teaching placements. Examines theories and methods that emphasize social connection, leadership, verbal enrichment, multi-modal literacies, and community empowerment. Taken concurrently with field study. Enrollment by interview only, and successful application to the Corre la Voz program or the submission of a teaching-placement agreement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Co-requisite(s): course 151B or 199. Enrollment restricted to sophomore, junior, and senior Oakes College members. May be repeated for credit. L. Lopez

151B. Community Literacies Field Study (3 credits). F,W,S
Field study for Corre la Voz interns. Intensive on-site training and participation in team teaching of middle grade English-language learners (ELL) (Spanish English) youth. Literacies include mathematics, drama, social-emotional, and digital media. Enrollment by interview only, and successful application to the Corre la Voz program or previous successful quarters in the program. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Concurrent enrollment in course 151A is required during the first quarter after which course 151B may be repeated by itself. Enrollment restricted to sophomore, junior, and senior Oakes College members. Enrollment limited to 15. May be

repeated for credit. (General Education Code(s): PR-S.) The Staff

192. Directed Student Teaching. F,W,S
Teaching a lower-division seminar under faculty supervision. (See course 42.) Prerequisite(s): upper-division standing in Oakes; a proposal supported by a faculty member willing to supervise. The Staff

193. Field Study. F,W,S
Supervised off-campus study conducted under the immediate and direct guidance of a faculty supervisor. To be used primarily by upper-division students doing part-time off-campus study. Prerequisite(s): approval of student's adviser, certification of adequate preparation, approval of provost. If taking two or more such courses in any one quarter, must obtain approval of academic adviser. The Staff

195. Senior Thesis. F,W,S
Senior thesis related to college-sponsored individual majors. Students submit petition to sponsoring agency. Sponsoring faculty must be member of individual major committee. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
College-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Up to three such courses may be taken for credit in any one quarter. Prerequisite(s): approval of the student's adviser, certification of adequate preparation, and approval by provost. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual study for junior and senior members of Oakes College directed by a fellow of Oakes. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Independent Study (2 credits). F,W,S
Independent study on various topics to be arranged between student and instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Ocean Sciences

2014-15 General Catalog

A312 Earth and Marine Sciences Building
(831) 459-4730
http://oceansci.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

1. The Oceans. F
An interdisciplinary introduction to oceanography focusing on biological, chemical, geological, and physical processes. Covers topics such as origins and structure of planet Earth and its oceans, co-evolution of Earth and life, plate tectonics, liquid water and the hydrologic and hydrothermal cycles, salinity and elemental cycles, ocean circulation, primary production and nutrient cycles, plankton and nekton, life on the sea floor, near shore and estuarine communities, future environmental problems our oceans face. Students may also enroll in and receive credit for Earth Sciences 1. (General Education Code(s): SI, IN, Q.) K. Mcmahon

80A. Life in the Sea. W
The ecology of plants and animals in oceans and coastal areas. Consideration of life in various marine habitats, including the open ocean, rocky shores, estuaries, and the sea. Includes field trips. High school biology and chemistry courses are recommended prior to taking this course. (General Education Code(s): SI, T-2 Natural Sciences.) M. Sison-Mangus

80B. Our Changing Planet. F,S
Interdisciplinary scientific perspective on Earth system, focusing on human impacts on global environment. Introduces concepts of Earth system science and explores topics such as global warming, ozone depletion, pollution, deforestation, and future climate change. Prerequisite(s): high school chemistry course recommended. (General Education Code(s): PE-E, T2-Natural Sciences.) P. Lam, M. McCarthy

90. Fundaments of Climate. W,S
A quantitative introduction to climate comprising five modules: atmosphere-ocean circulation; atmospheric teleconnections; El-Nino Southern Oscillation; the Pacific Decadal Oscillation; and global warming. Hands-on statistical methods are applied to real-world observations to develop a quantitative understanding of climate. May be repeated for credit. (General Education Code(s): SR.) A. Moore, C. Edwards

Upper-Division Courses

101. The Marine Environment. W
An introduction to the marine environment stressing the interaction of physical, chemical, and geological factors in the ocean. Provides the oceanographic background needed for studies in marine biology. Students taking the prerequisite math courses concurrently may enroll in the course with permission from instructor. Prerequisite(s): Chemistry 1C and

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Mathematics 11B or 19B. Students taking the prerequisite math courses concurrently may enroll in the course with permission from instructor. R. Kudela

102. Oceans and Climate: Past, Present, and Future. *
An introduction to Earth's environment, particularly its oceanic and climatic components. Emphasizes interactions between chemical, physical, biological, and geological processes, and fundamentals of past, present, and future global environmental change. Provides backgrounds for specialized courses in oceanic or climatic change. Prerequisite(s): Chemistry 1C. The Staff

118. Marine Microbial Ecology. S
The study of marine bacteria and their role in the marine ecosystem. Emphasis on biochemistry and physiology in relation to metabolic activity and elemental cycles, trophic interactions, and flows of material and energy in marine food webs. Students cannot receive credit for this course and Ocean Sciences 218. Prerequisite(s): Biology 20C or 21C, and Chemistry 1C. J. Zehr

120. Aquatic Chemistry: Principles and Applications. *
An integrated study of the chemical behavior of natural waters with an emphasis on both principles and applications. Topics include chemical equilibrium, kinetics, acids/bases, oxidation/reduction, complexation, solid dissolution and precipitation, and reactions on solid surfaces. Prerequisite(s): Chemistry 108B or 112C. The Staff

124. Aquatic Organic Geochemistry. *
Introduction to organic geochemistry with emphasis on aquatic environments. Explores how non-living organic matter shapes biogeochemical cycles by carrying and sequestering reduced carbon and major nutrients and examines influence of chemical structure and environmental factors on transport and fate of organic molecules. Provides an introduction to organic biomarkers. Students cannot receive credit for this course and course 224. Prerequisite(s): basic college chemistry (Chemistry 1B, 1C); at least one quarter of college level organic chemistry required (e.g., Chemistry 7). The Staff

130. Biological Oceanography. S
Biological description of the sea, with emphasis on processes and patterns. Topics include microbial dynamics, phytoplankton and zooplankton production, and ecology of marine food webs. Emphasis placed on understanding how physical, chemical, and geological environment shapes biology and ecology of oceans, including such topics as harmful algal blooms, global estimates of productivity, and effects of humans on environment. Students may not receive credit for this course and Ocean Sciences 230. Prerequisite(s): previous course in ocean sciences recommended. Enrollment restricted to juniors (with instructor approval), seniors, and graduate students. R. Kudela

172. Geophysical Fluid Dynamics. *
Introduces fluid motion influenced by rotation. Topics include the Coriolis force, geostrophic flow, potential vorticity, the shallow water model, quasigeostrophic approximation, planetary waves, Ekman theory, thermal wind, models of the large-scale oceanic and atmospheric circulation, and equatorial dynamics. Taught in conjunction with course 272. Students cannot receive credit for this course and course 272. (Also offered as Earth Sciences 172. Students cannot receive credit for both courses.) Prerequisite(s): Physics 107; Mathematics 22 or 23B recommended. Offered in alternate academic years. C. Edwards

199. Independent Study. F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

200. Physical Oceanography. F
Introduction to the physics of the ocean-atmosphere system. Structure of the ocean and atmosphere. Energy balance and radiative transfer. Atmospheric circulation; weather and climate. Physical properties of seawater, air-sea interaction, mixing, water masses, ocean circulation, waves; CO2 and global change. Designed for beginning graduate students in ocean sciences and upper-division science majors. Calculus and physics recommended as preparation. C. Edwards

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211. Climate Dynamics. F
Introduction to the dynamics of the Earth climate system. Topics: climate system components; the global energy balance; radiative transfer; the hydrological cycle; general circulations of the atmosphere and ocean; El Niño; the North Atlantic Oscillation; the Pacific Decadal Oscillation. Enrollment restricted to graduate students. Undergraduates may enroll by permission of instructor. Previous courses in calculus and ocean sciences or earth sciences are recommended. A. Moore

213. Biogeochemical Cycles. *
Overview of biogeochemical cycles, present and past, and geochemical models. Topics include: marine, terrestrial, and global views of the carbon, nitrogen, phosphorus, silicon, sulfur, and oxygen cycles, and the evolution of these cycles and Earth's redox balance through geologic time. (Also offered as Earth Sciences 213. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Upper-division undergraduates may enroll with instructor approval. College-level chemistry and an upper-division course in at least one relevant discipline are recommended. M. McCarthy

215. Predicting the Atmosphere, Ocean, and Climate. *
Introduction to the theory and practice of operational prediction in meteorology, oceanography, and climate. Topics: observations and estimation theory, dynamic adjustment and initialization, estimation theory, data assimilation, forecast verification, predictability, ocean state estimation, seasonal forecasting. Enrollment restricted to graduate students. Undergraduates may enroll with instructor approval. Courses 200, 264, Earth Sciences 272, or equivalents are recommended. A. Moore

218. Marine Microbial Ecology. S
Recent developments in the study of marine bacteria and their role in the marine ecosystem. Emphasis on biochemistry and physiology in relation to metabolic activity and elemental cycles, trophic interactions and flows of material and energy in marine food webs. Exams and research paper required. Students cannot receive credit for this course and course 118 and Biology 171. Biology 20C and Chemistry 1C recommended. J. Zehr

220. Chemical Oceanography. W
A chemical description of the sea; emphasis on the chemical interactions of the oceans with the biosphere, atmosphere, and lithosphere. Topics include biogeochemical cycles and the use of chemical tracers to study oceanic and coastal processes. Course designed for graduate students; available to upper-division science majors. M. McCarthy

224. Aquatic Organic Geochemistry. *
Introduction to organic geochemistry with emphasis on aquatic environments. Explores how non-living organic matter shapes biogeochemical cycles by carrying and sequestering reduced carbon and major nutrients and examines influence of chemical structure and environmental factors on transport and fate of organic molecules. Provides an introduction to organic biomarkers. Students cannot receive credit for this course and course 124. M. McCarthy

230. Biological Oceanography. S
Biological description of the sea, with emphasis on processes and patterns. Topics include microbial dynamics, phytoplankton and zooplankton production, and ecology of marine food webs. Emphasis placed on understanding how physical, chemical, and geological environment shapes biology and ecology of oceans, including such topics as harmful algal blooms, global estimates of productivity, and effects of humans on environment. Students may not receive credit for this course and course 130. Prerequisite(s): previous course in ocean sciences recommended. Enrollment restricted to graduate students. R. Kudela

260. Introductory Data Analysis in the Ocean and Earth Sciences. W
Introduces data analysis methods regularly encountered within the ocean and earth sciences. Topics include: error propagation; least squares analysis; data interpolation methods; empirical orthogonal functions; and Monte Carlo methods applied to problems drawn from oceanographic and earth sciences datasets. Introduces and uses a high-level computing and visualization package, MATLAB. Student project consists of analysis of the student's own dataset. (Also offered as Earth Sciences 260. Students cannot receive credit for both courses.) Prerequisite(s): previous course in ocean or earth sciences is recommended. Enrollment restricted to graduate students; undergraduates with permission of instructor. C. Edwards

272. Geophysical Fluid Dynamics. *
Introduces fluid motion influenced by rotation. Topics include the Coriolis force, geostrophic flow, potential vorticity, the shallow water model, quasigeostrophic approximation, planetary waves, Ekman theory, thermal wind, models of the large-scale oceanic and atmospheric circulation, and equatorial dynamics. Students cannot receive credit for this course and course 172. (Also offered as Earth Sciences 272. Students cannot receive credit for both courses.) Physics 227 is recommended as preparation. Enrollment restricted to graduate students. Offered in alternate academic years. C. Edwards

280. Marine Geology. W
Geology of the marine environment. Topics include controls on the types, origin, and distribution of marine sediments; geology of oceanic crust; evolution of continental margins and plate boundaries; introduction to paleoceanography. Students cannot receive credit for this course and Earth Sciences 102. Enrollment restricted to graduate students. A. Ravelo

285. Past Climate Change. *
Reviews the fundamentals of climate dynamics and explores how Earth's environment is a product of the interaction of its components. Uses examples of climate change from historical and geologic records, and from predictions of the future. Recommended for junior, senior, and graduate students in the sciences. The Staff

286. Introduction to Ocean Modeling. S
Fundamental concepts and ideas that underpin numerical modeling of the ocean. Topics include numerical methods and solutions of partial differential equations (PDEs), ocean circulation, wave dynamics, ocean ecosystem model, and MATLAB programming. Enrollment restricted to graduate students, or to seniors by permission of instructor. A. Moore

290. Proseminar.
Special topics in marine sciences to be offered from time to time by professors and staff members. The Staff

290A. Topics in Chemical Oceanography. *
A weekly seminar series covering recent developments in chemical oceanography. Different topics and approaches will be stressed from year to year. May be repeated for credit. The Staff

290B. Topics in Biological Oceanography. *
Explores different problems of special interest in biological oceanography. Different topics and approaches will be stressed from year to year. May be repeated for credit. The Staff

290C. Topics in Marine Geochemistry. F
Selected topics in geochemistry. Discussion of theoretical models, different approaches, and recent research. Topics vary from year to year. May be repeated for credit. A. Paytan

290D. Topics in Marine Microbiology. *
A weekly seminar series covering topics in environmental microbiology. Topics vary from year to year, and will include research in ecology, methodology, biochemistry and physiology of bacteria. Emphasis on the role of bacteria in biogeochemical cycling from microzone to global scales, with particular focus in marine systems. May be repeated for credit. The Staff

290E. Topics in Climatic and Oceanic Change. *
Weekly seminar series covering recent developments in climatic and oceanic change. Different topics and approaches stressed from year to year. Prerequisite(s): interview with instructor prior to first class meeting. May be repeated for credit. A. Ravelo

290G. Topics in Physical Oceanography. *
Weekly seminar series covering topics in physical oceanography as well as biological-physical interactions in the oceans. Different topics and approaches stressed from year to year. Enrollment restricted to graduate students; undergraduates may enroll with permission of instructor. May be repeated for credit. The Staff

290H. Topics in Ocean Optics. W
Examines recent developments and application of bio-optics to the marine environment, including theory, instrumentation, and remote sensing. Different topics and approaches emphasized from year to year. Prerequisite(s): previous course in ocean sciences recommended. Enrollment restricted to graduate students; senior undergraduates with permission of instructor. May be repeated for credit. R. Kudela

290J. Topics in Marine Organic Geochemistry. S
Examines recent developments in uses of organic geochemistry to trace oceanographic and biogeochemical processes. Focuses on introduction to organic biomarkers, current literature, and evolving applications. Different topics and approaches emphasized from year to year. Prerequisite(s): previous course in ocean sciences and organic chemistry are recommended. Enrollment restricted to graduate students; upper-division undergraduates with instructor's permission. May be repeated for credit. M. McCarthy

292. Seminar (no credit). F,W,S
Weekly seminar on various topics attended by faculty, graduate, and upper-division undergraduate students. M. Sison-Mangus, C. Lamborg, P. Lam

293. Graduate Research Seminar (2 credits). S
Weekly seminar series covering a spectrum of topics in oceanography. Designed for Ph.D. program graduate students in ocean sciences and those in biology, Earth sciences, chemistry, and physics with research interests in oceanography. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Teaching in Ocean Sciences (2 credits). F
For new and/or relatively inexperienced graduate students in pedagogy of ocean sciences. Role and responsibilities of teaching in ocean sciences described and developed. Includes discussions about effective teaching methods; hands-on issues for work in the laboratory; university expectations; and regulations regarding teaching, organizational strategies, time management, and working with instructors and staff. Prerequisite(s): graduate standing or permission of instructor. Enrollment restricted to graduate students. C. Edwards

297. Independent Study.
Independent reading, research, and written reports not related to thesis research. Students submit petition to sponsoring agency. The Staff

299. Thesis Research.
Students submit petition to sponsoring agency. The Staff

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Philosophy

2014-15 General Catalog

220 Cowell College
(831) 459-2070
http://philosophy.ucsc.edu

Faculty | Program Description

Lower-Division Courses

8. Reason, Logic, and the Idols of Thought. S
Students cultivate their ability to distill and critically assess the barrage of argument and rhetoric with which they are confronted every day--on the Internet, in the media, on campus--and learn to subject their own thoughts to more rigorous, logical standards. (Formerly Logic, Numbers, and Emotion: Thinking Clearly in Everyday Life.) (General Education Code(s): SR, Q.) J. Ellis

9. Introduction to Logic. F,W
A first course in symbolic deductive logic. Major topics include (but are not limited to) the study of systems of sentential logic and predicate logic, including formal deduction, semantics, and translation from natural to symbolic languages. (General Education Code(s): MF, IH, Q.) (F) P. Roth, (W) J. Bowin

11. Introduction to Philosophy. F,W,S
An introduction to the main areas of philosophy through critical reflection on and analysis of both classical and contemporary texts. Focuses on central and enduring problems in philosophy such as skepticism about the external world, the mind-body problem, and the nature of morality. (General Education Code(s): TA, IH.) (S) J. Dinishak, (FW) R. Winther

22. Introduction to Ethical Theory. F,S
A consideration of ethical issues and theories focusing on the foundation of moral value and the principles governing character and behavior. Designed to extend and develop the student's abilities in philosophical reasoning about ethics. (General Education Code(s): CC, IH.) (F) N. Orlandi, (S) D. Guevara

24. Introduction to Ethics: Contemporary Moral Issues. *
An examination of the conceptual and moral issues that arise in connection with a variety of specific ethical issues. Topics vary according to the interests of the instructor, but among those commonly discussed are: abortion, war and violence, euthanasia, world hunger, human rights, and animal rights. The readings are typically drawn from recent philosophical articles on these topics, but earlier sources (important in the history of philosophy) can be considered as well. (General Education Code(s): PE-H, IH.) The Staff

26. Existentialism and After. *
A survey of recent movements in European thought, such as phenomenology,

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existentialism, hermeneutics, critical theory, continental feminism, and poststructuralism, with some attention to their 19th-century precursors. Selections from major philosophical treatises are supplemented with literary works. (General Education Code(s): IH.) The Staff

28. Environmental Ethics. *
This course is an introduction to the moral issues raised by our interactions with nonhuman animals and with the rest of the natural environment. The course will relate traditional moral theories to contemporary literature on the ethics of nature conservation and environmental protection. The course is intended as a first course in philosophy as well as a first course in ethics; therefore, questions concerning the nature of philosophical inquiry and the ways in which philosophical inquiry is different from inquiries conducted within other disciplines will also be addressed. (General Education Code(s): PE-E, IH.) The Staff

80E. Latin American Philosophy. *
Is there a general school of philosophy endemic to Latin America? Would it have to appeal to quintessential Western philosophical questions regarding knowledge, values, and reality? If not, why not, and would it then still count as philosophy? What difference do ethnic and national diversity, as well as strong political and social inequality, make to the development of philosophical questions and frameworks? Course explores a variety of historically situated Latin American thinkers who investigate ethnic identity, gender, and socio-political inequality and liberation, and historical memory, and who have also made important contributions to mainstream analytical and continental philosophy. (Also offered as Latin American&Latino Studies 80E. Students cannot receive credit for both courses.) (General Education Code(s): T4-Humanities and Arts, E.) R. Winther

80G. Bioethics in the 21st Century: Science, Business, and Society. F
Serves science and non-science majors interested in bioethics. Guest speakers and instructors lead discussions of major ethical questions having arisen from research in genetics, medicine, and industries supported by this knowledge. (Also offered as Biomolecular Engineering 80G. Students cannot receive credit for both courses.) (General Education Code(s): PE-T, T6-Natural Sciences or Humanities and Arts.) The Staff

80M. Philosophical Foundations of Science Studies. W
Provides a philosophical perspective concerning the revolution in the understanding of science that generated the so-called "science wars." Introduces the changed philosophical understanding of science shared and presupposed in the fields of science, technology, and society. (Formerly Science and Society.) (General Education Code(s): T5-Humanities and Arts or Social Sciences.) P. Roth

80S. The Nature of Science. *
A survey of what philosophers have said about the nature of science and scientific change. Emphasis is placed on whether science is best characterized as the gradual accumulation of truth or whether truth is irrelevant to scientific change. (General Education Code(s): T6-Natural Sciences or Humanities and Arts.) The Staff

99. Tutorial. F,W,S
The Staff

Upper-Division Courses

100A. Ancient Greek Philosophy. F
Survey of ancient Greek philosophy of the Classical and Hellenistic periods. Begins with Socrates and the pre-Socratics, then undertakes an intensive study of Plato and Aristotle. Course then surveys the main developments that follow: Epicureanism, Stoicism, and Scepticism. (General Education Code(s): W satisfied by taking this course and either course 100B or 100C.) Prerequisite(s): course 9; courses 11 or 22 or 24; and satisfaction of the Entry Level Writing and Composition requirements. J. Bowin

100B. The Rationalists. W
A study of the historical background and the present relevance of Descartes, Spinoza, and Leibniz. (General Education Code(s): W satisfied by taking this course and either course 100A or 100C.) Prerequisite(s): course 9; courses 11 or 22 or 24; and satisfaction of the

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100C. The Empiricists. S
A critical study (based on original texts) of Locke, Berkeley, and especially Hume on the nature of knowledge, perception, causation, morality, religion, and political society. (General Education Code(s): W satisfied by taking this course and either course 100A or 100B.) Prerequisite(s): course 9; courses 11 or 22 or 24; and satisfaction of the Entry Level Writing and Composition requirements. A. Stone

106. Kant. *
Intensive study of Kant's philosophy, particularly his epistemology and metaphysics developed in his Critique of Pure Reason. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. Enrollment limited to 70. A. Stone

107. Nineteenth-Century Philosophy. *
A study of some European philosophers of the 19th century, with particular attention to Hegel, Schopenhauer, and Nietzsche. (Formerly course 108.) Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. J. Hoy

108. Phenomenology. *
French phenomenology includes primarily the work of Jean-Paul Sartre, Simone de Beauvoir, and Maurice Merleau-Ponty. Additional topics include the nature of consciousness and agency. Course includes discussions of French feminists' reactions to Simone de Beauvoir and Emmanuel Levinas. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. J. Hoy

109. Poststructuralism and After. *
The three major poststructuralist philosophers are Michel Foucault, Jacques Derrida, and Gilles Deleuze. After studying their rejection of phenomenological accounts of consciousness and agency—as well as their program for studying power, bio-power, multiplicity, difference, and repetition,—current critics , such as Slavoj Zizek and Judith Butler, are also read for contrast between the methods of phenomenology, genealogy, and critical theory. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. The Staff

110. Heidegger. *
A close study of early and late texts by Martin Heidegger, especially Being and Time. Prerequisite(s): course 9; and course 11 or 22 or 24; and course 100A or 100B or 100C; and course 106 or 107 or 108 or 109 or 111. The Staff

111. Continental Philosophy. *
Study of recent work in continental philosophy. Topics vary. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Winther

112. American Philosophy. F
Study of classical American philosophers, specifically Emerson, Peirce, James, and Dewey, with emphasis on their views of metaphysics, epistemology, ethics, and philosophy of religion. Some attention is also paid to recent pragmatic tendencies in American philosophy. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Winther

113. The History of Analytic Philosophy. *
Examination of the beginnings and development of analytic philosophy, with primary interest in the reformulation of traditional philosophical problems beginning with Frege. Other figures studied include, but are not limited to, Russell, Carnap, Wittgenstein, Quine, and Sellars. (Formerly The Origins of Analytic Philosophy.) Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. P. Roth

114. Probability and Confirmation. W
Studies the philosophical foundations of probability, induction, and confirmation. Different interpretations of probability studied, and solutions to various problems and paradoxes investigated. Students cannot receive credit for this course and course 214. Prerequisite(s):

course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Otte

115. Formal Methods in Philosophy. *
Study of formal methods commonly used in analytic philosophy. Emphasis is on developing the technical tools to enable one to read and do modern analytic philosophy. Applications of various formal tools to philosophical problems will also be discussed. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Otte

116. Logic, Sets, and Functions. *
Introduction to basic set theory, recursive definitions, and mathematical induction. Provides a bridge between course 9 and courses 117 and 119. Strong emphasis on proving theorems and constructing proofs, both formal proofs and proofs in the customary, informal style used by mathematicians. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. J. Bowin

117. Non-Classical Logic. F
Investigations of non-classical logic. Several non-classical logics, such as various model logics, multi-valued logics, and relevance logics studied. Meta-theoretic results investigated for each logic studied. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Otte

118. Stoic Ethics. *
Surveys Stoic Ethics in the Hellenistic and Roman Periods, attending both to the theoretical writings of early Stoa (e.g., Zeno and Chrysippus) as well as to the therapeutic and protreptic writings of later figures (e.g., Seneca and Epictetus). Prerequisite(s): course 100A or 100B or 100C; or consent of instructor. J. Bowin

119. Intermediate Logic. *
Detailed treatment of the semantics of first order logic and formal computability. Completeness, undecidability of first order logic and Lowenhelm-Sklem results also proven. Nature and formal limits of computability and introduction to incompleteness also investigated. Students cannot receive credit for this course and course 219. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Otte

121. Epistemology. S
A sustained look at central problems in epistemology. Topics might include the problem of other minds, the nature of justification and knowledge, skepticism of the external world, the nature and limits of human rationality, the problem of induction. (Formerly Knowledge and Rationality.) Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. Enrollment limited to 98. J. Dinishak

122. Metaphysics. W
Survey of contemporary analytic metaphysics. Topics may include nominalism, metaphysical realism, and the ontological analysis of concrete particulars, including problems of modality and persistence through time. (Formerly Contemporary Analytic Metaphysics.) Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. J. Bowin

123. Philosophy of Language. *
Current theories of the nature and preconditions of language, the nature of meaning, and the nature of truth. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. M. Hicks

125. Philosophy of Science. *
An examination of various topics that arise in thinking about science. Different philosophical problems, such as realism, instrumentalism, confirmation, explanation, space and time, and rational decision making are extensively discussed and criticized. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. R. Winther

126. Philosophy of Social Sciences. S
Examines philosophical concerns regarding the methods and assumptions of the social sciences. For example, must the methods of the social sciences differ in some important ways from those used by the natural sciences? Another issue concerns problems arising

from studying groups where the very notion of rationality appears to vary from culture to culture or over historical periods. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. P. Roth

127. Philosophy of Biology. *
Can developmental processes be reduced to gene expression? Does the history of life exhibit trends (e.g. increasing complexity)? How are we to understand key concepts such as "fitness," "species," "adaptation," and "gene?" Is there such a thing as human nature? Course surveys these and other core philosophical topics in the biological sciences. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. Enrollment limited to 39. (General Education Code(s): W.) R. Winther

133. Philosophy of Mind. W
Focuses on philosophical questions concerning the nature of mind. Central topics include the relation between mind and matter, and the nature of consciousness. Other topics typically explored include: artificial intelligence; animal consciousness and intelligence; and the relation between thought and language. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C, or by consent of instructor. N. Orlandi

135. Philosophy of Psychology. *
Looks at philosophical issues raised by current research on the nature of perception, cognition, and consciousness in psychology and cognitive science. Can there be a science of the mind? Could machines be conscious? Do animals have minds? How did the mind evolve? These and a host of related questions form the subject matter of this course. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C, or by consent of instructor. Enrollment restricted to sophomores, juniors, and seniors. R. Winther

137. Practical Rationality. *
Examines challenges to what has been a dominant understanding of practical rationality: the claim that reason can never guide action in itself; that acting against one's better judgment is necessarily irrational; that emotions disrupt rather than facilitate practical reasoning. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. The Staff

140. History of Ethics. *
A careful study of any one or a number of select primary texts in the history of moral philosophy, with some emphasis on the relation to contemporary issues. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. J. Dinishak

142. Advanced Ethics. *
An examination of central issues in ethical theory including the nature of and justification for the moral point of view, the place of reason in ethics, the status of moral principles, and the nature of moral experience. Prerequisite(s): course 9; course 22, 24, or 28, and course 100A or 100B or 100C. D. Guevara

143. Applied Ethics: Ethics Bowl. *
Intensive application of ethics through debate as preparation to participate in an Ethics Bowl competition. Students develop oral advocacy skills and are given the opportunity to compete for a position on the UCSC Ethics Bowl team. Enrollment by permission of instructor. Enrollment limited to 15. May be repeated for credit. K. Robertson

144. Social and Political Philosophy. *
A study of selected classical and contemporary writings dealing with topics such as the nature and legitimacy of the liberal state, the limits of political obligation, and theories of distributive justice and rights. (Also offered as Legal Studies 144. Students cannot receive credit for both courses.) Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C. Offered in alternate academic years. The Staff

147. Topics in Feminist Philosophy. *
Topics in feminist philosophy, which may include: the nature of feminist philosophy, feminist approaches to philosophical issues, social and political philosophy, theories of knowledge, ethics, aesthetics, and science, technology, and medicine studies. Presupposes

some familiarity with philosophy or feminist scholarship. (Also offered as Feminist Studies 168. Students cannot receive credit for both courses.) Prerequisite(s): course 9; and course 11 or 22 or 24; and course 100A or 100B or 100C. J. Hoy

148. The Holocaust and Philosophy. W
By using the historiography of the Holocaust as a case study, examines the epistemology and ontology of historical knowledge, i.e., how the past is known, and what about it there is to know. Prerequisite(s): course 9; and course 11 or 22 or 24; and course 100A or 100B or 100C. Enrollment restricted to juniors and seniors. P. Roth

152. Aesthetics. *
Problems about form, meaning, and interpretation in art, as found in major aesthetic theories from the philosophical tradition, and also in a variety of encounters between recent philosophy and the arts. Prerequisite(s): course 100A or 100B or 100C. (General Education Code(s): A.) S. Matherne

153. Philosophy of Race. *
Topics include conceptual-analytical and political-social issues. Selected topics may include: the ontology of race; race as real or constructed; scientific understandings of race; race and identity; and color-blind versus color-sensitive theories of justice and political policy. Prerequisite(s): course 9; course 11 or 22 or 24; course 100A or 100B or 100C; or consent of instructor. R. Winther

170. The Interpretation of Religion. *
A study of different philosophical responses to religious belief and practice, from the classical "proofs" of religion, to skeptical critiques of religious experience, to conceptual issues in the interpretation of religious texts. Prerequisite(s): course 9; and course 11 or 22 or 24; and course 100A or 100B or 100C. The Staff

171. Faith and Reason. F
Recent work in analytic philosophy of religion, concentrating on traditional theism. Topics include arguments for and against the existence of God, religious experience, miracles, the relation of faith and reason, and problems such as freedom and divine foreknowledge. Prerequisite(s): course 9; and course 11 or 22 or 24; and course 100A or 100B or 100C. R. Otte

180R. Readings in Philosophy (2 credits). *
Discussion-based course centered on readings in philosophy. Readings change each term and are a mixture of books, chapters from books, and articles. Prerequisite(s): One philosophy course. Enrollment by permission of instructor. Enrollment limited to 20. May be repeated for credit. R. Winther, R. Otte

190. Senior Seminar. F,W,S
Special topics. Format varies each quarter. Prerequisite(s): course 9; course 11 or 22 or 24; and two from courses 100A, 100B, and 100C. Enrollment restricted to senior philosophy majors and by permission of instructor. May be repeated for credit. (F) A. Stone, (F) J. Dinishak, (F) N. Orlandi, (W) R. Otte, (W) R. Winther, (S) J. Ellis, (S) S. Matherne

195A. Senior Essay. F,W,S
Preparation of senior essay (approximately 25 pages) during one quarter. Students submit petition to sponsoring agency. The Staff

195B. Senior Essay. F,W,S
Under exceptional circumstances, a second senior essay continuing the work of the first essay is permitted but only when the first senior essay has been completed. Students submit petition to sponsoring agency. The Staff

199. Tutorial. F,W,S
May be repeated for credit. The Staff

199F. Independent Study (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

202. Topics in Ancient Greek Philosophy. *
Topics will vary each quarter and will focus on some major ancient Greek philosophical figure or work. Enrollment restricted to philosophy graduate students. Enrollment limited to 20. J. Bowin

203. Autism. *
Explores autism and its implications for various fields of inquiry, especially philosophy. Previous familiarity with autism is not presupposed. Some background in philosophy of mind, cognitive science, and psychology recommended. Enrollment restricted to graduate students. Enrollment limited to 25. J. Dinishak

214. Probability and Confirmation. *
Studies the philosophical foundations of probability, induction, and confirmation. Different interpretations of probability studied, and solutions to various problems and paradoxes investigated. Enrollment restricted to graduate students. R. Otte

219. Intermediate Logic. *
Natural deduction and semantics of first order predicate logic. Metatheory, including completeness theorems for propositional and predicate logic. Prerequisite(s): course 9. Enrollment restricted to graduate students. (S) The Staff

222. Metaphysics. *
Advanced introduction to topics in 20th century and contemporary analytic metaphysics. Divided into five main parts dealing, respectively, with issues about the nature of existence, properties, time, change and persistence, and material constitution. Enrollment restricted to philosophy graduate students. J. Ellis, R. Winther, A. Stone

224. Philosophy of Language. *
Advanced introduction to issues in the philosophy of language—primarily concerning the nature of reference, meaning, and truth. Works from such 20th-century figures as Russell, Wittgenstein, Kripke, Lewis, and Putnam discussed. Topics include what it is for a sign or a bit of language to be meaningful, or for it to identify or represent something; what it is for a statement to be truthful; what it is to be a language; and how reference works when attributed to beliefs. Enrollment restricted to philosophy graduate students. M. Hicks

231. Metaphysics and Epistemology. *
Focuses on topic or topics in metaphysics and/or epistemology. May focus on topics such as perception, naturalized epistemology, probabilistic epistemology, theories of justification, a priori knowledge, and memory. Topics might include one or more of causation, possible worlds, identity, necessity, time, realism, universals, and existence. Enrollment restricted to philosophy graduate students. R. Otte

232. Advanced Topics in Value Theory. *
Considers topics central to philosophical questions about value: ethics, normativity, practical reason, relativism, skepticism, responsibility, motivation, emotion, and so forth. In some instances, the investigation will proceed through influential historical figures, ancient to modern. Enrollment restricted to philosophy graduate students. Enrollment limited to 22. D. Guevara

233. Seminar in Philosophy of Mind. *
A study of one or more topics in contemporary philosophy of mind. Enrollment restricted to graduate students. J. Ellis

235. Philosophy of Psychology. F
Looks at philosophical issues raised by current research on the nature of perception, cognition, and consciousness in psychology and cognitive science. Can there be a science of the mind? Could machines be conscious? Do animals have minds? How did the mind evolve? These and a host of related questions form the subject matter of this course. Prerequisite(s): One course in philosophy, psychology, or linguistics. Enrollment restricted to graduate students. J. Ellis

237. Making Up the Mind. *
How does the mind come to be a thing which science can study? Readings focus on how diagnostic categories, for example, multiple personality disorder, attain scientific cachet and what issues surround the "medicalization" of the mind. Enrollment restricted to graduate students. P. Roth

239. Philosophy of Religion. *
Investigation of various topics in philosophy of religion. Enrollment restricted to philosophy graduate students or by permission of instructor. Enrollment limited to 20. May be repeated for credit. R. Otte

252. Poststructuralism. *
French poststructuralism, with particular attention to the main philosophical texts of Jacques Derrida and Michel Foucault. Other representative theorists as well as critics of poststructuralism are studied as time permits. (Also offered as History of Consciousness 252. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. May be repeated for credit. R. Winther

270. Research Seminar. W
A research seminar to develop the skills of the profession with special focus on critical reading, constructing feedback, and philosophical research and writing. Must be completed by the third year. A substantial draft of a paper is required to enroll. Enrollment restricted to philosophy graduate students. Enrollment limited to 10. May be repeated for credit. R. Otte

280. Graduate Colloquia Course (2 credits). F,W,S
This colloquia series sponsors speakers each quarter. Students must attend all colloquia and are encouraged to form discussion groups after each lecture. Enrollment restricted to philosophy graduate students. The Staff

290A. Philosophy of History. S
Examines issues that arise with respect to constructing histories. Inter alia, these include: the traditional philosophy of history (e.g., Hegel and Marx); modes of explanation (including narrative); the reality of the past; and underdetermination in history. Prerequisite(s): Enrollment restricted to graduate students. Enrollment limited to 10. P. Roth

290C. Advanced Topics in Ethics. *
Topics vary but the course focuses on major questions in contemporary ethical theory, or figures influential on contemporary moral philosophy. Examines different foundational ethical principles and arguments for those principles, contrasting accounts of moral action and moral motivation, as well as the epistemological and motivational role of emotions in ethical theory. (Formerly Advanced Topics in Contemporary Ethics.) Enrollment restricted to philosophy graduate students. D. Guevara

290F. Topics in Philosophy of Biology. *
Philosophy of biology is one of the fastest-growing areas of philosophy of science. Course is designed to give seniors and graduate students an overview of many of the diverse topics currently under discussion in modern philosophy of biology and provide a foundation for further research, regardless of previous experience with the biological sciences. Enrollment restricted to graduate students. May be repeated for credit. R. Winther

290H. Environmental Ethics. W
What is our proper moral stance toward the natural environment? This question encompasses our ethical relations to individual non-human animals, to other species of living beings, and toward the biotic community as a whole. It leads us to consider the broader question: What makes anything at all worthy of our moral respect or even our moral consideration? How are we to understand the very idea of the environment, the distinction between the human world, and the natural world, and the relationships between them. Enrollment restricted to graduate students. D. Guevara

290J. Advanced Topics in the History of Ethics. *
Careful study of any one of the main moral theories in the history of philosophy, with some emphasis on the relation to contemporary moral philosophy. Enrollment restricted to graduate students. D. Guevara

290K. Philosophical Matters of Scientific Practice. *
Considers the relevance of philosophical matters to the practice of science. Using quantum physics as a case study, explores historical and contemporary perspectives on issues such as those raised by the Schrodinger cat paradox, Bell's inequalities, and quantum erasers. Enrollment restricted to graduate students. K. Barad, R. Winther

290P. Major Figures in Contemporary Philosophy. F
Focuses on philosophical writings and significance of a single figure in contemporary (20th- and 21st-century) philosophy. May include, but not be limited to, Russell, Whitehead, Wittgenstein, Husserl, Carnap, Murdoch, Quine, Irigaray, Derrida, and Davidson. Enrollment restricted to philosophy graduate students. May be repeated for credit. S. Matherne

290Q. Philosophy of Mathematics. *
Introduction to the problems of contemporary analytic philosophy of mathematics. Do mathematical objects exist? Are mathematical statements true? How can we know? We will examine the historical background to contemporary debates and the positions which have been taken within them. Enrollment restricted to graduate students. R. Winther, A. Stone

290S. Topics in the Philosophy of Science. *
An examination of a topic in current philosophy of science. The material for the course is chosen from topics such as realism and instrumentalism, scientific explanation, space and time, the confirmation of theories, laws of nature, and scientific abstraction. Enrollment restricted to graduate students. R. Winther

290W. History of Consciousness. *
Historical study of philosophical theories of consciousness and self-consciousness. Problems include the relation of self and other, consciousness and body, and self-consciousness and ethical agency. Readings are from Kant, Hegel, Nietzsche, and Heidegger, followed by phenomenologists, poststructuralists, and analytic philosophy. Enrollment restricted to graduate students. R. Winther

294. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. May be repeated for credit. The Staff

295. Directed Reading. F,W,S
Directed reading which does not involve a term paper. May be repeated for credit. The Staff

295F. Readings in Philosophy (2 credits). F,W,S
Focuses on selected philosophical areas and/or specific philosophers. Students meet with the instructor to discuss readings and deepen their knowledge on a particular subject. Enrollment restricted to graduate students. May be repeated for credit. The Staff

296. Special Student Seminar. F,W,S
A seminar for graduate students arranged between students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

297F. Independent Study (2 credits). F,W,S
Students submit petition to course sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to students who have advanced to candidacy. May be repeated for credit. The Staff

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Physical Education

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East Field House
(831) 459-2531
http://www.ucsc.edu/opers

Faculty | Program Statement

Lower-Division Courses

5A. Aquatics: Swimming Level I (no credit). F,W,S
Coeducational. Water exploration and primary skills development. Course is designed to teach only "non-swimmers" how to swim. The following is taught: Red Cross swimming instruction in overcoming fears, water adjustment, floating, breath holding, and rhythmic breathing. Skills to be learned are: water entries, sculling, treading, elementary backstroke, freestyle, methods of water safety, and survival techniques. Students pay a course fee. Prerequisite(s): instructor determines skill level at first class meeting. Enrollment limited to 15. J. Kimball, The Staff

5B. Aquatics: Swimming Level II (no credit). F,W,S
Coeducational. Stroke readiness and development. Course is for those who have completed Swimming Level I or who can swim freestyle and demonstrate elementary backstroke. Skills to be learned are underwater swimming, turns, improvement of freestyle and elementary backstroke, beginning side stroke, backstroke, breaststroke, diving, personal safety skills, and basic rescue techniques. Prerequisite(s): instructor determines skill level at first class meeting: pass Swimming Level I course or demonstrate equivalent skills. Students pay a course fee. Enrollment limited to 20. The Staff, J. McCallum, J. Kimball

5C. Aquatics: Swimming Level III (no credit). F,W,S
Coeducational. Stroke refinement and skill proficiency. Course teaches refinement of basic strokes and introduces butterfly, plus backstroke, surface diving, turns, endurance swimming, and survival techniques. Students pay a course fee. Prerequisite(s): instructor determines skill level at first class meeting: pass in Swimming Level II course or possess equivalent skills in freestyle, sidestroke, elementary backstroke, and breaststroke. Enrollment limited to 30. J. McCallum, The Staff

5D. Aquatics: Swimming Level IV (no credit). F,W,S
Coeducational. Advanced skills. Designed to perfect the techniques and skills of all basic strokes plus butterfly, surface dives, survival swimming, basic diving, endurance swimming, and personal and rescue skills. Students pay a course fee. Prerequisite(s): pass in Swimming Level III course or possess equivalent swimming skill requirements in freestyle, backstroke, sidestroke, or competitive swimming; instructor determines skill level. Enrollment limited to 30. J. McCallum, The Staff

5E. Aquatics: Lifeguard Training (LT) (no credit). F,S
Red Cross certified lifeguard training. Provides the necessary minimum skills training to qualify as a non-surf lifeguard. Certification includes CPR Pro, AED, PDT, D2, ADMIN, and

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Title 22 First Aid. Candidates must successfully pass final skill tests and written final exam with 80 percent score. Students pay a course fee. Prerequisite(s): must have ability to swim 500 yards in ten minutes, tread water for one minute, strong swimming skills in free, back, breast, side, and elementary backstroke; must purchase Red Cross LT text book. Enrollment limited to 10. K. Musch, J. McCallum

5F. Water Safety Instructor (WSI) (no credit). S
Coeducational. A Red Cross course designed to certify students who complete all required work as swimming instructors. Instruction in teaching techniques, stroke analysis, skilled swimming, class organization, pool safety, and pool maintenance. Practice teaching assignments outside of class with practical and written final exams. Screening test given at first class meeting. Prerequisite(s): must be 17 years old, possess valid ARC Instructor Candidate Training card (ICT), and ARC swimmers-level skills. (Emergency Water Safety (EWS), or Lifeguard Training (LT) certificate is highly recommended). Students pay a course fee. Enrollment limited to 10. K. Musch, J. McCallum

5G. Aquatics: Swimming/Conditioning (no credit). F,W,S
Open to all students who wish to explore swimming as a conditioning and fitness exercise. Students should know three competitive strokes, and should be able to swim fifteen minutes without stopping. Short health and fitness lectures precede some classes. Students pay a course fee. Prerequisite(s): instructor determination at first class meeting. Enrollment limited to 40. The Staff, K. Musch, J. McCallum

5H. Aquatics: Competitive Swimming (no credit). W
Emphasis on competitive swimming and conditioning techniques. For students who want instruction at the competitive level of swimming. Three hours per week. Students pay a course fee. Prerequisite(s): instructor determination at first class meeting. Enrollment limited to 50. K. Musch

5R. Aquatics: Basic Scuba Diving (no credit). F,W,S
Coeducational. Sections geared toward the successful completion of NAUI Scuba Diver Certification. The course is divided into three parts: lecture, pool lab, and open water experience. Four open water training dives are offered. Emphasis is on training for open water scuba diving, using the beach as a base of operation. Students pay a course fee. Prerequisite(s): pass swimming skills tests and medical clearance. It is strongly recommended that students enroll in course 5S. Enrollment limited to 24. C. Shin

5S. Aquatics: Advanced Scuba Diving (no credit). F,W,S
Coeducational. Sections are offered to facilitate the development of the basic scuba diver's open water techniques. A minimum of six open water experiences is offered. Course is geared toward successful completion of NAUI Advanced Scuba Diver Certification. Students pay a course fee. Prerequisite(s): course 5R or pass swimming skills test and medical clearance. (Formerly course 5T.) Enrollment limited to 25. C. Shin

5T. Scuba Rescue Diving (no credit). F,W,S
Coeducational. Course geared toward the successful completion of NAUI Rescue Diver Certification. Course consists of lecture, pool laboratory, and open-water experience. Emphasis is on training divers to manage risks and effectively handle limited in-water problems. Students pay a course fee. Prerequisite(s): Scuba certification and medical clearance. Enrollment limited to 10. C. Shin

9B. Boating: Beginning Dinghy Sailing (no credit). F,W,S
Coeducational. Introductory course in practical boating safety using 15-foot sailboats. Includes introduction to rigging, nomenclature, seamanship, proper boat-handling techniques, and general boating and aquatic safety. Satisfactory completion meets prerequisites for intermediate-level dinghy course. Students pay a course fee. Prerequisite(s): swimming ability. (Formerly Boating: Basic Sailing) Enrollment limited to 18. H. Scheer, R. Kingon

9C. Boating: Intermediate Dinghy Sailing (no credit). F,W,S
Coeducational. Course includes a review of basic sailing with an emphasis on the further development and refinement of small-boat sailing techniques. Fifteen-foot sailboats are used with two students per boat. Students pay a course fee. Prerequisite(s): course 9B or equivalent skills. Enrollment limited to 16. H. Scheer, R. Kingon

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Teaching and Administrative Staff

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Nondiscrimination Statement

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9D. Boating: Advanced Dinghy Sailing (no credit). F,W,S
Coeducational. For students interested in high-performance sailing using Flying Juniors and Coronado 15s. Includes special techniques used in racing conditions. Students pay a course fee. Prerequisite(s): course 9C or equivalent skills. Enrollment limited to 12. H. Scheer, R. Kingon

9H. Boating: Basic Rowing (no credit). F,W,S
Coeducational. Course designed to cover types of rowing boats, nomenclature, fundamental skills, and specific safety and rescue aspects related to the activity. Students will row singly as well as in groups using 15-foot to 22-foot rowing dories. (Formerly course 9J.) Students pay a course fee. Prerequisite(s): swimming ability. Enrollment limited to 12. R. Kingon

9J. Boating: Intermediate Rowing (no credit). F,W,S
Coeducational intermediate course designed to cover more advanced rowing techniques and the skills needed for safe open water rowing. Students pay a course fee. Prerequisite(s): basic rowing or permission of instructor. (Formerly course 9H.) Enrollment limited to 11. R. Kingon, The Staff

9K. Boating: Ocean Kayaking (no credit). F,S
Co-educational course that teaches novice kayakers the skills to safely use UCSC kayaks in the Monterey Bay. Topics include: basic paddling strokes and maneuvers; self and assisted deep-water rescues; beach launching; landing through surf; and marine hazards and navigation. Students pay a course fee. Enrollment limited to 12. R. Kingon, D. Johnston

9S. Boating: Beginning Keelboat Sailing (no credit). F,W,S
Coeducational. Combines hands-on rigging and docking practice in the harbor and sailing practice on Monterey Bay with instruction in sail-trimming, de-powering, powering-up, person-overboard recovery techniques, boating safety, weather, ocean conditions, sailing theory, rigging, navigation, and the maritime rules of the road. Twenty-seven foot, ultralight, displacement keelboats are used. Students pay a course fee. (Formerly Boating: Intermediate Keelboat Sailing.) Prerequisite(s): course 9C or equivalent skills. Enrollment limited to 16. H. Scheer, R. Kingon

9T. Boating: Intermediate Keelboat Sailing (no credit). F,S
Coeducational. Further development and refinement of boat-handling techniques, including advanced maneuvering, anchoring, and racing with an introduction to the use of spinnakers. Students pay a course fee. (Formerly Boating: Advanced Keelboat Sailing.) Prerequisite(s): course 9S. Enrollment limited to 12. H. Scheer, R. Kingon

9X. Boating: Advanced Keelboat Sailing (no credit). F,W,S
Coeducational. Designed for the experienced sailor who desires to bareboat larger vessels in the future. Topics include: ocean navigation; anchoring techniques; boat systems, such as diesel engines; boat plumbing and electronics; and docking. Prerequisite(s): course 9T and 40 or more hours of club keelboat useage. Enrollment by permission of instructor. Students pay a course fee. Enrollment limited to 4. H. Scheer, R. Kingon

15B. Court Sports: Basketball (no credit). F,W,S
Coeducational. Instruction in fundamentals, offensive and defensive strategies, rules, and conditioning designed primarily for beginning and intermediate level players. Students pay a course fee. Enrollment limited to 20. The Staff

15H. Court Sports: Racquetball (no credit). F,W,S
Coeducational. The beginning section provides an introduction to the basic knowledge and skills involved in this indoor racquet sport. The advanced beginning section continues the development of the basic skills emphasizing increased shot variety and advanced strategy. The intermediate section offers the opportunity for further skill development and introduces more advanced offensive skills. Students pay a course fee. Enrollment limited to 18. The Staff, C. George, J. Bardos

15N. Court Sports: Tennis (no credit). F,W,S
Coeducational. The beginning section introduces the basics of forehand, backhand, and serve. Advanced beginning section reviews these basics and introduces the volley, overhead, and lob. The intermediate section reviews all stroke mechanics and covers basic singles and doubles strategy. The advanced section includes use of spins, practice

principles, detailed stroke analysis, and advanced play situations. Competitive Tennis is a year-long program for members of the intercollegiate tennis teams. Students pay a course fee. Enrollment limited to 24. The Staff

15T. Court Sports: Volleyball (no credit). F,W,S
Coeducational. Beginning/intermediate, intermediate, and advanced sections are offered for students who desire to learn and improve the basic skills, as well as to understand the rules. Competitive section is open to students interested in participation in the UCSC NCAA Women's Volleyball team. It covers information and practice in all aspects of the competitive volleyball season. Students pay a course fee. Enrollment limited to 25. T. Hollenbeck, The Staff

20A. Dance: Ballet (no credit). F,W,S
Coeducational. Sections offered at various technical levels graded from I to III. Emphasis on principles of movement, style, and execution of ballet technique. Section in ballet repertory where advanced students have the opportunity to perform is offered in the spring quarter. Students pay a course fee. L. Norris, The Staff

20B. International Folk Dance (no credit). F,W,S
Coeducational. International folk dance with an emphasis on Balkan and Israeli dances. Sections are also offered periodically in Mexican dance. Students pay a course fee. R. Cochlin

20C. Dance: Jazz (no credit). F,W,S
Coeducational. Sections offered at various technical levels graded from I to III. Exploration of jazz dance emphasizing basic technique, styling, rhythm, and isolations. Jazz and contemporary music is used as accompaniment. Some background in ballet strongly recommended before continuing to Jazz II or III. Section in jazz dance repertory where advanced students have the opportunity to perform is offered in spring quarter. Students pay a course fee. Enrollment limited to 40. L. Norris, The Staff

20D. Dance: Modern (no credit). F,W,S
Coeducational. Sections offered at various technical levels graded from I to III. Emphasis on basic techniques and building phrases of movement. Section in choreography and improvisation offered in spring quarter. Section in dance repertory offered periodically. Students pay a course fee. R. Cochlin, The Staff

20F. Dance: Individual Studies in Dance (no credit). F,W,S
Coeducational. Designed to give students the opportunity of pursuing their particular interests in the field of dance with the support and direction of a faculty member. Prerequisite(s): instructor determination at first class meeting. L. Norris, R. Cochlin

25A. Fencing: Epee (no credit). F,W,S
Coeducational. Basic instruction in the techniques, strategy, and general methodology of modern fencing. Emphasis on épée fencing as a development from the traditional French and Italian dueling sword styles as they have evolved to form the modern electrical game. Students pay a course fee. The Staff

25B. Fencing: Foil (no credit). F,W,S
Coeducational. Instruction in modern competitive French-Italian foil techniques for beginning, intermediate, and advanced levels. Emphasis on physical and mental conditioning leading to improved skill in recreational and competitive areas of involvement. Students pay a course fee. The Staff

25C. Fencing: Sabre (no credit). F,W,S
Coeducational. Instruction and practice in basic offensive and defensive skills of modern Hungarian sabre technique. Emphasis on physical and mental conditioning as a foundation for more advanced levels of instruction. Preparation for recreational and competitive involvement. Students pay a course fee. The Staff

28K. Field Sports: Soccer (no credit). F,W,S
Coeducational/Women's. Sections are offered in field soccer and indoor soccer. Instruction in the basic techniques, tactics, laws of the game, and injury prevention for beginners and advanced players. Students pay a course fee. Prerequisite(s): determination at first class meeting. M. Runeare, The Staff

30G. Fitness Activities: Physical Conditioning (no credit). F,W,S
Coeducational. An exercise course designed to increase the participants' strength, flexibility, coordination, and cardiovascular endurance. Special attention is given to understanding and utilizing sound and safe principles of body alignment and movement. Courses include, but not limited to: Pilates, cardio boxing, stretch and strengthen, and aerobics. Students pay a course fee. The Staff, R. Cochlin, C. Mori

30H. Fitness Activities: T'ai Chi Ch'uan (no credit). F,W,S
Through balanced movement and breath control, T'ai Chi Ch'uan attempts to forestall many processes of aging by cultivating greater strength of body, mind, and spirit. Students pay a course fee. The Staff

30J. Fitness Activities: Strength Training (no credit). F,W,S
Coeducational. An introduction to safe and effective methods of weight training and other personal conditioning activities. Topics covered include proper weight-training techniques, care of body and equipment, and elementary exercise physiology. Students pay a course fee. (Formerly Fitness Activities: Weight Training .) C. Mori, The Staff

30L. Fitness Activities: Yoga Exercises (no credit). F,W,S
Coeducational. Sections offered at beginning, continuing beginning, and advanced beginning levels of Hatha Yoga. Students pay a course fee. The Staff, R. Cochlin, C. Mori, J. Kimball

30N. Self-Defense Basics (no credit). S
Self-defense is a simple, effective approach to maximize personal safety requiring no prior skill, knowledge, or physical fitness. Practice includes basic physical and verbal assertiveness skills appropriate for a wide range of situations including acquaintance and stranger assaults. Physical conditioning is an integral part of the course. (Formerly Women's Self-Defense.) The Staff

43A. Martial Arts: Aikido (no credit). F,W,S
Coeducational. A nonviolent, noncompetitive Japanese martial art emphasizing mind-body harmony, balance, relaxation, and the understanding of vital energy. Aikido self-defense techniques aim toward the creative resolution of conflict and the growth of the individual. Sections offered at beginning and experienced levels. Students pay a course fee. Y. Shibata

43G. Martial Arts: Tae Kwon Do (no credit). F,W,S
Coeducational. Sections offered at the beginning and intermediate/advanced levels. Covering basic skills, knowledge, and philosophy of Tae Kwon Do and providing instruction in the following aspects of martial arts study: fundamental techniques of self-defense, physical conditioning, emotional control, self-discipline, and self-confidence. Students pay a course fee. (Formerly Martial Arts: Tae Kwon Do (Karate).) Enrollment limited to 35. The Staff

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Physics

2014-15 General Catalog

211 Interdisciplinary Sciences Building
(831) 459-3744
http://physics.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

1. Conceptual Physics. S
Topics in classical and quantum physics and their relation to physical phenomena in the world around us, including modern electronics. Concepts are stressed, but some practical calculational techniques are developed. Working knowledge of high school algebra and geometry is essential. (General Education Code(s): SI, IN, Q.) G. Laughlin

2. Elementary Physics of Energy. W
The physics of energy developed in a course accessible to non-science majors as well as science majors. Fundamental principles and elementary calculations, at the level of basic algebra, developed and applied to the understanding of the physics of energy. Topics include fossil fuels, renewable energy, solar cells and waste energy, waste-energy recovery, nuclear power, and global greenhouse effects. (General Education Code(s): PE-E.) S. Carter

5A. Introduction to Physics I. F
Elementary mechanics. Vectors, Newton's laws, inverse square force laws, work and energy, conservation of momentum and energy, and oscillations. Prerequisite(s): concurrent enrollment in course 5L and Mathematics 19A or 20A is required. Enrollment restricted to biochemistry and molecular biology, chemistry, Earth sciences, engineering, and physics majors, minors, and proposed majors. (General Education Code(s): MF, IN, Q.) J. Nielsen

5B. Introduction to Physics II. W
A continuation of 5A. Wave motion in matter, including sound waves. Geometrical optics, interference and polarization, statics and dynamics of fluids. Prerequisite(s): courses 5A/L and Mathematics 19A or 20A; concurrent enrollment in course 5M is required. Corequisite: Mathematics 19B or 20B. (General Education Code(s): SI, IN.) G. Gweon

5C. Introduction to Physics III. S
Introduction to electricity and magnetism. Electromagnetic radiation, Maxwell's equations. Prerequisite(s): courses 5A/L and Mathematics 19B or 20B. Concurrent enrollment in course 5N is required. (General Education Code(s): SI, IN.) A. Sher

5D. Introduction to Physics IV. F
Introduces temperature, heat, thermal conductivity, diffusion, ideal gases, laws of thermodynamics, heat engines, and kinetic theory. Introduces the special theory of relativity and the equivalence principle. Includes the photoelectric effect, the Compton effect, matter waves, atomic spectra, and the Bohr model. (Formerly Heat,

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Thermodynamics, and Kinetics) Prerequisite(s): courses 5A/L or 6A/L and Mathematics 19B or 20B. T. Jeltema

5I. Introduction to Physics Honors I (2 credits). *
Weekly 90-minute section covering advanced and modern topics. Topics may include the theory of relativity; complicated dynamics (air resistance, planetary dynamics, etc.); fallacies in perpetual-motion machines; the Euler disk and unusual tops; elasticity of materials applied to structures. Concurrent enrollment in course 5A is required. M. Dine

5J. Introduction to Physics Honors II (2 credits). *
Weekly 90-minute section covering advanced and modern topics. Topics may include nonlinear oscillators and chaos; waves in deep water and inside the earth; redshift in astronomy; negative refractive index materials; photons and matter waves; holography; viscosity; and turbulence. Concurrent enrollment in course 5B is required. M. Dine

5K. Introduction to Physics Honors III (2 credits). *
Weekly 90-minute section covering advanced and modern topics. Topics may include atmospheric electricity; shielding; tensor polarization; alternative energy sources; semiconductor devices; particle accelerators and relativistic electrodynamics; Thomson scattering; digital and analog communication. Concurrent enrollment in course 5C is required. The Staff

5L. Introduction to Physics Laboratory (1 credit). F
Laboratory sequence illustrating topics covered in course 5A. One three-hour laboratory session per week. Prerequisite(s): concurrent enrollment in course 5A is required. The Staff

5M. Introduction to Physics Laboratory (1 credit). W
Laboratory sequence illustrating topics covered in course 5B. One three-hour laboratory session per week. Prerequisite(s): courses 5A/L; concurrent enrollment in course 5B is required. The Staff

5N. Introduction to Physics Laboratory (1 credit). S
Laboratory sequence illustrating topics covered in course 5C. One three-hour laboratory session per week. Prerequisite(s): courses 5A/L. Concurrent enrollment in 5C is required. Courses 5B/M recommended. The Staff

6A. Introductory Physics I. F,W,S
Elementary mechanics. Vectors, Newton's laws, inverse square force laws, work and energy, conservation of momentum and energy, and oscillations. Prerequisite(s): Concurrent enrollment in course 6L required. Corequisite(s): Mathematics 11A or 19A or 20A or Applied Mathematics and Statistics 15A. (General Education Code(s): MF, IN, Q.) (S) D. Smith, (FW) A. Steinacker

6B. Introductory Physics II. W,S
A continuation of 6A. Geometric optics; statics and dynamics of fluids; introduction to thermodynamics, including temperature, heat, thermal conductivity, and molecular motion; wave motion in matter, including sound waves; introduction to electricity and magnetism. Prerequisite(s): course 5A/L or 6A/L; and Mathematics 11A or 19A or 20A or Applied Mathematics and Statistics 15A . Corequisite(s): Mathematics 11B or 19B or 20B. (General Education Code(s): SI, IN.) (W) A. Sher, (S) Z. Schlesinger, (S) B. Schumm

6C. Introductory Physics III. F,S
Introduction to electricity and magnetism. Elementary circuits; Maxwell's equations; electromagnetic radiation; interference and polarization of light. Prerequisite(s): courses 5A/L or 6A/L, and Mathematics 11B or 19B or 20B or Applied Mathematics and Statistics 15B. (General Education Code(s): SI, IN.) (F) J. Deutsch, (S) A. Steinacker

6L. Introductory Physics Laboratory (1 credit). F,W,S
Laboratory sequence illustrating topics covered in course 6A. One three-hour laboratory session per week. Prerequisite(s): Previous or concurrent enrollment in course 6A required. The Staff

6M. Introductory Physics Laboratory (1 credit). W,S
Laboratory sequence illustrating topics covered in course 6B. One three-hour laboratory session per week. Prerequisite(s): courses 5A, 6A, or 7A and 5L, 6L or 7L; and previous or concurrent enrollment in course 6B. The Staff

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6N. Introductory Physics Laboratory (1 credit). F,S
Laboratory sequence illustrating topics covered in course 6C. One three-hour laboratory session per week. Prerequisite(s): courses 6A and 6L; previous or concurrent enrollment in course 6C; courses 6B and 6M are recommended. The Staff

11. The Physicist in Industry (2 credits). W
One two-hour meeting per week. Subjects include roles of the physicist in industry, the business environment in a technical company, economic considerations, job hunting, and discussions with physicists with industrial experience. Enrollment by permission of instructor. Priority given to applied physics upper-division students; other majors if space available. Enrollment limited to 15. The Staff

42. Student-Directed Seminar.
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

102. Modern Physics. W
Topics in quantum physics including the Schrodinger equation; angular momentum and spin; the Pauli exclusion principle; and quantum statistics. Applications in multi-electron atoms and molecules, and in solid-state, nuclear, and particle physics. Prerequisite(s): courses 5A/L, and 5B/M, and 5C/N and 5D; or 6A/L, and 6B/M, and 5D; or equivalent. D. Belanger

105. Mechanics. F
Particle dynamics in one, two, and three dimensions. Conservation laws. Small oscillations, Fourier series and Fourier integral solutions. Phase diagrams and nonlinear motions, Lagrange's equations, and Hamiltonian dynamics. Prerequisite(s): courses 5A/L and 116A-B. G. Gweon

107. Introduction to Fluid Dynamics. F
Covers fundamental topics in fluid dynamics: Euler and Lagrange descriptions of continuum dynamics; conservation laws for inviscid and viscous flows; potential flows; exact solutions of the Navier-Stokes equation; boundary layer theory; gravity waves. Students cannot receive credit for this course and Applied Mathematics and Statistics 217. (Also offered as Applied Math and Statistics 107. Students cannot receive credit for both courses.) Prerequisite(s): Mathematics 107 or Physics 116C or Earth and Planetary Sciences 111. The Staff

110A. Electricity, Magnetism, and Optics. W
Maxwell's equations, electrostatics, magnetostatics, induction, electromagnetic waves, physical optics, and circuit theory. Prerequisite(s): 116A-B-C. S. Ritz

110B. Electricity, Magnetism, and Optics. S
Maxwell's equations, electrostatics, magnetostatics, induction, electromagnetic waves, physical optics, and circuit theory. Prerequisite(s): courses 110A and 116C. G. Gweon

112. Thermodynamics and Statistical Mechanics. W
Consequences of the first and second laws of thermodynamics, elementary statistical mechanics, thermodynamics of irreversible processes. Prerequisite(s): course 5D, and course 116C or Applied Mathematics and Statistics 5 or Mathemathics 23A/B. Concurrent enrollment in course 101B or 102 or 116A is required. R. Johnson

115. Computational Physics. S
This course will apply efficient numerical methods to the solutions of problems in the physical sciences which are otherwise intractable. Examples will be drawn from classical mechanics, quantum mechanics, statistical mechanics, and electrodynamics. Students will apply a high-level programming language, such as Mathematica, to the solution of physical problems and develop appropriate error and stability estimates. Prerequisite(s): courses 101B or 102, and 105 and 116A-B-C, or equivalent. Basic programming experience in C or Fortran. No previous experience with Mathematica is required. O. Narayan

116A. Mathematical Methods in Physics. W
Infinite series, power series and asymptotic series, complex numbers and complex functions, topics in linear algebra including vector spaces, matrices and determinants, systems of linear equations, eigenvalue problems and matrix diagonalization, tensor algebra, asymptotic expansions, and special functions defined by integrals.. Prerequisite(s): Mathematics 23A and 23B. T. Jeltema

116B. Mathematical Methods in Physics. S
Fourier series and transforms, ordinary differential equations, calculus of variations, and functions of a complex variable. Prerequisite(s): course 116A and Mathematics 23A and 23B. M. Dine

116C. Mathematical Methods in Physics. F
Series solutions of ordinary equations, Legendre polynomials, Bessel functions, sets of orthogonal functions, partial differential equations, probability and statistics. Prerequisite(s): courses 116A-B and Mathematics 23A and 23B. A. Aguirre

120. Polymer Physics. *
Statistical properties polymers; scaling behavior, fractal dimensions; random walks, self avoidance; single chains and concentrated solutions; dynamics and topological effects in melts; polymer networks; sol-gel transitions; polymer blends; application to biological systems; computer simulations will demonstrate much of the above. Students cannot receive credit for this course and course 240. Prerequisite(s): courses 112 and 116B. Offered in alternate academic years. J. Deutsch

129. Nuclear and Particle Astrophysics. *
The standard model of particle physics; general relativistic cosmology; the early universe and Big Bang nucleaosynthesis; dark matter and structure formation; formation of heavy elements in stars and supernovae; neutrino oscillations; high-enery astrophysics: cosmic rays and gamma-ray astronomy. (Formerly Nuclear and Particle Physics.) Prerequisite(s): courses 5D, and 101B or 102, and Mathematics 23B; students with equivalent course work may contact instructor for permission to enroll. Offered in alternate academic years. The Staff

133. Intermediate Laboratory. F,W
Demonstration of phenomena of classical and modern physics. Development of a familiarity with experimental methods. Special experimental projects may be undertaken by students in this laboratory. Prerequisite(s): course 101A or 102. (General Education Code(s): SR.) (F) S. Carter, (W) B. Schumm

134. Physics Advanced Laboratory. W,S
Individual experimental investigations of basic phenomena in atomic, nuclear, and solid state physics. Prerequisite(s): courses 133, and 101B or 102. May be repeated for credit. (W) J. Nielsen, (S) D. Smith

135. Astrophysics Advanced Laboratory. *
Introduction to the techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Offered in some academic years as a multiple-term course: 135A in fall and 135B in winter, depending on astronomical conditions. (Also offered as Astronomy and Astrophysics 135. Students cannot receive credit for both courses.) Prerequisite(s): course 133 and at least one astronomy course. Intended primarily for juniors and seniors majoring or minoring in astrophysics. The Staff

135A. Astrophysics Advanced Laboratory (3 credits). F
Introduction to techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Intended primarily for juniors and seniors majoring or minoring in astrophysics. Offered in some academic years as single-term course 135 in fall, depending on astronomical conditions. (Also offered as Astronomy and Astrophysics 135A. Students cannot receive credit for both courses.) Prerequisite(s): course 133 and at least one astronomy course. G. Brown

135B. Astrophysics Advanced Laboratory (2 credits). W
Introduction to techniques of modern observational astrophysics at optical and radio wavelengths through hands-on experiments. Intended primarily for juniors and seniors majoring or minoring in astrophysics. Offered in some academic years as single-term

course 135 in fall, depending on astronomical conditions. (Also offered as Astronomy and Astrophysics 135B. Students cannot receive credit for both courses.) Prerequisite(s): course 133 and at least one astronomy course. G. Brown

136. Advanced Astronomy Laboratory. S
Introduces the techniques of modern observational astrophysics at optical wavelengths through hands-on experiments and use of remote observatories. Students develop the skills and experience to pursue original research. Course is time-intensive and research-oriented. Prerequisite(s): Earth Sciences 119 and Physics 133. Enrollment restricted to junior and senior astrophysics majors. Enrollment limited to 12. J. Prochaska

139A. Quantum Mechanics. S
The principles and mathematical techniques of nonrelativistic quantum mechanics: the Schrödinger equation, Dirac notation, angular momentum, approximation methods, and scattering theory. Offered in spring. Prerequisite(s): courses 101B or 102, and 116A-B-C. R. Johnson

139B. Quantum Mechanics. F
The principles and mathematical techniques of nonrelativistic quantum mechanics: the Schrödinger equation, Dirac notation, angular momentum, approximation methods, and scattering theory. Offered in fall. Prerequisite(s): courses 101B or 102, and 139A and 116ABC. M. Dine

143. Supervised Teaching (2 credits). *
Supervised tutoring in selected introductory courses. Students should have completed course 101A and 101B as preparation. Students submit petition to sponsoring agency. The Staff

152. Optoelectronics. *
The first half of the course covers the theory of optoelectronics including wave, electromagnetic, and photon optics, modulation of light by matter, and photons in semiconductors. The second half covers applications including displays, lasers, photodetectors, optical switches, fiber optics, and communication systems. Prerequisite(s): courses 101B or 102, and 110A. The Staff

155. Solid State Physics. W
Interatomic forces and crystal structure, diffraction, lattice vibrations, free electron model, energy bands, semiconductor theory and devices, optical properties, magnetism, magnetic resonance, superconductivity. Prerequisite(s): courses 112 and 139A; students with equivalent course work may contact instructor for permission to enroll. Z. Schlesinger

156. Applications of Solid State Physics. S
Emphasizes the application of condensed matter physics to a variety of situations. Examples chosen from subfields such as semiconductor physics, lasers, superconductivity, low temperature physics, magnetism, and defects in crystals. Prerequisite(s): courses 101B or 102. Z. Schlesinger

160. Practical Electronics. *
Provides a practical knowledge of electronics that experimentalists generally need in research. The course assumes no previous knowledge of electronics and progresses according to the interest and ability of the class. Based on weekly lectures. However, with the aid of the instructor, the students are expected to learn mainly through the design, construction, and debugging of electronics projects. Students are billed a materials fee. Prerequisite(s): courses 5C and 5N or 6C and 6N. The Staff

171. General Relativity, Black Holes, and Cosmology. F
Special relativity is reviewed. Curved space-time, including the metric and geodesics, are illustrated with simple examples. The Einstein equations are solved for cases of high symmetry. Black-hole physics and cosmology are discussed, including recent developments. (Also offered as Astronomy and Astrophysics 171. Students cannot receive credit for both courses.) Prerequisite(s): courses 105, 110A, 110B, and 116A/B. H. Haber

180. Biophysics. S
Physical principles and techniques used in biology: X-ray diffraction; nuclear magnetic resonance; statistics, kinetics, and thermodynamics of macromolecules; viscosity and diffusion; DNA/RNA pairing; electrophoresis; physics of enzymes; biological energy

conversion; optical tweezers. (Also offered as Biology: Molecular Cell & Dev 140. Students cannot receive credit for both courses.) Prerequisite(s): course 112; students who have a biochemistry background may contact instructor for permission. Enrollment restricted to juniors and seniors. (General Education Code(s): PR-E.) J. Deutsch

182. Scientific Communication for Physicists. F,W
Explores the communication of physics to a wide range of audiences, including writing articles from the popular to the peer-reviewed level; critically analyzing the communication of scientific discoveries in the media; structuring the physics senior thesis; writing grant applications; assembling a personal statement for job and graduate school application; and assembling and critiquing oral presentations. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to junior and senior majors in physics, astrophysics, applied physics, or physics education. Enrollment limited to 35. (General Education Code(s): W.) (F) D. Belanger, (W) A. Steinacker

191. Teaching Practicum. F,W,S
Designed to provide upper-division undergraduates with an opportunity to work with students in lower division courses, leading discussions, reading and marking submissions, and assisting in the planning and teaching of a course. Prerequisite(s): excellent performance in major courses; instructor approval required; enrollment restricted to senior physics majors. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Prerequisite(s): upper-division standing; submission of a proposal supported by a faculty member willing to supervise. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits).
Tutorial. May be repeated for credit. The Staff

Graduate Courses

205. Introduction to Research in Physics (2 credits). W
Introduction to current research opportunities at UCSC for graduate students. Topics include: elementary particle physics, condensed matter and solid state physics, high energy astrophysics, biophysics, and cosmology. Selected topics related to career development may also be included. Enrollment restricted to graduate students or by permission of instructor. The Staff

210. Classical Mechanics. F
Generalized coordinates, calculus of variations, Lagrange's equations with constraints, Hamilton's equations, applications to particle dynamics including charged particles in an electromagnetic field, applications to continuum mechanics including fluids and electromagnetic fields, introduction to nonlinear dynamics. Enrollment restricted to graduate students only, except by permission of instructor. A. Sher

212. Electromagnetism I. F
Electrostatics and magnetostatics, boundary value problems with spherical and cylindrical symmetry, multipole expansion, dielectric media, magnetic materials, electromagnetic properties of materials, time-varying electromagnetic fields, Maxwell's equations, conservation laws, plane electromagnetic waves and propagation, waveguides and resonant cavities. Enrollment restricted to graduate students only, except by permission of instructor. R. Johnson

214. Electromagnetism II. W
Lorentz covariant formulation of Maxwell's equations, dynamics of relativistic charged particles and electromagnetic fields, scattering and diffraction. Topics in classical radiation theory: simple radiating systems radiation by moving charges, multipole radiation, synchrotron radiation, Cerenkov radiation, bremsstrahlung and radiation damping. Prerequisite(s): course 212. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. O. Narayan

215. Introduction to Non-Relativistic Quantum Mechanics. W

Mathematic introduction; fundamental postulates; time evolution operator, including the Heisenberg and Schrodinger pictures; simple harmonic oscillator and coherent states; one-dimensional scattering theory, including S-matrix resonant phenomena; two-state systems, including magnetic resonance; symmetries, including rotation group, spin, and the Wigner-Eckart theorem; rotationally invariant problems, including the hydrogen atom; gauge invariance, including Landau levels; introduction to path integral. Enrollment restricted to graduate students only, except by permission of instructor. A. Aguirre

216. Advanced Topics in Non-Relativistic Quantum Mechanics. S
Approximate methods: time-independent perturbation theory, variational principle, time-dependent perturbation theory; three-dimensional scattering theory; identical particles; permutation symmetry and exchange degeneracy, anti-symmetric and symmetric states; many-body systems and self-consistent fields: variational calculations; second quantized formalism, including Fock spaces/number representation, field operators and Green functions; applications: electron gas; quantization of the electromagnetic field and interaction of radiation with matter: absorption, emission, scattering, photoelectric effect, and lifetimes. Prerequisite(s): course 215. Enrollment restricted to graduate students only, except by permission of instructor. J. Nielsen

217. Quantum Field Theory I. F
Lorentz invariance in quantum theory, Dirac and Klein-Gordon equations, the relativistic hydrogen atom, Green functions and canonical approach to field theory, quantum electrodynamics, Feynman diagrams for scattering processes, symmetries and Ward identities. Students learn to perform calculations of scattering and decay of particles in field theory. Prerequisite(s): course 216. Enrollment restricted to graduate students only, except by permission of instructor. S. Profumo

218. Quantum Field Theory II. W
Path integral approach to quantum field theory. Theory of renormalization and the renormalization group, introduction to gauge theories and spontaneously broken field theories. Applications to the standard model of strong, weak, and electromagnetic interactions. Prerequisite(s): course 217. Enrollment restricted to graduate students only, except by permission of instructor. H. Haber

219. Statistical Physics. S
The basic laws of thermodynamics, entropy, thermodynamic potentials, kinetic theory of gases, quantum and classical statistical mechanics, virial expansion, linear response theory. Applications in condensed matter physics. Enrollment restricted to graduate students only, except by permission of instructor. S. Shastry

220. Theory of Many-Body Physics. *
Finite temperature Green functions, Feynman diagrams, Dyson equation, linked cluster theorem, Kubo formula for electrical conductivity, electron gas, random phase approximation, Fermi surfaces, Landau fermi liquid theory, electron phonon coupling, Migdal's theorem, superconductivity. Prerequisite(s): courses 216 and 219. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. S. Shastry

221A. Introduction to Particle Physics I. F
First quarter of a two-quarter graduate level introduction to particle physics, including the following topics: discrete symmetries, quark model, particle classification, masses and magnetic moments, passage of radiation through matter, detector technology, accelerator physics, Feynman calculus, and electron-positron annihilation. Prerequisite(s): course 217 or concurrent enrollment. Enrollment restricted to graduate students only, except by permission of instructor. B. Schumm

221B. Introduction to Particle Physics II. *
Second quarter of a two-quarter graduate level introduction to particle physics, including the following topics: nucleon structure, weak interactions and the Standard Model, neutrino oscillation, quantum chromodynamics, CP violation, and a tour of the Stanford Linear Accelerator Center. Prerequisite(s): course 221A; course 217 or concurrent enrollment. Enrollment restricted to graduate students only, except by permission of instructor. J. Nielsen

222. Quantum Field Theory III. *

Focuses on the theoretical underpinnings of the standard model, including the spontaneous symmetry breaking, the renormalization group, the operator product expansion, and precision tests of the Standard Model. Prerequisite(s): courses 218 and 221B. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. T. Banks

224. Particle Astrophysics and Cosmology. *
Particle physics and cosmology of the very early universe: thermodynamics and thermal history; out-of-equilibrium phenomena (e.g., WIMPs freeze-out, neutrino cosmology, Big Bang nucleosynthesis, recombination); baryogenesis; inflation; topological defects. High-energy astrophysical processes: overview of cosmic ray and gamma ray astrophysics; radiative and inelastic processes; astroparticle acceleration mechanisms; magnetic fields and cosmic ray transport; radiation-energy density of the universe; ultrahigh-energy cosmic rays; dark-matter models; and detection techniques. (Formerly Origin and Evolution of the Universe.) (Also offered as Astronomy and Astrophysics 224. Students cannot receive credit for both courses.) Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. T. Jeltema

226. General Relativity. W
Develops the formalism of Einstein's general relativity, including solar system tests, gravitational waves, cosmology, and black holes. (Also offered as Astronomy and Astrophysics 226. Students cannot receive credit for both courses.) Enrollment restricted to graduate students only, except by permission of instructor. S. Profumo

227. Advanced Fluid Dynamics. *
Fundamentals of heat transfer and fluid flow: thermal convection, gravity waves, vortex dynamics, viscous flows, instabilities, turbulence, and compressible flows. Students develop computer program for simulating thermal convection and gravity waves. Vector calculus and computer programming experience required. (Formerly Fluid Dynamics .) An introductory course in fluid dynamics recommended as preparation. Enrollment restricted to graduate students. Offered in alternate academic years. The Staff

231. Introduction to Condensed Matter Physics. F
Crystal structures, reciprocal lattice, crystal bonding, phonons (including specific heat), band theory of electrons, free electron model, electron-electron and electron-phonon interactions, transport theory. Prerequisite(s): course 216. Enrollment restricted to graduate students only, except by permission of instructor. S. Shastry

232. Condensed Matter Physics. W
Magnetism (para, ferro, anti-ferro, ferri), spin waves, superconductivity, introduction to semiconductors. Prerequisite(s): course 231. Enrollment restricted to graduate students only, except by permission of instructor. S. Shastry

233. Advanced Condensed Matter Physics. *
A special topics course which includes areas of current interest in condensed matter physics. Possible topics include superconductivity, phase transitions, renormalization group, disordered systems, surface phenomena, magnetic resonance, and spectroscopy. Prerequisite(s): course 231. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. S. Carter

234. Soft Condensed Matter Physics. *
A selection of topics from: liquid crystals, biological systems, renormalization group and critical phenomena, stochastic processes, Langevin and Fokker Planck equations, hydrodynamic theories, granular materials, glasses, quasicrystals. Prerequisite(s): courses 219 and 232. Enrollment restricted to graduate students. A. Young, O. Narayan

240. Polymer Physics. *
Statistical properties polymers. Scaling behavior, fractal dimensions. Random walks, self avoidance. Single chains and concentrated solutions. Dynamics and topological effects in melts. Polymer networks. Sol-gel transitions. Polymer blends. Application to biological systems. Computer simulations demonstrating much of the above. Students cannot receive credit for this course and course 120. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. J. Deutsch

242. Computational Physics. S

This course will apply efficient numerical methods to the solution of problems in the physical sciences which are otherwise intractable. Examples will be drawn from classical mechanics, quantum mechanics, statistical mechanics, and electrodynamics. Students will apply a high-level programming language such as Mathematica to the solution of physical problems and will develop appropriate error and stability estimates. Prerequisite(s): basic programming experience in C or Fortran. No previous experience with Mathematica is required. Enrollment restricted to graduate students only, except by permission of instructor. O. Narayan

250. Mathematical Methods. *
Probability theory with applications to data analysis, complex variables, Cauchy's residue theorem, dispersion relations, saddle-point type asymptotic methods for integrals, integral transforms, ordinary differential equations and orthogonal polynomials, partial differential equations and boundary value problems, and Greens functions. Integral equations also included if time permits. Enrollment restricted to graduate students. A. Young

251. Group Theory and Modern Physics. S
Finite and continuous groups, group representation theory, the symmetric group and Young tableaux, Lie groups and Lie algebras, irreducible representations of Lie algebras by tensor methods, unitary groups in particle physics, Dynkin diagrams, Lorentz and Poincaré groups. Enrollment restricted to graduate students only, except by permission of instructor. Offered in alternate academic years. H. Haber

290. Special Topics. *
A series of lectures on various topics of current interest in physics at UC Santa Cruz. Enrollment restricted to graduate students only, except by permission of instructor. May be repeated for credit. T. Banks

291A. Cosmology (2 credits). F,W,S
Intensive research seminar on cosmology and related topics in astrophysics: nature of dark matter; origin of cosmological inhomogeneties and other initial conditions of the big bang; origin and evolution of galaxies and large scale structure in the universe. Enrollment restricted to graduate students only, except by permission of instructor. J. Primack

291C. Developments in Theoretical Particle Physics (2 credits). F,W,S
Seminar on the current literature of elementary particle physics, ranging from strong and weak interaction phenomenology to Higgs physics, supersymmetry, and superstring theory. Students may present their own research results. Prerequisite(s): course 218; enrollment restricted to graduate students. May be repeated for credit. M. Dine, H. Haber

291D. Experimental High-Energy Collider Physics (2 credits). F,W,S
Seminar on current results in experimental high-energy particle physics. Topics follow recently published results, including design of experiments, development of particle detector technology, and experimental results from new particle searches, quantum chromodynamics, and properties of heavy flavor quarks. Enrollment restricted to graduate students. May be repeated for credit. J. Nielsen

291E. Applied Physics (2 credits). F,W,S
Intensive research seminar on applied physics and related topics in materials science, including semiconductor devices, optoelectronics, molecular electronics, magnetic materials, nanotechnology, biosensors, and medical physics. Students may present their own research results. Enrollment restricted to graduate students. May be repeated for credit. G. Alers, S. Carter

291F. Experimental High-Energy and Particle Astrophysics Seminar (2 credits). F,W,S
Survey of current research in experimental high-energy and particle astrophysics. Recent observations and development in instrumentation for x-rays, gamma rays, and neutrinos, and evidence for dark matter and other new particles. Students lead discussion of recent papers. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. D. Smith

291G. Condensed Matter Physics Research Seminar (2 credits). F,W,S
Weekly seminar series covering topics of current interest in condensed matter physics. Local and external speakers discuss their work. Enrollment restricted to graduate students. May be repeated for credit. A. Young

292. Seminar (no credit). F,W,S
Weekly seminar attended by faculty and graduate students. Directed at all physics graduate students who have not taken and passed the qualifying examination for the Ph.D. program. Enrollment restricted to graduate students only, except by permission of instructor. The Staff

297. Independent Study. F,W,S
Enrollment restricted to graduate students only, except by permission of instructor. The Staff

298. Theoretical and Experimental Research Project. F,W,S
Enrollment restricted to graduate students only, except by permission of instructor. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to graduate students only, except by permission of instructor. The Staff

* Not offered in 2014-15

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Politics

2014-15 General Catalog

25 Merrill College
(831) 459-2855
politics@ucsc.edu
http://politics.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Politics: Power, Principle, Process, and Policy. F
Systematic introduction to the nature of politics and government, organized around the dynamic relationship between power, principle, and process in democratic politics. Provides historic and contemporary overview; explores the interactions among government, laws, and societies at the national and international levels. (Formerly Democratic Politics.) (General Education Code(s): PE-H, IS.) D. Wirls

3. Keywords: Concepts in Politics. *
Introduces key concepts in political discourse and key debates generated by contested terms such as "powers," "ideology," and "multiculturalism." Students read from canonical texts, feminist scholarship, historical materials, and contemporary cultural and postmodernist writings. (General Education Code(s): IS.) The Staff

4. Citizenship and Action. W
What does a citizen do? Uses political theory to answer this question as it relates to a number of issues, such as voting rights, diversity, gay marriage, and revolution. Draws on texts ranging from Aristotle to contemporary legal and cultural debates, to bear on the relationship of citizen action and identity. Other readings include Thoreau, Ellison, Rousseau, Marx, Arendt, and Socrates. (General Education Code(s): TA, IS.) D. Mathiowetz

10. Nationalism. *
Surveys contemporary academic approaches to the study of nationalism and writings of nationalist theorists from the 18th through 20th centuries. A few historical cases are considered. (General Education Code(s): TA.) M. Thomas

17. U.S. and the World Economy. *
Explores intellectual and empirical trends shaping the U.S. relationship with the global economy. Traces debates about liberalism and interventionism, surveys post-war American foreign economic policy and discusses varieties of capitalism emerging around the world. (General Education Code(s): IS.) R. Schoenman

20. American Politics. S
Introduces the study of politics through an analysis of the United States political system and processes. Topics vary, but may include political institutions, public policies, parties

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

and electoral politics, and social forces. Satisfies American History and Institutions Requirement. (General Education Code(s): TA, IS.) E. Bertram

60. Comparative Politics. F
Introduces the study of politics through the analysis of national political systems within or across regions from the developing world to post-industrial nations. Typical topics include: authoritarian and democratic regimes; state institutions and capacity; parties and electoral systems; public policies; social movements; ethnic conflict; and globalization. (General Education Code(s): CC, IS.) E. Pasotti

65. Introduction to International Relations. *
Surveys major theories of international relations including realism, liberal institutionalism, constructivism, and newer approaches focused on problems of asymmetric warfare. Examines problems of nuclear proliferation, international terrorism, global trade conflict, climate change, and humanitarian intervention. (General Education Code(s): CC.) The Staff

70. Global Politics. S
Can common global interest prevail against particular sovereign desires? Surveys selected contemporary issues in global politics such as wars of intervention, ethnic conflict, globalization, global environmental protection, and some of the different ways in which they are understood and explained. (General Education Code(s): PE-H, IS.) R. Lipschutz

Upper-Division Courses

103. Feminist Interventions. W
Situates ongoing debates around feminist theory and practice within the context of political theory, the role of the state, and the position of women in contemporary (predominantly Western) society. Engages with classical political theory, second wave feminism, and the role of the state on matters pertaining to pornography and prostitution. Enrollment restricted to politics, legal studies, and Latin American and Latino studies/politics combined majors during priority enrollment only. V. Seth

105A. Ancient Political Thought. F
Ancient political ideas in context of tension between democracy and empire, emergence of the psyche, and shift from oral to written culture. Emphasis on Athens, with Hebrew, Roman, and Christian departures and interventions. Includes Sophocles, Thucydides, Socrates, Plato, Aristotle, Stoics, the Bible, and Augustine. (Also offered as Legal Studies 105A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. D. Mathiowetz

105B. Early Modern Political Thought. W
Studies republican and liberal traditions of political thought and politics. Authors studied include Hobbes, Locke, and Rousseau. Examination of issues such as authorship, individuality, gender, state, and cultural difference. (Also offered as Legal Studies 105B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. V. Seth

105C. Modern Political Thought. S
Studies in 19th- and early 20th-century theory, centering on the themes of capitalism, labor, alienation, culture, freedom, and morality. Authors studied include J. S. Mill, Marx, Nietzsche, Foucault, Hegel, Fanon, and Weber. (Also offered as Legal Studies 105C. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. M. Thomas

106. Marxism as a Method. *
Examines Marx's use of his sources in political philosophy and political economy to develop a method for analyzing the variable ways in which social change is experienced as a basis for social action. Provides a similar analysis of contemporary materials. Contrasts and compares Marxian critiques of these materials and readings based on Nietzsche, psychoanalysis, cultural studies, and rational choice materialism. (Also offered as Legal Studies 106. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

109. Orientalism. S

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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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Studies "Orientalism" as a concept of political theory and as a historical practice. Considers how "Western" views of the peoples, cultures, and governments of 'the East" influenced political, intellectual, and aesthetic projects of the 18th and 19th centuries, with attention to the themes of colonialism, nationalism, language, and gender. Also considers Orientalism as a subject of post-colonial thought. Prerequisite(s): course 105A, or 105B, or 105C, or 105D; or by permission of instructor. Enrollment restricted to politics majors. M. Thomas

110. Law and Social Issues. F
Examines current problems in law as it intersects with politics and society. Readings are drawn from legal and political philosophy, social science, and judicial opinions. (Also offered as Legal Studies 110. Students cannot receive credit for both courses.) Enrollment restricted to politics, legal studies, and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

111A. Constitutional Law. W
An introduction to constitutional law, emphasizing equal protection and fundamental rights as defined by common law decisions interpreting the 14th Amendment, and also exploring issues of federalism and separation of powers. Readings are primarily court decisions; special attention given to teaching how to interpret, understand, and write about common law. (Also offered as Legal Studies 111A. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

112. Women and the Law. *
Interdisciplinary approach to study of law in its relation to category "women" and production of gender. Considers various materials including critical race theory, domestic case law and international instruments, representations of law, and writings by and on behalf of women living under different forms of legal control. Examines how law structures rights, offers protections, produces hierarchies, and sexualizes power relations in both public and intimate life. (Also offered as Feminist Studies 112. Students cannot receive credit for both courses.) Enrollment restricted to politics, feminist studies, legal studies, and Latin American and Latino studies/politics combined majors during priority enrollment only. G. Dent

113. Feminism and the Body.
Introduces the literature on the history of the body. Explores the multiple ways in which the body, in the West, has been the site of cultural and political inscription from the Middle Ages to the 19th century. Topics may include: pornography, criminality, sexuality, art, race, and medicine. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. V. Seth

114. Thinking Green: Politics, Philosophies, and Practices of Sustainability. *
A course on the political and philosophical sources of ecological and social sustainability and how they affect and inflect the design, implementation, and practices of sustainability. Asks whether they offer a "realistic" alternative to liberalism and other political and economic ideologies and practices. (Formerly Thinking Green: Politics, Ethics, Political Economy.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Lipschutz

115. Foundations of Political Economy. F
Examines how ideas about labor, rights, exchange, capital, consumption, the state, production, poverty, luxury, morality, procreation, and markets were woven in political-economic discourse from 1690-1936. Readings include Locke, Mandeville, Smith, Malthus, Mill, Hegel, Marx, Lenin, and Veblen. Particular focus given to theoretical origins of and justifications for poverty and implications of economic interdependence for politics. Prerequisite(s): course 105B, 105C, or 120C. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. D. Mathiowetz

116. Comparative Law. *
Explores legal systems and legal rules around the world, for a better understanding of the factors that have shaped both legal growth and legal change. Particular attention given to differences between common and civil law systems, changes brought about by the European Union, and expansion of legal norms around the globe. (Also offered as Legal

Studies 116. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

117. U.S. Telecommunications Law and Policy. *
Surveys the U.S. telecommunications and broadcasting law and policy from the mid-19th century through the present. Offers a range of perspectives from the vantage point of the telecommunications industry, government, and the media-reform movement. Enrollment restricted to politics majors during priority enrollment only. The Staff

118. Topics in Contemporary Political and Critical Theory. *
Course uses a multidisciplinary approach to the study of politics through significant contemporary authors and approaches in critical theory. Topics include: democracy action, violence, subjectivity, identity, power and resistance, the body, political economy, and post-colonialism. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

120A. Congress, President, and the Court in American Politics. *
Study of political development, behavior, performance, and significance of central governmental institutions of the U.S. Emphasizes the historical development of each branch and their relationship to each other, including changes in relative power and constitutional responsibilities. (Also offered as Legal Studies 120A. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. D. Wirls

120B. Society and Democracy in American Political Development. F
Examines the role of social forces in the development of the American democratic processes and in the changing relationship between citizen and state. Course materials address the ideas, the social tensions, and the economic pressures bearing on social movements, interest groups, and political parties. (Also offered as Legal Studies 120B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. M. Springer

120C. State and Capitalism in American Political Development. W
Examines the relationship between state and economy in the U.S. from the 1880s to the present, and provides a theoretical and historical introduction to the study of politics and markets. Focus is on moments of crisis and choice in U.S. political economy, with an emphasis on the rise of regulation, the development of the welfare state, and changes in employment policies. (Also offered as Legal Studies 120C. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Satisfies American History and Institutions Requirement. E. Bertram

121. Black Politics and Federal Social Policy. *
Examination of changes in the political and economic status of African Americans in the 20th century; particular focus on the role of national policies since 1933 and the significance of racism in 20th-century U.S. political development. (Also offered as Legal Studies 121. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. (General Education Code(s): E.) M. Brown

122. Politics, Labor, and Markets. *
Examines political and social dimensions of recent transformations in the U.S. labor market. Includes classical and contemporary theoretical debates over the nature and functions of work under capitalism. Focuses on shifts in the organization and character of work in a globalizing economy. Addresses recent trends in low-wage and contingent work, job mobility and security, and work/family relations. Includes attention to the roles and responses of business, labor, and government. (Formerly Politics, Labor, and Markets in the U.S..) Enrollment restricted to politics and Latin American and Latino studies/politics combined major during priority enrollment. E. Bertram

124. Economic Inequality in America. F
Examines the sources and implications of economic inequality in the United States. Explores theories of social class and its intersections with race and gender inequalities. Focuses on the role of politics and public policies in diminishing and/or exacerbating

income and wealth inequalities. (Formerly Politics, Poverty, and Inequality in America.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. E. Bertram

125. Political Organizations in American Politics. *
Introduces the literature on interest groups and attempts to answer the question: Do such groups promote or hinder American democracy? Class readings and lectures review and assess the participation of interest groups in the electoral process and in Congress, the executive branch, and the courts. Pays particular attention to the role business and environmental groups play in American politics and policy. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

128. American Elections and Voting Behavior. F
Introduces key concepts pertaining to voting, elections, and political behavior in the United States. Several topics are covered, such as campaigns, electoral institutions, reform, political participation (including but not limited to voting), presidential and congressional elections, partisan identification, and polling. Enrollment restricted to politics majors and Latin America and Latino studies/politics combined majors during priority enrollment only. M. Springer

129. Policies and Politics of American Defense. W
Examines the evolution of the policy and politics of American national security, from the Cold War to the present. Content of military policy explored with analytic focus on formation of policy and interactions between military policies and domestic policies. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. D. Wirls

132. California Water Law and Policy. W
Explores the rich history and fundamental legal concepts surrounding water in California. Students identify, evaluate, and debate some critical water policy questions faced by Californians today and in the future. (Also offered as Legal Studies 132. Students cannot receive credit for both courses.) R. Langridge

133. Law of Democracy. W
Explores the role of law in both enabling and constraining the actions of elected politicians in the U.S. Among issues examined are voting rights, redistricting, and campaign finance. Course asks how the law shapes and limits our ability to choose our elected leaders, and in turn, how the law is shaped by political forces. (Also offered as Legal Studies 133. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Coonerty

134. Congress: Representation and Legislation. *
Examines the United States Congress and the nature of the representative and legislative processes. Topics include: districting and elections; bicameralism; party organization; institutional and behavioral influences on legislative action; and the efficacy of Congress as a legislative body. Focuses on the contemporary Congress with comparisons to other legislative and representative institutions. (Formerly Congress: Representation and Legislation in Comparative Perspective.) (Also offered as Legal Studies 134. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. D. Wirls

135. Immigration Policy and Debate in the U.S.. *
Course charts the history of immigration policy and debate in the U.S., highlighting the ways economic, social, and geopolitical factors influenced the processes and outcomes of immigration debate and policy making. Focuses on interaction between society and state in formulation and implementation of immigration policy, and the ways policy outcomes may differ from expectations. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

139. Market Crisis and the Future of Capitalism. *
Examines the development and role of late 20th- and early 21st-Century financial technologies in modern market crises. Overview of financial markets, modern finance theory, related regulatory institutions, financial crises, financial technologies, and the relation of human behavior. What is the future of market capitalism? Enrollment restricted

to politics and politics/Latin American and Latino studies combined majors. The Staff

140A. Politics of Advanced Industrialized Societies. W
Explores the political and economic systems of advanced industrialized societies. In addition to specific comparisons between the countries of western Europe and the United States, covers important themes and challenges, including immigration, globalization, and the crisis of the welfare state. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. E. Pasotti

140C. Latin American Politics. F
Overview of major approaches to the study of Latin American politics. Introductory survey of historical and contemporary democratic populist, authoritarian, and revolutionary regimes. Special attention is given to region's recent transitions toward democratic rule, market-based economic models, and decentralized governance. Evaluates institutional arrangements (including presidentialism, electoral rules and party systems), as well as a variety of social movements and strategies of resistance among subaltern social groups and classes. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): E.) K. Eaton

140D. Politics of East Asia. S
Explores political and economic development in Northeast and Southeast Asia since WWII. Students apply theoretical and historical concepts to empirical case studies, building an understanding of how democracy and power operate. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. (General Education Code(s): E.) B. Read

141. Politics of China. W
Introduces themes of Chinese politics from 1949 to present, including: the establishment and substantial dismantling of socialism; movements and upheavals, such as the Cultural Revolution and 1989; and issues, such as Tibet and Taiwan. Surveys current institutions, leaders, and policies. (Formerly China .) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. (General Education Code(s): E.) B. Read

142. Russian Politics. *
Historical-political survey of Russia within the U.S.S.R. is followed by examination of the 1991 revolution, the attempt to recover a national identity and establish a unified Russian state. Highlighted in this course are cultural and political factors central to the Russian experience: personalistic modes of political organization, a remote and corrupt state apparatus, collectivist forms of thought and self-defense. M. Urban

143. Comparative Post-Communist Politics. F
Comparative study of revolutionary transformations of East European, Soviet, and former Soviet nations to post-Communist political orders. Focus on reemergence of political society, social and economic problems of transition, and maintenance of many cultural norms and authority patterns associated with previous regime. (Formerly course 140B.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Schoenman

144. Andean Politics. W
Examines similar political trends in four Andean countries: Bolivia, Colombia, Ecuador, and Peru. Trends include mobilization of indigenous populations, breakdown of traditional party systems, and reconstruction efforts in post-conflict environments. Students who have taken prior courses in Latin American politics, including course 140C, will be best prepared for this course. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. K. Eaton

145. Democratization, Citizenship, and Human Rights in Latin America. *
Examines military regimes, transitions to civilian rule, and politics of democratization in contemporary Latin America. Focuses on the contradictions and legacies of transition politics, the challenges of democratizing political institutions, and the political and social consequences of neoliberalism. Emphasis on human rights, citizens' movements, changing dynamics of civil society, and contemporary efforts to deepen democracy. (Formerly course 150, Democratization, Citizenship, and Human Rights in South America) Enrollment

restricted to politics and Latin American and Latino studies/politics combined majors. The Staff

146. The Politics of Africa. *
Comparative study of contemporary sub-Saharan African states. Selected issues and countries. Internal and external political institutions and processes are studied in order to learn about politics in contemporary Black Africa and to learn more about the nature of politics through the focus on the particular issues and questions raised by the African context. Enrollment restricted to politics majors during priority enrollment only. (General Education Code(s): E.) I. Gruhn

148. Social Movements. *
Overview of social movements by analysis of specific theories and examples. Course connects the study of theories and movements to larger political processes. Topics may include: New Social Movement theory; gender and social movement; democratic, historical, transnational, global and/or local social movements. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

149. Democratic Transitions. *
Explores democratization processes from a variety of historical and geographical perspectives. Examines the role of foreign influences, economic development, civil society, elites, and institutions in the transition and consolidation of democratic systems. Enrollment restricted to politics and Latin American and Latino studies/politics majors during priority enrollment only. E. Pasotti

151. Politics of Law. *
Uncovers the important debates in politics and law around the functions of courts, litigation, and rights--and the political nature of law itself. Course is interdisciplinary, and draws from literature in political science, law, and sociology. (Also offered as Legal Studies 151. Students cannot receive credit for both courses.) Enrollment restricted to politics, legal studies, and Latin American and Latino studies/politics combined majors during priority period. M. Massoud

156. The Politics of Memory. F
Examines the intersection of traumatic memories and politics. Memories have historical, social, cultural, psychological, and political dimensions. Focuses most closely on the political consequences of and responses to divisive, troubling histories. (Also offered as Anthropology 156. Students cannot receive credit for both courses.) Enrollment restricted to anthropology and politics majors. D. Linger

160A. Theories of International and World Politics. F
Examination of analytical perspectives on international and world politics, international and global political economy, war and conflict, corporations and civil society. Explores theoretical tools and applications, recurring patterns of global conflict and cooperation, the nexus between domestic politics, foreign policy and international and world politics. This is not a current events course. (Formerly International Politics.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. L. Abdelaaty

160B. International Law. S
Origins and development of international law: international law is examined both as a reflection of the present world order and as a basis for transformation. Topics include state and non-state actors and sovereignty, treaties, the use of force, and human rights. (Formerly course 173.) (Also offered as Legal Studies 160B. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. M. Massoud

160C. Security, Conflict, Violence, War. *
Genesis and theories of conflict and war and their avoidance (past, present, future). Relationship between foreign policy and intra- and interstate conflict and violence. National security and the security dilemma. Non-violent conflict as a normal part of politics; violent conflict as anti-political; transformation of conflict into social and interstate violence. Interrelationships among conduct of war, attainment of political objectives, and the end of hostilities. Civil and ethnic wars. Political economy of violence and war. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. The Staff

160D. International Political Economy. W
Introduction to the politics of international economic relations. Examines the history of the international political economy, the theories that seek to explain it, and contemporary issues such as trade policy, globalization, and the financial crisis. (Formerly course 176.) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. R. Schoenman

161. Foreign Relations of China. S
Surveys China's foreign policy from 1949 to today, including the Korean War; Sino-Soviet ties; relations with the United States; tension with Taiwan; and China's rise to geopolitical prominence. Introduces the major theoretical approaches to international relations. (Formerly course 143) Enrollment restricted to politics and politics/Latin America and Latino studies combined majors during priority enrollment. B. Read

163. U.S. Foreign Policy. *
Provides overview of U.S. foreign policy formulation: considers how U.S. political culture shapes foreign policy; examines governmental actors involved: the president, executive branch agencies, and Congress; then considers non-governmental actors: the media, interest groups, and public opinion. (Formerly How U.S. Foreign Policy Gets Made .) Enrollment restricted to politics and politics/Latin American and Latino studies combined majors. The Staff

164. International Politics of Forced Migration. W
Surveys global issues in forced migration, the movement of people displaced by persecution, conflict, disasters, or development. Topics include historical trends, legal regimes, and ethical concerns. Explores the causes and consequences of forced displacement, and responses by state and non-state actors. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. L. Abdelaaty

165. Global Organization. W
Addresses whether and how global organizations are changing the international system. Examines multilateral institutions, regional organizations, and nonstate actors. Overriding aim is to discern whether these global organizations are affecting the purported primacy of the state. (Formerly course 160B.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

166. Politics of Migration. *
Examines the magnitude and the political, economic, cultural, environmental, and social impact of today's movement of millions of people within and amongst states. Enrollment restricted to politics majors and Latin American and Latino studies/politics combined majors during priority enrollment. (General Education Code(s): CC.) I. Gruhn

167. Politics of International Trade. *
Examines key issues in international trade, including the distribution of gains, fair trading practices, and preferential trade agreements. Focuses on the political dimensions of trade, the rules of the international trade system, and conflicts within countries that international trade generates. (Also offered as Legal Studies 167. Students cannot receive credit for both courses.) Enrollment restricted to politics, and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

171. Law of War. *
Examines legal regulation of international violent conflict. Students examine development of normative standards within international law and creation of institutions to both adjudicate violations and regulate conduct. (Also offered as Legal Studies 171. Students cannot receive credit for both courses.) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. The Staff

172. Liberalism, the State, and the War on Terror. *
Examines the relation between the liberal State and perceived challenges to State sovereignty posed by transnational terrorism. How does terrorism as both a symbol and empirical phenomenon fit within the horizon of liberal ideology? What claim to sovereignty does the State make in the face of acts of terror? What political logic is required in/for a War on Terror? Students may not take both course 72 and this course for credit in the major. Enrollment restricted to politics and politics/Latin America and Latino studies

majors during priority enrollment. The Staff

174. Political Economy of Global Energy, Environment, and Resources. *
Focus on global environmental "problematique" and how it is being played out in a variety of political economic, and social arenas. Includes technical overview of environmental movements, green economics, energy and resource issues, and sustainable approaches. (Formerly Global Environment Politics) Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Lipschutz

175. Human Rights. S
Embraces an interdisciplinary approach to the study of human rights. Captures the malleable nature of human rights and the contours of its dual role as both law and discourse. (Also offered as Legal Studies 175. Students cannot receive credit for both courses.) Prerequisite(s): Politics or Legal Studies 160B. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment. M. Massoud

177. The United States and the World. *
Examines political, economic, and cultural relationship between the U.S. and the rest of the world, including historical background and foreign policy. Special focus on U.S. involvement in the Middle East and Persian Gulf and the politics of economics of that region. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Lipschutz

178. U.S. Foreign Economic Policy. F
Theoretical and historical survey of U.S. foreign economic policy. First part explores theoretical frameworks and covers historical events in the U.S.'s relationship with world economy. The second part focuses on postwar foreign economic policy; surveys different theoretical approaches to U.S. foreign policy; and examines fundamental developments and issues in trade, monetary, development, and investment policies. Enrollment restricted to politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Schoenman

190. Senior Comprehensive Seminar.
These courses, offered at different times by different instructors, focus on current problems of interest across the discipline. Courses offer a flexible framework within which those mutually interested in specific issues can read, present papers, and develop their ideas. Students who do not meet the restrictions and prerequisites may contact the instructor for permission to enroll. The Staff

190A. State and Revolution. *
Investigates the process of rapid and fundamental political change from the standpoint of both the structures of states in which revolutions have occurred and the structures of states issuing from revolutions. A number of cases are examined, but particular emphasis is given to the "classic" revolutions in France (1789) and Russia (1917). Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors; major restrictions lifted during open enrollment. Enrollment limited to 20. M. Urban

190B. Humanity, Sovereignty, and War. *
Examines how enmity, the state, and war serve as limits for political conceptions of who "we" are, tensions between commitments to diversity and to peace, and liberal and humanitarian efforts to address these tensions. Students examine works written prior to the liberal period (Hobbes), in response to it (Hegel and Schmitt) and finally a 20th-century liberal revival (Rawls), and discuss rights, conscience, political obligation, war, and the state. Prerequisite(s): two of the following: course 103, 105A, 105B, 105C, 105D, 107, 109, or 115. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. Enrollment limited to 20. D. Mathiowetz

190C. Humanitarian Action in World Politics. F
Examines the global politics of humanitarianism. Topics include the historical evolution of humanitarian principles, key actors in the humanitarian sector, and institutional arrangements. Explores the ethical and practical challenges associated with humanitarian relief, aid, and intervention. Enrollment restricted to senior politics

and politics/Latin American and Latino studies combined majors. Enrollment limited to 20. L. Abdelaaty

190D. Early Anarchist and Socialist Thought. W
Studies in 19th- and early 20th-century anarchist and socialist thought. Themes covered include property, labor, marriage, and the state. Readings drawn from Bakunin, Goldman, Fourier, Kropotkin, Perkins-Gilman, Proudhon, and Stirner. Prerequisite(s): two of the following: courses 103, 105A, 105B, 105C, 105D, 109, or 115; or by permission of instructor. Enrollment restricted to senior politics majors. Enrollment limited to 20. M. Thomas

190E. Transitions in the Information Age. S
Explores the role of new media in political protest; whether and how new media technologies such as social networking, text messaging, Twitter, and YouTube have changed the way opposition movements develop. Enrollment restricted to senior politics and Latin America and Latino studies/politics combined majors. Enrollment limited to 20. R. Schoenman

190G. Issues in International Law. *
Explores theory and reality of international law; how it determines or governs or modifies policies of government. Emphasis on contemporary political and economic forces and international law in nuclear age, competing areas for new law, law of seas, human rights, new international economic issues, the environment. Enrollment restricted to senior legal studies, politics, and Latin American and Latino studies/politics combined majors during priority enrollment only; major restrictions will be lifted during open enrollment. Enrollment limited to 20. The Staff

190H. The Substance of Democracy. F
What is democracy? How can we identify it? How do we understand and identify political participation? What are the factors behind it? What role does protest have in democratic politics? These and similar questions are addressed in this course that focuses on topics of democratic politics in the United States and abroad. Enrollment restricted to senior politics and combined politics/Latin American and Latino studies majors. Enrollment limited to 20. E. Pasotti

190I. Political Ecology and Ecological Politics. *
Examines a range of ecological philosophies and their implications for politics, economics, social action, and the Earth. Themes addressed in relation to political ecology include: liberalism, historical materialism, the nature/culture divide, justice, feminism, and critical theory. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. R. Lipschutz

190J. Politics and Inequality. *
Considers causes and consequences of inequality in modern societies. Emphasizes empirical analysis of contemporary forms of class, racial, and gender inequality and examination of normative theories of distributive justice. Major restrictions lifted during open enrollment. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. Enrollment limited to 20. D. Wirls

190K. China in the World Trade Organization. *
Examines the impact that the World Trade Organization (WTO) has had on China's economic reform, lawmaking, and political and social development. Also examines how China has used the WTO to safeguard its interests through the dispute-settlement mechanism and the Doha trade talks. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. Enrollment limited to 20. The Staff

190L. Poverty Politics. S
Examines theoretical, historical, and contemporary sources of poverty policies in the United States. Explores competing theories of the causes of poverty and the consequences of social provision. Focuses on successive historical reform efforts and contemporary dilemmas of race and urban poverty, gender and family poverty, work, and the politics of welfare reform. Enrollment restricted to senior politics and Latin

American and Latino studies/politics combined majors during priority enrollment only. Enrollment limited to 20. E. Bertram

190M. Politics in American States. S
State governments affect the lives of Americans every day. This course examines an array of issues pertaining to state politics, such as the foundations of American federalism, institutional organization, elections, political parties, direct democracy, and policy-making. Enrollment restricted to senior politics and combined politics/Latin America and Latino studies majors. Enrollment limited to 20. M. Springer

190P. Race: History of a Concept. *
Examines how we came, by the late 19th century, to classify humanity into racial categories. In an effort to trace emergence of this very modern phenomenon, explores historical shifts that informed Europe's representation of cultural difference from the writings of ancient Greeks to the social Darwinism of 19th-century Britain. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment. Enrollment limited to 20. V. Seth

190Q. Theorizing Modernity. *
Introduces central categories and material implications that underwrite discourses on modernity since the late 18th century. Students read across the disciplines in fields such as political theory, postcolonialism, history, science studies, anthropology, and feminist criticism. Prerequisite(s): any two of the following courses: 105A, 105B, 105C, 105D. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment. Enrollment limited to 20. V. Seth

190R. Comparative Law and Society. *
Interdisciplinary investigation into functions of law across political, historical, and cultural contexts. Examines the international and comparative turn in public law scholarship and the role of law-based strategies in state building. Reviews literature in law, political science and legal anthropology. (Also offered as Legal Studies 190R. Students cannot receive credit for both courses.) Prerequisite(s): course 160B. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors. Enrollment limited to 20. M. Massoud

190S. Empire and After. *
Examines the literature on American empire, beginning with the founding parents (e.g., Jefferson), continuing through the revisionist literatures (e.g., Williams) and more recent work (e.g., Hardt and Negri), and ending with contemporary critiques and predictions. Enrollment restricted to senior politics majors. Enrollment limited to 20. The Staff

190T. Governance and Conflict in East Asia. *
Students read recent books on East Asian countries that engage the long-standing themes of state power and societal resistance. Prerequisite(s): course 141 or 161 or 109, or by permission of instructor. Enrollment restricted to senior politics majors. Enrollment limited to 20. B. Read

190V. Problems in Latin American Politics. W
Research seminar allows advanced students to engage in current scholarly debates in the sub-field of Latin American politics. Students are encouraged to pick a research topic of their own choosing. Recent course themes have included obstacles to democratic consolidation; crime and insecurity; economic reform; lesbian, gay, bisexual, and transgender (LGBT) politics; and public-policy innovations. Prerequisite(s): course 140C or 144. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. Students with equivalent course work may enroll with permission of instructor. Enrollment limited to 20. K. Eaton

190X. Global Capitalism and War. *
Examines the history and organization of, and relationships among, global capitalism and war, through political economy, with a focus on major historical works and recent writings, especially in relation to the crisis of globalization and the rise of the global economy. (Formerly Global Capital and Capitalism.) Prerequisite(s): One of course 115,

120C, 160A, 160D, or 178. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors during priority enrollment only. Enrollment limited to 20. The Staff

190Y. Political Theories of Luxury. *
Examines conceptions of luxury as they have appeared in classical, Christian, early modern, and contemporary discourses and debates. How have people sought to define luxury; for what political purposes; and what promise and peril do such definitions have? What is the shape and power of luxury in political communities today? (Formerly Polical Theory of Luxury.) Prerequisite(s): One of the following courses: 103, 105A, 105B, 150C, 106, 109, 113, 115, 118, 124. Enrollment restricted to senior politics and politics/Latin American studies majors. Enrollment limited to 20. D. Mathiowetz

190Z. International Security. *
Examination of selected issues, controversies, and theories relevant to "security" between and among nations. Topics vary, but may include: war, peace, nuclear proliferation, arms control, military and foreign policies, alternative conceptions of security. Enrollment restricted to senior politics and Latin American and Latino studies/politics combined majors . Enrollment limited to 20. The Staff

193. Field Study in Politics. F,W,S
Individual studies undertaken off campus with direct faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Various topics to be announced before each quarter. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Various topics to be announced before each quarter. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195A. Senior Thesis. F,W,S
Preparation of a senior thesis over two or three quarters, beginning in any quarter. The grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

195B. Senior Thesis. F,W,S
Preparation of a senior thesis over two or three quarters, beginning in any quarter. The grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

195C. Senior Thesis. F,W,S
Preparation of a senior thesis over two or three quarters, beginning in any quarter. The grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students submit petition to sponsoring agency. The Staff

198. Independent Field Study. F,W,S
Individual studies undertaken off-campus for which faculty supervision is not in person (e.g. supervision is by correspondence). Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Individual studies undertaken off-campus for which faculty supervision is not in person, but by correspondence. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
A student normally approaches a member of the staff and proposes to take a course 199 on a subject he or she has chosen which is not offered in other politics courses. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
A student normally approaches a member of the faculty and proposes to take a course 199

on a subject he or she has chosen which is not offered in other politics courses. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

200A. Political and Social Thought Core Seminar. *
Draws on history of political thought, contemporary social and critical theory, and the contributions of legal and institutional analysis of various kinds to engage in critical study of political practices that are experienced or understood as in some way limiting, oppressive, or wrong; to transform our understanding of these practices; to see their contingent conditions; and to articulate possibilities of governing ourselves differently. (Formerly Interpretive Problems in Political Theory: Language and Power.) Enrollment restricted to graduate students. Enrollment limited to 15. M. Thomas

200B. Social Forces and Political Change Core Seminar. W
Concerns transformation of social forces into political ones. Focuses on formation, articulation, mobilization, and organization of political interests and identities, their mutual interaction, and their effects on state structures and practices and vice versa. Major themes are 1) social bases of political action: class, gender, race, and other determinants of social division and political identity and 2) relevant forms of political agency and action, including development of political consciousness and representation of interests and identities in the public sphere. Enrollment restricted to graduate students. Enrollment limited to 15. E. Pasotti

200C. States and Political Institutions Core Seminar. *
Introduces study of political institutions as instruments of collective decision making and action. Explores alternative theoretical approaches to development of political institutions, state and political economy, and security dilemmas. Enrollment restricted to graduate students. Enrollment limited to 15. E. Pasotti

200D. Political Economy Core Seminar. F
Introduction to the theories and methodologies of political economy. Focuses on the relationship between states and markets and considers the politics of economic choices and institutions germane to both national and global political institutions. Addresses origins and development of markets and capitalism; historical evolution of states and their economies; relationship between labor, capital, production, and consumption; regulation of production; macroeconomics and management of economies; and issues of national and global social welfare. Enrollment restricted to graduate students. Enrollment limited to 15. K. Eaton

201. Logics of Inquiry. S
Investigates approaches to study of politics and to enterprise of social science in general. Works from positivist, interpretive, historical, and critical approaches provide examples held up to critical and epistemological reflection. Enrollment restricted to graduate students. Enrollment limited to 15. R. Lipschutz

202. Fundamentals of Political Research. W
Gives students practical tools to transform research questions into viable and well-crafted research designs. Introduces conceptual development, various forms of data, and rules for case selection. The goal is to train students in a range of specific methods, including interviewing, ethnography, and archival work. Enrollment restricted to graduate students. Enrollment limited to 15. M. Massoud

203. Making of the Modern. F
Introduces, at the graduate level, some of the central conceptual categories and material implications that underwrite the world of the modern. Explores concepts including the individual, historicism, contract, and objectivity. Enrollment restricted to graduate students. Enrollment limited to 15. V. Seth

204. Bodies in History. *
The human body has been productive of a wide range of varied and competing discourses. Among the themes covered are sexuality, hygiene, the grotesque, and criminality. Enrollment restricted to graduate students. Enrollment limited to 15. V. Seth

206. Topics in Political Theology. *

Readings focus on the early 20th-century rediscovery of political theology; its use in theorizations of the Holocaust; and its return in 21st-century debates on empires, war, terror, enmity, reconciliation, fanaticism, human rights, political economy, and global catastrophe. Enrollment restricted to graduate students. Enrollment limited to 15. B. Meister

207. Political Economies of Affect. *
Explores the potential in philosophical precursors to recent affect theory, alongside classical political economy and its critics, to develop an alternative epistemology for political economy. Readings include: Aristotle, Spinoza, Deleuze, Hume, Negri, Hardt, Smith, Bergson, and Marx. Enrollment restricted to graduate students. Enrollment limited to 15. D. Mathiowetz

208. Race. *
Considers the subject of race and racism from a political and historical perspective appealing to literatures from history, anthropology, science, and literary studies. Enrollment restricted to graduate students. Enrollment limited to 15. V. Seth

209. Radical Political Thought. *
Focuses on early 19th- through early 20th-century socialist and anarchist thought, excluding Marx. Theorists studied include Saint-Simon, Fourier, Proudhon, Stirner, Bakunin, Kropotkin, Perkins Gilman, and Goldman. Some secondary literature and related contemporary theory is also treated. Enrollment restricted to graduate students. Enrollment limited to 15. M. Thomas

222. Conflict and Change in American Politics and Policy. W
Explores the dynamic and contested interaction between politics and policy in the U.S. context, through examining the historical development of key contemporary policy debates and political conflicts. Introduces recent scholarship, drawing on history, sociology, and political economy that has challenged traditional behavioralist approaches to understanding American politics and policy development. Enrollment restricted to graduate students. Enrollment limited to 15. D. Wirls

232. United States Political History. *
Covers several important themes and sets of readings from the literature on American political development. Topics include the origins and development of American political institutions, the evolution of democratic mechanisms, the rise and fall of social movements, and debates about the sources of policy regimes and political change, including the role of war. Enrollment restricted to graduate students. Enrollment limited to 15. D. Wirls

233. Interrogating Race. *
Critically examines alternative theoretical and methodological approaches to study of race and racism. Considers alternative explanations for origins and persistence of racism and racial inequality and suggests the relevance of a socio-political understanding. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

243. Comparative Methods. *
Introduces the comparative method in social science. Trains students in the use of this method by examining how scholars have used it to compare across national governments, subnational units, public policies, organizations, social movements, and transnational collective action. (Also offered as Latin American&Latino Studies 243. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Enrollment limited to 15. K. Eaton, J. Fox

245. Latin American Politics. *
Surveys the Latin American political literature by studying: 1) critical moments in political development (e.g., state formation, democratization); 2) important political institutions (e.g., presidentialism, party, and electoral systems); and 3) influential political actors (e.g., unions, business associations, social movements). Enrollment restricted to graduate students. Enrollment limited to 15. K. Eaton

247. Comparative Urban Politics. *
Focuses on local government structures and the relationships with other levels of government. Examines institutions and administration; urban political economy (fiscal strain, poverty, inequality, and the efforts to attract economic investment); political

machines; race and ethnicity. Enrollment restricted to graduate students. Enrollment limited to 15. E. Pasotti

249. Politics of Protest. *
Explores topics related to protest and political participation from theoretical and empirical perspectives. Enrollment restricted to graduate students. Enrollment limited to 15. E. Pasotti

255. Comparative Anti-Colonialisms. *
Political thought of anti-colonial movements in comparative, historical perspective, including 18th- to 20th-Century European colonies of America and Asia. Focuses both on the contemporary political thought of these movements as well as on historiographical approaches of secondary literature. Enrollment restricted to graduate students. Enrollment limited to 15. M. Thomas

261. Key Issues in Contemporary Chinese Politics. *
Addresses topics ranging from the core institutions of the party-state to local politics, economic governance, and state-society interactions in multiple realms. Considers China in its own terms while evaluating the relevance of theoretical concepts from various fields in the social sciences. Aims to identify opportunities for new research projects. Enrollment restricted to graduate students. Enrollment limited to 15. B. Read

265. Nationalism. *
Survey of theories of nationalism, with selected nationalist thinkers and case studies. Emphasis on historical analyses and cases. Topics include: origins and typologies of nationalisms, racism, gender, revolution, and the state. Enrollment restricted to graduate students. Enrollment limited to 15. M. Thomas

272. Critical Interventions in IR Theory and Global Political Economy. *
Seminar examines selections from the canonical literature in international relations theory and global political economy through a number of critical lenses, including constructivist, feminist, historical materialist, and subaltern approaches. Enrollment restricted to graduate students. Enrollment limited to 15. R. Lipschutz

275. Contemporary Capitalism. *
Examines genesis of new institutions within the force of social ties and networks. Studies how social and organizational relationships achieve individual or group goals in political and economic life, and influence institutional design. Considers when and what ties contribute to governance and economic performance, and when informal and formal organizations constitute an obstacle. (Formerly New Approaches to the Study of Capitalism.) Enrollment restricted to graduate students. Enrollment limited to 15. R. Schoenman

291. Teaching Assistant Seminar (2 credits). *
Two-hour weekly seminar required of teaching assistants in which pedagogic and substantive issues will be considered. The experience of performing teaching assistant duties constitutes subject matter for discussion. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

292. Professional Development (2 credits). *
Primarily for first- and second-year graduate students. Students learn the norms and expectations of graduate school and a variety of professional roles. Students develop a plan for their graduate career and for establishing a professional network of mentors and peer audiences for their work. Enrollment restricted to graduate students. Enrollment limited to 20. D. Mathiowetz

293. Field Study. F,W,S
Individual study undertaken off campus with direct faculty supervision. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

295A. Research Colloquium (2 credits). *
Weekly venue for Ph.D. students to present current research, exchange information on sources and resources, discuss and critique epistemologies and methods, and to formulate topics for QE field statements and the dissertation. There are no assigned readings. May be repeated for credit twice. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

295B. Advanced Research Seminar. *
Weekly seminar for Ph.D. students in which to develop and write extended research papers on selected topics, to present current work, to discuss methods, data sources, and fieldwork, and to receive critiques and assessments from fellow students. May be repeated for credit twice. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

297. Independent Study. F,W,S
A student approaches a member of the staff and proposes to take a course 297 on a subject he or she has chosen that is not covered in other politics graduate courses or plans a graduate independent study that includes an undergraduate course. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Enrollment restricted to graduate students and permission of instructor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Porter College

2014-15 General Catalog

College Office
(831) 459-2071
http://porter.ucsc.edu/

For college description and list of faculty, see Colleges.

Lower-Division Courses

12. The ArtsBridge Experience (2 credits). *
Weekly meetings on pedagogy in the arts, lesson planning for arts teaching in schools, and submission of teaching portfolio core of this class. Prerequisite(s): permission of instructor; student must be an ArtsBridge scholar. May be repeated for credit. M. Foley

13C. Service Learning: Introduction to National Service/Introduction to Grant Writing (3 credits). W
A fast-paced and academically rigorous exercise in four main sections. First and foremost, participants must locate and support a community-service site for three hours each week. Each student's service commitment requires the student to attend class regularly and share community-service experience with classmates. Students are introduced to the basic requirements of a variety of national service agencies including AmeriCorp, the Peace Corp, City Year, Teach for America, and City Service. Students are required to do community-service work with a member of one of these agencies locally for four hours during the quarter. The last major section of this course teaches students the basics of grant writing and research. (Also offered as Kresge College 12C. Students cannot receive credit for both courses.) Enrollment restricted to college members. (General Education Code(s): PR-S.) F. Williams

14. Jazz Vocal Ensemble (2 credits). *
Study of vocal techniques in the context of ensemble rehearsals, often culminating in public performance. Familiarity with musical notation recommended. Admission by audition. May be repeated for credit. (General Education Code(s): A.) The Staff

19. Chicana/Latina Identity (2 credits). *
An exploration of Chicana/Latina identity within the context of developmental theories and heterogenous cultural influences on identity formation, including the acculturation process. Students explore their own identities within the previously stated context. Enrollment limited to 20. The Staff

20. Dance/Theater Practicum.
The practice of dance/theater in a particular world area (i.e., Philippines, Mexico, U.S.). Students learn the dance or theater art of one world area and study the associated cultural background. The Staff

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
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- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

20A. Filipino Dance Practicum (2 credits). *
Students are introduced to the different folk dances of the Philippine Islands. Folk dances of the tribal mountain region, of the Spanish Era in the Philippines (Maria Clara Era), and dances of the regional and rural countryside are emphasized. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) The Staff

20C. Korean Dance Practicum (2 credits). *
Students are introduced to the different dances of Korea related to folk tradition. Movement concepts of music and the relation to culture are explored through demonstration, practice, and performance. Enrollment limited to 15. Offered in alternate academic years. (General Education Code(s): A.) The Staff

20D. Dance Improvisation (2 credits). *
Dance practicum emphasizing spontaneous movement in response to diverse media including visual art and music. Special emphasis given to the conceptual approaches taken by American artists such as Merce Cunningham, John Cage, and Robert Rauschenberg. Enrollment limited to 25. (General Education Code(s): A.) The Staff

20E. Culture and Dance of Bollywood (2 credits). F
Course is devoted to the culture and dance of Bollywood, a popular genre of film representation of cultures and peoples of India. The course combines both theory and practice by showing films on selected themes and having students learn this dance style and music. (Formerly Crown 40.) Priority given to college members. Other colleges by permission of instructor as space permits. Enrollment limited to 40. (General Education Code(s): PR-C.) A. Pandey

20F. Solo Performance Works in the Theater (2 credits). S
Explores solo performance works made for the theater. While all course texts fall within the narrative tradition, some center on performers' lives, others on socio-political issues. Course participants screen video recordings of live performances in class., ultimately creating their own brief solo performances. Enrollment restricted to college members. Enrollment limited to 24. (General Education Code(s): PR-C.) R. Giges

21. Music Practicum.
The Staff

21A. Korean Music and Culture (2 credits). *
Introduction to the farmers band tradition. Theory and practice of drumming are emphasized, resulting in a group performance. Enrollment limited to 20. Offered in alternate academic years. (General Education Code(s): A.) The Staff

21C. Gospel Choir (2 credits). W,S
Instruction in vocal performance in the tradition of gospel choirs. Music is transmitted aurally rather than by notation. The ensemble prepares a range of traditional and contemporary gospel music for performance. Ensemble performs publicly at least once each quarter. Enrollment limited to 60. May be repeated for credit. (General Education Code(s): PR-C, A.) V. Fiddmont

22. Art Practicum (2 credits). *
The practice of art in a particular world area (i.e., Japan, Pacific Islands, U.S.). Explores the art and craft of one world area and studies the associated cultural background. Enrollment restricted to college members. Enrollment limited to 15. (General Education Code(s): A.) The Staff

22A. Day of the Dead (2 credits). *
Day of the Dead: Creating an Exhibition--an exploration of art created to celebrate death in Mexican, Chicano, and American culture. Culminates in the creation of a Day of the Dead ceremony and community altar including students' individual art pieces. Enrollment restricted to college members. Enrollment limited to 25. (General Education Code(s): PR-E, A.) The Staff

22F. Vietnamese Festivals (2 credits). *
Vietnamese festivals and the arts they generate, from carving to water puppetry, will be explored for cultural, aesthetic, and iconographic principles, through viewing, discussion and a creative project. Enrollment limited to 20. (General Education Code(s): A.) The Staff

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22G. Literary Magazine Publishing (3 credits). *
Learn about and practice basics in publishing a national literary magazine with focus on poetry and the arts. Three-part focus: soliciting/editing, design/publishing, and publicizing/distributing. Students decide which poems published and awarded prizes in the "Viz. 25 and Under Awards" section. Audition for admission at first class with demonstrated experience in related field: creative writing, desk top publishing, art, graphic design, business, etc. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): A.) R. Hamilton

23. Film/Theater Practicum.
The practice of film/theater from the perspective of a particular culture, genre, or technical approach. The Staff

23A. Film Practicum: Talking in Pictures (2 credits). *
Introductory survey of the language of film and television. Considers the roles these media play in the shaping of cultural identity. Creative projects in the conceptual preparation for the making of films and videos. Enrollment limited to 25. (General Education Code(s): A.) The Staff

23B. Personal Narratives in Theater and Film (2 credits). *
Considers filmmakers and monologue performers as they come to terms with their identity in autobiographical works. Students write responses to texts and create their own brief personal narratives. Priority given to college members. Others by permission of instructor. Enrollment limited to 25. (General Education Code(s): PR-C, A.) R. Giges

23C. Documentary/Mockumentary Films (2 credits). *
The mockumentary grows out of the documentary tradition, but instead of pretending to truthfully capture reality, it blatantly distorts, revealing the subjectivity inherent in cinematic representation. Includes ethnographic, music, political and Hollywood mockumentaries, and critical readings on documentary film. Priority given to Porter College members. Others by permission of instructor. Enrollment limited to 25. (General Education Code(s): A.) R. Giges

28. Sound Art (2 credits). W,S
Several composers and performers of contemporary "art music" discuss the processes by which works are conceived in imagination, transcribed in notation, and realized in sound. After a brief introduction to contemporary music aesthetics, students attend a series of related presentations, seminars, and concerts. Enrollment restricted to college members. Enrollment limited to 18. (General Education Code(s): A.) The Staff

32A. Queering the Arts (2 credits). S
Exploration of the arts as a way to understand and experience how queerness has been expressed, repressed, denigrated, and celebrated in visual arts, music, film, poetry, and dance. Enrollment restricted to college members. Enrollment limited to 30. (General Education Code(s): A.) R. Hamilton

33. Seminar in Arts (2 credits). F,W,S
Theoretical and historical aspects of the arts from one culture or world area are explored through seminar discussion, library research, and film/video presentations. Priority given to college members. Others by permission of instructor. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): A.) The Staff

33A. African Global Art and Music (2 credits). *
The theme of "Changing the Global Community Through the Arts" explored in African global art and music through readings, listening sessions, and interactions with academics and performers. Culmination will be the African Global Festival and Symposium in April. Enrollment limited to 25. (General Education Code(s): A.) E. Cameron

34B. Fractals, Chaos Theory, and the Arts (2 credits). S
A consideration of chaos theory and fractal geometry as applied by 20th-century artists in all media. All necessary math and computer skills are covered. Students complete essays or art projects. Enrollment restricted to college members. Enrollment limited to 25. (General Education Code(s): PR-C, A.) R. Abraham

35. Experiencing Live Performance (2 credits). *

Students' attendance at live regional theater performances informed by artists' talks, class lectures, and readings. Students participate in informal performance workshops and write short critical essays. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): A.) The Staff

38. Working in . . . Series.
Writers, directors, technical workers, visual artists, and professionals in a diverse range of media discuss current work, paths that led to their creative endeavors, and constraints to working in the industry. The Staff

38B. Working in TV and Film (2 credits). *
Writers, directors, and technical workers in areas of TV and film discuss current work, paths that led to their creative endeavors, and constraints of working in the industry. Students research aspects of film and TV professional work. Cannot be repeated for credit. Priority given to college members. Others by permission of instructor. (General Education Code(s): A.) The Staff

38C. Introduction fo Laser Cutting, 3D Prinitng, and Vacuum Forming (2 credits). *
Design functional objects, sculpture, and other digitally inspired forms in a variety of 2D (Illustrator) and 3D applications (Cinema 4D, Ketch UP, or AutoCAD), then produce those models as physical objects with a variety of rapid-prototyping methods including laser cutting, 3D printing, and vacuum forming. Enrollment restricted to Porter College members. Enrollment limited to 25. The Staff

39. Jewish Personal Narratives on Film (2 credits). *
Considers Jewish-American filmmakers as they come to terms with their identity in autobiographical works. Students write responses to texts and create their own brief personal narratives. Enrollment restricted to college members. Enrollment limited to 25. (General Education Code(s): PR-C, A.) R. Giges

80A. Introduction to University Discourse: Writing Across the Arts. F
Explores rhetorical principles and conventions of university discourse, providing intensive practice in analytical writing, critical reading, and speaking. Study, discuss, and write about social, political, and aesthetic issues raised by selected works of literature and art in a variety of media. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. (General Education Code(s): T4-Humanities and Arts, C1.) The Staff

80B. Rhetoric and Inquiry: Writing Across the Arts. F
Explores the intersections between rhetoric (persuasion) and inquiry (investigation) and hones strategies for effective reading, writing, speaking, and research. Read, discuss, research, and write about social, political, and aesthetic issues raised by selected works of literature and art in a variety of media. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. (General Education Code(s): T4-Humanities and Arts, C2.) The Staff

80E. Arts Education in the Community. W
Organized in small teams, participants engage with students from public elementary classrooms to develop fully-staged group performance projects by end of term. Students are guided by instructor's models of teaching techniques, designed to stimulate the imagination, and by diverse readings. Priority given to college members. Others by permission of instructor. Enrollment limited to 30. (General Education Code(s): T4-Humanities and Arts, A.) T. Beal

80G. Making Poetry: Readings/Writing (2 credits). *
Guest poets read work and discuss their approaches to writing. Students develop their own poems and the class culminates in a poetry reading of student work. Priority given to Porter College members. Others by permission of instructor. Enrollment limited to 25. (General Education Code(s): A.) The Staff

80I. Improvisation. W
Theory and practice of improvisation in the performing arts with an emphasis on acting improvisation techniques. Readings and films develop a theoretical and historical understanding of spontaneous invention on stage. Students attend area theater

improvisational performances. Enrollment limited to 25. (General Education Code(s): PR-C, T4-Humanities and Arts, A.) R. Giges

80K. Ways of Knowing. *
Creativity in different disciplines is developed via different ways of knowing. Musical, visual, scientific, and spatial literacy demand understanding which is not primarily logocentric. Explores how practitioners of arts and science develop their work and conceptualize its execution. Enrollment restricted to college members. (General Education Code(s): T6-Natural Sciences or Humanities and Arts.) The Staff

80L. Documenting Oral History. *
Students learn basic techniques of interview and camera work to document on film oral histories collected from community elders. Students develop their skills in writing, theater, visual art, music, or film to reinterpret oral histories as artwork. Priority given to college members. Others by permission of instructor. Enrollment limited to 30. (General Education Code(s): T5-Humanities and Arts or Social Sciences, A.) T. Beal

80W. Writing Across the Arts. *
Explores the intersections between rhetoric (persuasion) and inquiry (investigation) and hones strategies for effective reading, writing, speaking, and research. Students read, discuss, research, and write about social, political, and aesthetic issues raised by selected works of literature and art in a variety of media. Prerequisite(s): satisfaction of the Entry Level Writing Requirement, and C1 and C2 requirements. Enrollment restricted to college members. Enrollment limited to 22. (General Education Code(s): T4-Humanities and Arts, W.) The Staff

83. Pacific Rim Film Festival: Viewing Across Cultures (2 credits). *
Involves viewing Asian and Pacific films at the annual Pacific Rim Film Festival, participating in post-screening discussions with area experts, and writing on the issues of cross-cultural viewing/reading of film. Enrollment restricted to college members. Enrollment limited to 20. May be repeated for credit. (General Education Code(s): PR-S, A.) M. Foley

99. Tutorial.
Various topics to be arranged. Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits).
Various topics to be arranged. Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

120. Advanced Dance/Theater Practicum (2 credits). *
The practice of dance/theater in a particular world area or culture. Students learn the art of one world area or era and the associated cultural background. Prerequisite(s): audition; prior training in the discipline is required. Enrollment limited to 15. May be repeated for credit. (General Education Code(s): A.) The Staff

121. Advanced Music Practicum (2 credits). *
The practice of music in a particular area of the world at an advanced level. Students learn the music of one world area or culture over the quarter and study the associated cultural background. Enrollment limited. May be repeated for credit. (General Education Code(s): A.) The Staff

121C. Opera Workshop/Music Practicum (2 credits). *
Rehearsal of the principal vocal parts of an opera in preparation for a full production. Consideration of the dramatic aspects of each role and the interrelationships of the characters. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) N. Paiement

126. South Asia Seminar (2 credits). *
South Asian issues in arts, technology, culture, and history will be presented in weekly seminar. Students will attend lectures, read supplementary articles, and write a short paper on a South Asian topic. Enrollment limited to 15. M. Foley

141. New Works Research Laboratory. *
Artists from different disciplines (i.e., art and music, design and creative writing, performance art and dance, etc.) collaborate with students to research and create new

pieces. Students are involved in phases of the development from the conception to presentation of the work. Enrollment limited to 20. May be repeated for credit. The Staff

194. Group Tutorial.
A program of independent study arranged between a group of students and a faculty instructor. The Staff

199F. Tutorial (2 credits).
Individual projects carried out under the supervision of a Porter faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Lower-Division Courses

1A. Accelerated Portuguese. F
This course is the first quarter of an accelerated two-quarter series (1A-B), which, taken together, are equivalent to first-year instruction. This intensive class requires no background in the Romance languages, and emphasizes all language skills, including cultural competence. (Formerly Intensive Elementary Portuguese.) The Staff

1B. Accelerated Portuguese. W
This course is sequential to course 1A, and completes first-year accelerated instruction. This intensive class is designed for students with no background in the Romance languages, and emphasizes all language skills, including cultural competence. (Formerly Intensive Elementary Portuguese.) Prerequisite(s): course 1A, or by consent of instructor. The Staff

60A. Accelerated Portuguese for Speakers of Romance Languages. F
The first quarter of accelerated first-year instruction (60A-B). Designed for students with four quarters of college-level Spanish, French, Italian, or Catalan, and native speakers of these Romance languages (including heritage speakers of Portuguese). Emphasizes all language skills, including cultural competence. (Formerly Advanced Beginning and Intermediate Portuguese.) Prerequisite(s): Spanish 4 or Spanish for Heritage Speakers 4 or Spanish for Spanish Speakers 61 or French 4 or Italian 4 or Spanish Placement Examination score of 50 or by consent of instructor. The Staff

60B. Accelerated Portuguese for Speakers of Romance Languages. W
The second quarter of the 60A-B series completes first-year accelerated instruction of Portuguese for speakers of Spanish, French, Italian, or Catalan, and native speakers of these Romance languages (including heritage speakers of Portuguese). Emphasizes all language skills, including cultural competence. (Formerly Advanced Beginning and Intermediate Portuguese.) Prerequisite(s): course 60A, or by consent of instructor. (General Education Code(s): IH.) The Staff

65A. Accelerated Intermediate Portuguese. S
A systematic grammar review is combined with literacy and cultural readings, while communicative exercises focus on improving students' ability to understand and hold sustained conversations. Students expand their vocabulary and knowledge of Brazil and other Portuguese-speaking cultures through films, popular music, and other culturally authentic materials. (Formerly Intermediate Portuguese.) Prerequisite(s): course 1B or 60B,

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or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

65B. Accelerated Intermediate Portuguese. F
Sequential to course 65A, completes second-year accelerated instruction. A systematic grammar review is combined with literacy and cultural readings, while communicative exercises focus on improving students' ability to understand and hold sustained conversations. Students expand their vocabulary and knowledge of Brazil and other Portuguese-speaking cultures through films, popular music, and other culturally authentic materials. (Formerly Intermediate Portuguese.) Prerequisite(s): course 65A, or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

199. Tutorial. F,W,S
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Psychology

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273 Social Sciences 2 Building
(831) 459-2002
http://psychology.ucsc.edu

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Lower-Division Courses

1. Introduction to Psychology. F,W,S
Introduces prospective majors to the scientific study of behavior and mental processes and also provides an overview for non-majors. Emphasizes social, cognitive, developmental, and personality psychology and their interrelations. (General Education Code(s): PE-H, IS.) (F) M. Callanan, (W) A. Kawamoto, (S) The Staff

2. Introduction to Psychological Statistics. W,S
An introduction to elementary statistical principles and techniques relevant to psychological research. Topics covered include basic parametric and nonparametric statistics, analysis of variance, and simple factorial designs. This course is prerequisite to course 181. Prerequisite(s): course 1 or 20, and Applied Mathematics and Statistics 2 or 3 or 6 or Mathematics 3 or 4 or 11A or satisfactory placement score on math placement exam or CEEB Advanced Placement Calculus AB exam. Enrollment limited to 165. (General Education Code(s): SR, Q.) (W) The Staff, (S) S. Whittaker

10. Introduction to Developmental Psychology. F,W,S
Addresses psychological development from conception to adolescence. Provides an overview of developmental psychology. Prerequisite(s): course 1; Applied Mathematics and Statistics 2 or 3 or 6, or Math 3 or higher Mathematics courses; and course 2 or Applied Mathematics and Statistics 5 or 7/7L. (F) N. Akhtar, (W) The Staff, (S) S. Wang

20A. Cognition: Fundamental Theories. F,S
Introduces basic concepts in cognitive psychology with a focus on theoretical explanations of cognitive functioning. Topics include perception, attention, memory, concepts, language, visual cognition, executive functions, and reasoning processes. (Formerly course 20, Introduction to Cognitive Psychology.) M. Wilson, (F) T. Seymour

20B. Cognition: Applied Issues. *
Introduces basic concepts in cognitive psychology with a focus on applications to real-world issues. Topics include perception, attention, memory, concepts, language, visual cognition, executive functions, and reasoning processes. The Staff

40. Introduction to Social Psychology. F
An analysis of contemporary research in social psychology and of what that research can teach us about the world we live in. Problems of conformity, propaganda, prejudice,

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attraction, and aggression. Focuses on a person's relationship with other people, how he or she influences them and is influenced by them. A. Pratkanis

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division or graduate students under faculty supervision. (See course 192.) The Staff

60. Introduction to Personality Psychology. W
An overview of major personality theories from Freud to the modern day, and an introduction to contemporary research on personality development and assessment. Prerequisite(s): course 1. P. Gjerde

65. Introduction to Humanistic Psychology. S
Humanistic psychology is seen here as those contemporary aspects of the field which are explicitly directed toward life-enrichment for members of the culture. The course does not attempt a complete survey of these aspects, but rather explores some of them in depth and attempts to begin working toward an overall theory of the humanistic movement. (General Education Code(s): IS.) R. Quinn

80A. Psychology and Religion. F
Topics covered include myth and the unconscious, the varieties of religious experience, dualism, women and religion, the role of authority, transpersonal experience, conversion, disaffiliation, self and community. (General Education Code(s): T3-Social Sciences.) R. Quinn

Upper-Division Courses

100. Research Methods in Psychology (7 credits). F,W,S
An introduction to research methods used to investigate human psychology. Course emphasizes critical thinking, designing and conducting research, analyzing and interpreting data, and writing a professional research report. (Formerly course 3.) Prerequisite(s): Entry Level Writing and Composition requirements; Applied Mathematics and Statistics 2 or 3 or 6, or Mathematics 3 or higher level Mathematics course; and course 2 or Applied Mathematics and Statistics 5 or 7/7L. (F) C. Leaper, (W) F. Crosby, (S) The Staff

101. Topics in Developmental Psychology.
These topics, offered at different times by different instructors, examine selected topics in developmental psychology. (Formerly course 100.) The Staff

102. Adolescent Development: Adolescence into Young Adulthood. S
Focuses on individual and relational development from early adolescence into young adulthood. Emphasis on the mutual influences of family relationships and adolescent development, and on the interface of family, peer group, and school experience in cultural contexts. Prerequisite(s): courses 3 or 100 and course 10. M. Azmitia

103. Adult Development and Aging. W
Overview of the cultural, societal, biological, interpersonal, and cognitive processes of adult development and aging. Class discusses how each of these contexts and processes promotes stability and change as adults experience adulthood, reflect on their lives, and prepare for death. Prerequisite(s): courses 3 or 100 and course 10. M. Azmitia

104. Development in Infancy. S
Focuses on psychological development in infancy. Presents research on perceptual, cognitive, and social-emotional development during the first two years of life. (Formerly course 101.) Prerequisite(s): courses 3 or 100, and 10. Enrollment restricted to psychology and cognitive science majors. N. Akhtar

105. Children's Thinking. F,S
Cognition in children from infancy through adolescence. Basic and current research on children's understanding of the social and physical world. Focus on major theoretical perspectives: especially Piaget's constructivist approach and sociocultural approach. Prerequisite(s): courses 3 or 100 and 10. (F) The Staff, (S) M. Callanan

106. Social and Emotional Development. W
An examination of contemporary theory and research on social and emotional development from infancy through childhood. Prerequisite(s): courses 3 or 100 and 10. C. Leaper

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107. Gender and Development. *
Examines the developmental psychology of gender in childhood and adolescence. Prerequisite(s): course 3 or 100, and course 10. Enrollment restricted to psychology majors. C. Leaper

108. Educational Psychology. F
An overview of psychological theories and principles applied to formal and informal educational settings. Topics include: learning, motivation, cultural diversity, individual differences, and assessment. Students complete a research project. Prerequisite(s): courses 10 and 100. The Staff

110. Culture and Human Development (6 credits). W
Examines theory, research, and methods of studying the inherent cultural basis of human development and variations and similarities in human lives and activities in different communities worldwide. The approach draws on ideas and observations from psychology, anthropology, linguistics, sociology, and history. Course includes lab exercises using interview and observation methodologies and presentations of library research. (Formerly course 113.) Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and one of the following: course 3 or 100; Anthropology 1 or 2; Education 92A, 92B, or 92C; Latin American Studies 1; or Sociology 1. (General Education Code(s): W, E.) B. Rogoff

112. Moral Development. F
How and why do children develop into moral beings? This course covers key theories and empirical research about the cognitive, emotional, and behavioral aspects of moral development, including psychoanalytic, behaviorist, constructivist, nativist, and evolutionary approaches. Prerequisite(s): courses 10 and 100. A. Dahl

115. Lifespan Developmental Psychopathology. F
Examines theory and research on developmental psychopathology. Emphasizes the origin and longitudinal course of disordered behavior. Explores the processes underlying continuity and change in patterns of adaptation and age-related changes in manifestations of disorders. Prerequisite(s): courses courses 3 or 100, 10, and 170. The Staff

118. Special Topics in Developmental Psychology. F,W,S
The Staff

118A. Children and War. W
Examines the development and behavioral ecology of children affected by war. Discusses refugee children, displaced children, abandoned children, orphaned children, children living in protracted conflict, and child soldiers. Reviews child protection strategies and psychosocial intervention for war-affected children. Prerequisite(s): courses 3 or 100 and 10. D. Hoffman

118B. Children in Extreme Circumstances. F
Reviews child survival in life-threatening contexts. Examines the lives of street children, institutionalized children, orphans, children in extreme poverty, enslaved children, war-affected children, abandoned children, and children whose parents have HIV/AIDS and other life-threatening illnesses. Prerequisite(s): courses 3 or 100 and 10. Enrollment limited to 60. D. Hoffman

118C. Theory of Mind. *
Reviews recent research on how children come to understand aspects of the human mind, such as desire, belief, goals, and intention. Also discusses the implications of this research on typically and atypically developing children. (Formerly Children's Understanding of the Human Mind.) Prerequisite(s): courses 3 or 100, and 10. Enrollment restricted to psychology majors. Enrollment limited to 60. S. Wang

119. Senior Seminars in Developmental Psychology. F,W,S
The Staff

119A. Development as a Sociocultural Process. F
Examines theory and research in sociocultural approaches to how people (especially children) learn and develop through participating in activities of their communities with other people. Emphasizes the organization of social interactions and learning opportunities, especially in communities in the Americas where schooling has not

historically been prevalent. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): satisfaction of Entry Level Writing, Composition requirements; course 3 or 100, Anthropology 1 or 2, Education 92A, 92B, or 92C, Latin American and Latino Studies 1, or Sociology 1. Enrollment restricted to seniors or by permission. Enrollment limited to 30. (General Education Code(s): W.) B. Rogoff

119D. Cultural Perspectives on Adolescent Development. F
Examines cultural influences on adolescence from diverse cultural, ethnic, and socioeconomic communities from the perspective of current interdisciplinary theories and research. Topics include: identity development; changes from early adolescence to adulthood; links among family, school, peer, and community experiences; programs for youth; and implications of bridging research, social policy, and community practice. Includes research practicum. Satisfies the seminar requirement. Satisfies the senior comprehensive requirement. Prerequisite(s): courses 3 or 100 and 10 and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior psychology majors or permission of instructor. Enrollment limited to 30. C. Cooper

119E. The World of Babies. *
Focuses on how infants learn about intuitive physics, naive psychology, and shared culture. Also discusses how learning is facilitated by the community in which infants are brought up. Satisfies the seminar requirement. Satisfies the senior comprehensive requirement. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors and cognitive science majors. Enrollment limited to 30. S. Wang

119F. Language Development. W
An introduction to language development in young children. Explores current theory and research in language development; and focuses on the preschool years. Satisfies the seminar requirement. Satisfies the senior comprehensive requirement. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements, course 10 and course 3 or 100. Enrollment restricted to senior psychology and cognitive science majors. Enrollment limited to 30. N. Akhtar

119H. Children, Research, and Policy. W
Explores ways that research in developmental psychology can be used to address "real-world" problems facing children. With an analytical focus on evidence and generalizability, we will investigate research-policy connections in topics of popular interest (e.g., child custody, poverty). Satisfies seminar requirement. Satisfies senior comprehensive requirement. (Formerly Developmental Psychology Research and "Real World" Problems) Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. (General Education Code(s): W.) M. Callanan

119I. Special Topics in Narrative Development. S
Examines a special topic of current interest in developmental psychology centering on the features of self-identity that develop in the context of telling stories of individual and/or shared experiences, such as self-defining memories or family stories. Satisfies the seminar requirement. Satisfies the senior comprehensive requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 3 or 100; enrollment restricted to senior psychology majors. Course 60 recommended. Enrollment limited to 30. A. Thorne

119M. Identity Development in Social and Cultural Contexts. *
Senior seminar that focuses on identity development in adolescence and young adulthood. Discusses theory and research on the development of personal and social identities and the sociocultural contexts in which these personal and social identities are negotiated. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 3 or 100; course 102 strongly recommended. Enrollment restricted to senior psychology majors or by permission of instructor. Enrollment limited to 30. (General Education Code(s): W.) M. Azmitia

119P. Children and Technology. *
Covers current research and theory related to children and technology. Topics include: how

children learn to use new technologies; how technology use impacts children's thinking; computer gaming and aggression; and how children's social relationships are influenced by technology. Satisfies the seminar and comprehensive requirements. Prerequisite(s): courses 1 and 10; and 3 or 100; and satisfaction of Entry Level Writing and Composition requirements. Enrollment restricted to senior psychology majors and cognitive science majors. Enrollment limited to 30. M. Callanan

119S. The Developmental Psychology of Love. S
Drawing upon key theoretical and empirical findings from across psychology's subfields, this course explores how the experience and expression of love evolves across the life course and how the unique contributions of both partners to relationship dynamics contour relationship trajectories. Prerequisite(s): course 100; satisfaction of entry-level writing and composition requirements. Enrollment restricted to senior psychology majors. Enrollment limited to 30. L. Shapiro

119T. Media Contexts of Adolescent and Young Adult Development. S
Focuses on the role of media in adolescents' and young adults' identity development, friendships, and peer relationships. Topics include: globalization; physical/body image; friendships and peer acceptance; and educational and career goals. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, course 10, and course 3 or 100. Course 102 is recommended. Enrollment restricted to senior psychology majors. Enrollment limited to 30. M. Azmitia

120. Visual and Spatial Cognition. W
Focuses on high-level perception and visual, spatial, and other sensorimotor representations as elements of human cognition. Topics include imagery, visual attention, mental models, spatial language, the body schema, near-body space, and brain organization for representing space. Prerequisite(s): course 1 or 20 or 20A, and course 100. Enrollment restricted to cognitive science and psychology majors and minors. Enrollment limited to 60. The Staff

120D. Deafness and Sign Language. *
Explores what we can learn about human cognition by studying sensory loss and language in a different sensory modality. Topics include brain organization, sensory compensation, working memory, visual cognition, and psycholinguistics. Prerequisite(s): course 1 or 20 or 20A, and course 100. Enrollment restricted to psychology and cognitive science majors and minors. M. Wilson

121. Perception. S
Basic perceptual psychology, emphasizing the relationships between perception, neuroscience, and cognition. Topics include shape, color, and depth; hearing, taste, smell, and touch; and perceiving faces, voices, and language. Prerequisite(s): course 3 or 100 or Biology 70. N. Davidenko

123. Cognitive Neuroscience. W
An examination of the physiological mechanisms of psychological processes, including sensory systems, motor systems, control systems, and memory and learning. Principles of nervous system organization are discussed at each level. (Formerly Behavioral Neuroscience) Prerequisite(s): course 3 or 100 or Biology 70 and one course in statistics (course 2 or Applied Mathematics and Statistics 5 or 7). B. Bridgeman

124. Psychology of Reading. F
Focuses on the cognitive processes that underlie reading in adults. Additional topics include different writing systems, learning to read, and reading deficits. Recommended for upper-division students. Prerequisite(s): course 3 or 100. A. Kawamoto

125. The Psychology of Language. F
An analysis of human communication as a function of psychological, linguistic, and social factors. Focuses on language comprehension and production, including the processing of sounds, words, syntax, semantics, pragmatics, and dialogue. Prerequisite(s): course 3 or 100. J. Fox Tree

126. Aging and the Human Brain. *
How does the brain change as we age? Course covers new developments in research on cognitive neuroscience and aging, with a focus on the consequences for memory, emotion,

and decision-making. Prerequisite(s): course 3 or 100, and 20, 20A, 121, 123, 129 or Biology 70. The Staff

127. Computer Mediated Communication. W
Provides an introduction to cognition as it relates to how people communicate using computers and the Internet. Focuses on the cognitive and social aspects of communication. Prerequisite(s): course 3 or 100 or 20 or 20A or consent of instructor. Course 20 highly recommended. S. Whittaker

128. Human Factors. S
Human factors psychology studies human-machine interaction and computer usability, and involves diverse topics including displays and controls; human error; decision-making; psycholinguistics; and the role of fatigue, environmental stressors, user-interface design, and social/team factors that directly impact human performance. Prerequisite(s): course 3 or 100 . The Staff

129. Human Learning and Memory. S
Examines basic theories, models, methods, and research findings in human memory. Both traditional and nontraditional topics are covered. Prerequisite(s): course 3 or 100. B. Storm

130. Deception, Brain, and Behavior. *
Focuses on behavioral and brain manifestations of deception. Topics include developmental changes that allow us to understand and to use deception, physical implications of lying expressed in the face, voice, posture, and brain activity. Also covers mechanical or behavioral techniques used in deceptive behavior, whether in the form of overt behavior or brain activity. Prerequisite(s): course 3 or 100; course 20 or 20A or any upper-division cognitive course strongly recommended. T. Seymour

132. Neural Modeling. S
Introduces students to the use of computer simulations in experimental psychology. Students use existing software to explore topics in cognition such as learning, memory, and psycholinguistics. One upper-division course in cognitive psychology (courses 120-139) is recommended. Prerequisite(s): course 3 or 100. Enrollment limited to 15. A. Kawamoto

134. Technology Assisted Reading Acquisition. *
Students achieve an understanding of language and its acquisition. The course evaluates nativist and empiricist views, language comprehension and production, speech and reading, and technological influences in language acquisition and its use. Prerequisite(s): upper-division coursework in psychology, cognitive psychology, linguistics, engineering, or computer science. Enrollment limited to 30. (General Education Code(s): PE-H.) D. Massaro

135. Feelings and Emotions. F
Focuses on contemporary research in the psychology of human emotions. Special attention given to work in cognitive science, including psychology, linguistics, philosophy, and anthropology, on how emotions are central to understanding human action and mental life. Prerequisite(s): course 3 or 100, or major standing in linguistics, philosophy or anthropology. R. Gibbs

137. Mind, Body, and World. *
Psychologists primarily view the mind as being separate from the body, and the body as being separate from the external world. This course questions this widely held position and explores the way that minds arise from individuals' bodily interactions with others and the world around them. Particular attention is paid to the role of human embodiment in language use and everyday cognition. Prerequisite(s): course 3 or 100, or major standing in linguistics, philosophy or anthropology. R. Gibbs

138. Computer Programming for the Cognitive Sciences. W
Offers a practical introduction to computer programming for psychology and cognitive science students. Students learn simple and effective techniques for collecting, parsing, and analyzing behavioral data from behavioral experiments. Students create programs to present visual stimuli, collect keyboard responses, and then write response time and accuracy to datafiles on disk. Students then write new programs to extract information from the datafiles, perform statistical analysis, and present summaries of the findings. The course uses cross-platform languages, such as Python or Xojo, for application

development. No previous programming experience is necessary. Prerequisite(s): course 1 or 20A or 20B, and 100. Enrollment restricted to psychology and cognitive science majors. T. Seymour

139. Senior Seminars in Cognitive Psychology. F,W,S
The Staff

139A. Cognitive Laboratory. F
Advanced laboratory experience with research methods and phenomena in cognitive psychology. Satisfies the seminar requirement. Satisfies the comprehensive requirement. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors and cognitive science majors. Enrollment limited to 30. B. Storm

139B. Consciousness. F
Provides a psychological study of human consciousness. Aim is to explore the following questions: What is consciousness? Where does consciousness come from? What functions does consciousness have in everyday cognition? How do we best scientifically study consciousness? These issues are examined from the perspective of contemporary research in cognitive science. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology, philosophy, anthropology, linguistics, and cognitive science majors. Enrollment limited to 30. R. Gibbs

139C. The Psychology of Lying and Deception. *
Discusses why and how people lie. Using scientific articles, movies, and our everyday lives as source material, explores the nature of lying; then focuses on various approaches to behavioral and mechanical "lie detection." Satisfies seminar requirement. Satisfies senior comprehensive requirement. Enrollment restricted to psychology and cognitive science majors. Enrollment limited to 30. T. Seymour

139D. Modeling Human Performance. S
Hands-on experience using computational modeling to understand human cognitive-task performance by comparing simulated and human data. Satisfies senior seminar requirement. Satisfies senior comprehensive requirement. Enrollment restricted to junior and senior psychology, cognitive science, computer science, and computer engineering majors, or by permission of instructor. Prerequisite(s): Entry Level Writing and Composition requirements; course 3 or 100, and at least one of the following: course 121 or 123 or 128 or 129; or Computer Science 5C or 5J or 11 or 12A or 13H or 130 or 140. Enrollment limited to 30. T. Seymour

139F. Psychology and Evolutionary Theory. S
Human psychology is examined from the viewpoint of evolutionary theory, including perspectives from ethnology, anthropology, and neuropsychology. Upper-division students from diverse backgrounds are encouraged to enroll. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology, anthropology, biology, philosophy, sociology, cognitive science, and feminist studies majors. Enrollment limited to 30. B. Bridgeman

139G. Conversations. *
Explores how conversations work and how speakers accomplish their goals in an interaction. Topics include conversational structure, turn-taking, variation in language use, and the functions of discourse markers (words like "um," "uh," and "you know"). Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology and cognitive science majors. Enrollment limited to 30. J. Fox Tree

139H. Weird Science. W
Explores the relationship between science and pseudoscience from a cognitive psychological perspective, including discussion of collection and selection of data, statistical assessment of data, cognitive illusions, memory distortions, reasoning, and decision-making. Also highlights the dissemination of scientific knowledge. Satisfies seminar requirement. Satisfies comprehensive requirement. (Formerly course 134.)

Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology and cognitive science majors. Enrollment limited to 30. J. Fox Tree

139J. Forgetting. *
Explores forgetting as an essential and adaptive process in human memory. Topics include: intentional and unintentional forms of forgetting; the (re)constructive nature of memory; and cases of extreme remembering. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology and cognitive science majors. Enrollment limited to 30. B. Storm

139K. Face Recognition. W
To navigate our social world, we need to extract a wealth of information from faces, including identity, expression, gaze, age, and gender. This seminar reviews current topics in face-recognition research, from cognitive, neuroscience, developmental, social, and computational perspectives. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and course 1 or 20 or 20A; and course 3 or 100. Enrollment restricted to senior cognitive science, neuroscience, and psychology majors. Enrollment limited to 30. N. Davidenko

140. Topics in Social Psychology.
The Staff

140C. Health Psychology. *
Course examines the psychological aspects of health, illness and healing. Focuses primarily on etiology, treatment and prevention; specific topics include stress and the immune response, social support, compliance, health beliefs, and the healing relationship. Prerequisite(s): courses 3 or 100. J. Kaupp

140G. Women's Lives in Context. S
Examines gender as a psychological and social factor that influences women's experiences in different contexts. Cuts across other areas of psychology by taking a women-centered approach. Emphasis also placed on understanding how intersections between gender, race and ethnicity, sexual orientation, socioeconomic status, etc., impact women's psychological well-being. Prerequisite(s): course 3 or 100, or Sociology 103B, or Feminist Studies 100, or Community Studies 100. Enrollment restricted to junior and senior psychology, feminist studies, sociology, and community studies majors. S. Grabe

140H. Sexual Identity and Society. W
Presents an integrative approach to the study of sexual identity. Focuses on the regulation of sexual desire through medical, psychological, and legal discussions. Examines social movements, social policy, and ongoing debates on the meaning and social organization of desire. P. Hammack

140L. Women's Bodies and Psychological Well-Being. *
Examines how women's bodily experiences (e.g., sexual objectification, violence, menarche, sexual health) are uniquely tied to their subordinate status and impacts their psychological well-being. Theories of gender inequality will address how social control directed at women's bodies through power relations imbedded in societal institutions contributes to women's marginalized status. Enrollment restricted to senior psychology, sociology, feminist studies, and community studies majors. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; and courses 3 or 100, or Sociology 103B, or Feminist Studies 100, or Community Studies 100. Enrollment limited to 60. S. Grabe

140Q. Social Psychology of Gender. S
Considers individual, interpersonal, and cultural influences on gender similarities and differences in thinking, motivation, and behavior. Emphasizes factors related to power and status inequalities between women and men. Prerequisite(s): courses 3 or 100. C. Leaper

140T. Psychology of Trauma. *
Overview of psychological theory and research on trauma and traumatic stress, including responses to childhood trauma (especially sexual abuse), combat, and natural disasters. Variety of theoretical frameworks presented, including developmental, cognitive, neuropsychological, clinical, and social/contextual. Prerequisite(s):course 3 or 100 or permission of instructor. E. Zurbriggen

142. Psychology of Oppression and Liberation. F
Provides theoretical frameworks for understanding interlocking systems of oppression from the perspective of "the oppressed" as well as "the oppressor" nationally and internationally. Goes beyond mainstream (traditional) psychology and emphasizes critical psychological perspectives that include micro- and macro-level theories of oppression; importance of ideology in oppressive systems; and theories of social change and liberation across contexts. Prerequisite(s): course 3 or 100 or declaration of major in one of the following programs: feminist studies, sociology, community studies, or politics. (General Education Code(s): E.) The Staff

143. Intergroup Relations. S
Introduces the study of conflict and intergroup relations. Examines historical and cultural foundations of group psychology and social psychological theory and research on conflict between groups, cultures, and nations. Surveys work on multiculturalism, race relations, and global political conflict. Applies social psychological theories to cases of intergroup conflict. Prerequisite(s): course 3 or 100, or major standing in politics, community studies or anthropology, or by permission of instructor. Enrollment limited to 120. (General Education Code(s): E.) The Staff

145. Social Influence. W
An advanced course for upper-division undergraduates interested in the study of the persuasion process. The course investigates common influence tactics and how those tactics are used in various settings. Prerequisite(s): course 3 or 100. A. Pratkanis

145D. Social Psychology of Autocracy and Democracy. S
Humans are the only animal capable of living in both authoritarian and democratic regimes. Course explores the nature of these forms of social relationships with a goal of promoting democracy. Topics include: obedience to authority, conformity, self-justification, propaganda, power, and conflict resolution. (Formerly course 159G.) Prerequisite(s): course 3 or 100. Enrollment restricted to junior and senior psychology majors. A. Pratkanis

146. The Social Context. *
A systematic analysis of the social and contextual determinants of human behavior, with special attention given to concepts of situational control, social comparison, role and attribution theories, as well as the macrodeterminants of behavior: cultural, historical, and sociopolitical context. Prerequisite(s): courses 3 or 100 and course 40; or Sociology 136. The Staff

147A. Psychology and Law. W
Current and future relationships between law and psychology, paying special attention to gaps between legal fictions and psychological realities in the legal system. Topics include an introduction to social science and law, the nature of legal and criminal responsibility, the relationship between the social and legal concepts of discrimination, and the nature of legal punishment. (Also offered as Legal Studies 147A. Students cannot receive credit for both courses.) Prerequisite(s): courses 3 or 100; and course 40 is highly recommended prior to taking this course. Enrollment restricted to psychology, pre-psychology, and legal studies majors. C. Haney

147B. Psychology and Law. S
Continuing discussion of current and future relationships between law and psychology and to contrasting psychological realities with legal fictions. Special attention is given to the criminal justice system including crime causation, the psychology of policing and interrogation, plea bargaining, jury selection and decision making, eyewitness identification, and the psychology of imprisonment. (Also offered as Legal Studies 147B. Students cannot receive credit for both courses.) Prerequisite(s): course 147A. C. Haney

149. Community Psychology: Transforming Communities. F
Introduction to community psychology, a discipline that blends social psychology, sociology, and anthropology. Class topics include levels of analysis, ecologies, prevention, intervention, feminism, empowerment, sense of community, coalition building, and social justice and action. Prerequisite(s): course 3 or 100. Enrollment restricted to juniors and seniors. R. Langhout

150. Social Psychology of Flimflam. F
Why do we believe strange things? This course investigates such flimflams as beliefs in the

Loch Ness Monster, quack health care, and racial superiority to illustrate the underlying social psychological principles that lead us to adopt weird attitudes. (Formerly course 159I.) Prerequisite(s): course 3 or 100. (General Education Code(s): SI.) A. Pratkanis

153. The Psychology of Poverty and Social Class. W
Examines how social class shapes attitudes, beliefs, and behaviors. Emphasis is placed on structural barriers and their impact on the well-being of low-income groups. Strategies for reducing classist discrimination, improving interclass relations, and strengthening social policy are discussed. Prerequisite: course 3 or 100, or major standing in anthropology, community studies, economics, legal studies, politics, sociology, or feminist studies. H. Bullock

155. Social-Community Psychology in Practice. W
This service-learning course requires time in the classroom and the field. Students gain a deep understanding of social justice paradigms, community-based collaborative research, ethics, field-based research, reflexivity, and socio-cultural development modes. Prerequisite(s): Courses 3 or 100; courses 149 and 182 are recommended prior to taking this course. Admission by application and interview only. (Formerly course 159P.) Enrollment limited to 15. (General Education Code(s): PR-S.) R. Langhout

159. Senior Seminars in Social Psychology. F,W,S
The Staff

159A. Sexual Identity. S
Considers the experience of lesbian, gay, bisexual, and transgender individuals from a psychological perspective. Reviews theory and research on compulsive heterosexuality, heterosexism and homophobia, culture and sexual-identity diversity, issues of history and community of LGST individuals, and perspectives on sex, gender, and sexuality from queer theory. Satisfies the seminar requirements. Satisfies the senior comprehensive requirement. Prerequisite(s): course 3 or 100, and satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior psychology majors. Enrollment limited to 30. P. Hammack

159D. Psychology of Sexual Aggression. *
An overview of psychological theory and research related to sexual aggression, focusing on both perpetration and victimization. Includes a discussion of the social construction of masculinity and femininity, media representations of sexual violence, and alternative (non-aggressive) visions of sexuality. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): Entry Level Writing and Composition requirements; and course 3 or 100. Enrollment restricted to senior psychology or feminist studies majors or permission of instructor. Enrollment limited to 30. E. Zurbriggen

159E. Peace Psychology. F,W
Is war inevitable? What is peace? Is it more than the absence of violence? Explore how psychology— the study of human behavior —can help to decrease violence and enhance cooperation at multiple levels including the personal, interpersonal, community, and international arenas. Satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): Entry Level Writing and Composition requirements; and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. The Staff

159F. Culture and Identity. *
Considers the relationship between culture and identity in the "local" context of multiculturalism in the United Sates and the "global" context of conflict and identity politics. Examines concept of "culture," "ethnicity," "race," and "identity" in social science literature. Considers issues of power, social justice, and identity pluralism in both domestic and international contexts. Satisfies seminar requirement. Satisfies the senior comprehensive requirement. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. P. Hammack

159H. Community-Based Interventions. *
Topics include: what makes a successful intervention; what happens before the formal intervention begins; the ethics involved with interventions; different methods for assessing interventions; and different praxis models. Satisfies the seminar requirement. Satisfies the

senior comprehensive requirement. A service component is involved. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. R. Langhout

159X. Psychology of Social Activism. S
Covers social-psychological scholarship relevant to social justice activism that receives limited academic attention in conventional psychology. Prequisite(s): satisfaction of the Entry Level Writing and Composition requirements, and course 3 or 100. Enrollment restricted to senior cognitive science and psychology majors. Enrollment limited to 30. S. Grabe

165. Systems of Psychotherapy. W
A review of the most used major methods of psychotherapy, with attention to the underlying assumptions about personality, health, and disease. Prerequisite(s): course 3 or 100; course 60 or 170 recommended. V. Tonay

166. Personality Assessment. S
How do we really know a person? Course provides hands-on experience with assessing such individual differences as intimacy motivation, dominance, paranoia, and well-being. Students construct their own personality test and learn to critique the kinds of self-report, observational, and interview techniques that are used in organizational and clinical contexts. Prerequisite(s): course 3 or 100; course 60 highly recommended as preparation. V. Tonay

167. Clinical Psychology. W
Serves as an in-depth introduction to the field of clinical psychology. Covers issues of clinical assessment, interviewing, testing, and a range of therapeutic modalities. Prerequisite(s): courses 3 or 100, and 60 or 65; course 170 is recommended as preparation. R. Quinn

168. The Study of Dreams. *
An overview of dream studies by several major theorists and researchers of the 20th century, including Freud, Jung, and Hall. An emphasis on studies that reveal cognitive conceptions and personal concerns through quantitative and qualitative analyses of sets of dreams from individuals and groups. Other topics covered more briefly include dream recall, children and dreams, and the role of dreams within cultures. Prerequisite(s): course 3. G. Domhoff

169. Community Mental Health. F
Examines theory and research on outreach and prevention for application with various populations in community settings (e.g., victims of violence, immigrants, severely mentally ill); presents characteristics of successful agencies and agency development. Surveys interventions currently used in community mental health. Prerequisite(s): course 3 or 100. Courses 60 or 170 recommended. V. Tonay

170. Abnormal Psychology. F,S
Survey of theory, research, and intervention in human psychopathology. Covers psychological, biological, developmental, and socio-cultural approaches. Prerequisite(s): course 3 or 100; course 60 highly recommended as preparation. D. Hoffman

171. Childhood Psychopathology. F
A critical and intensive exploration of a wide variety of specific disorders within their biological, developmental, and social contexts. Concepts of psychopathology in childhood, major and minor diagnostic systems, and a variety of theories of etiology are explored. General intervention strategies and a wide range of specific psychotherapy systems for treatment are closely examined and demonstrated. Prerequisite(s): courses 3 or 100; and course 10. Course 170 strongly recommended. D. Saposnek

175. Personality, Relationships, and Emotions. *
Explores the nature, origins, and development of human personality as it relates to emotions in the context of close relationships. Prerequisite(s): course 3 or 100. Courses 10 and 60 recommended as preparation. K. Cardilla

179. Senior Seminars in Personality Psychology. F,W,S
The Staff

179A. Theories of Moral Psychology. W
A seminar course with focus on theories of moral development from the psychoanalytic, social learning, cognitive-developmental, and humanistic perspectives. Students confront and discuss moral dilemmas from the four perspectives, working toward their own individual theories of pro-social behavior. Course satisfies seminar requirement. Satisfies senior comprehensive requirement. Prerequisite(s): essay required on a moral issue or dilemma relevant to the student's life. Prerequisite(s): Entry Level Writing and Composition requirements; and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. R. Quinn

179B. Children and Divorce. S
Explores history and psychology of divorce and the short- and long-term effects of divorce on children. Examines wide range of findings that have drawn diametrically opposed conclusions; delves into social attitudes and legal structures that have impeded and enhanced divorce transitions for children and parents; investigates future models for divorcing that are child-friendly and consistent with findings from newly emerging longitudinal research on children and divorce. Satisfies seminar and senior comprehensive requirements. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. D. Saposnek

179D. Psychological Interpretation. F
Seminar explores ego, Jungian, and object relations interpretive systems in-depth, applying them to film, music, literature, dreams, art, as well as traditional psychological measures, such as the TAT and interview protocols. Interprets psyche of author, audience, and engendering culture. Prerequisite(s): courses 3 or 100, and course 60; course 165 recommended; satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to senior psychology majors. Enrollment limited to 30. V. Tonay

179G. Child, Youth, and Family Assistance in the Community. *
Allows students in psychology field study to conduct senior capstone projects on topics related to their service learning (field study). The seminar is devoted to creating projects related to community systems that address the needs of at-risk child, youth, and families. Students in the seminar should be pre-enrolled in course 193. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements and course 3 or 100. Enrollment restricted to senior psychology majors. Enrollment limited to 30. D. Hoffman

181. Psychological Data Analysis. S
Intermediate statistical methods widely used in psychology (e.g., ANOVA, ANCOVA, multiple-comparisons, bivariate correlation, multiple regression, repeated-measures), corresponding SPSS or R programs, and elements of measurement theory. Prerequisite(s): course 3 or 100. (General Education Code(s): Q.) The Staff

182. Qualitative Research Methods. W
Designed to equip students with the ability to evaluate, conceive, and carry out psychological research. A variety of techniques (observational, ethnographic, and field) examined and experienced. Students carry out research projects. (Formerly Advanced Research Methods.) Prerequisite: course 3 or 100. Enrollment limited to 30. (General Education Code(s): PR-E.) R. Langhout

183. History and Systems of Psychology. *
An overview of the history of psychology. Examines issues of paradigm and philosophy of science. Reviews central paradigms in the history of the discipline. Assumes a critical-historical approach, linking scientific knowledge produced to prevailing societal beliefs about mind and behavior. (Formerly course 180) Prerequisite(s): course 3 or 100. P. Hammack

190. Senior Seminars.
Special topics with a format varying each quarter. The Staff

191. Teaching College Psychology.
A series designed to provide undergraduates at the upper-division level with an opportunity to participate in planning and teaching college-level psychology. May not be repeated for credit. The Staff

191A. Introduction to Teaching Psychology. F,W,S
Students lead discussion groups and provide one-to-one tutoring for courses 1 or 3 or 100. Admission requires essay describing interest in becoming a course assistant, copies of psychology evaluations, and a letter of recommendation from a psychology faculty member; completion of some upper-division psychology courses prior to enrollment in this course. Prerequisite(s): course 3 or 100. Enrollment restricted to psychology majors. (Formerly "Introduction to Psychology.") Enrollment limited to 20. (F) M. Callanan, (W) A. Kawamoto

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar (course 42) under faculty supervision. Available only to upper-division or graduate students. Students submit petition to sponsoring agency. The Staff

193. Field Study. F,W,S
Series designed to provide advanced psychology undergraduates opportunity to apply what they have learned in the classroom to direct experience in a community agency. Students earn academic credit by working as interns at a variety of psychological settings where they are trained and supervised by a professional within the agency. Faculty also supervise the students' academic work by providing guidance and helping them integrate psychological theories with their hands-on intern experience. A two-quarter commitment. Students submit petition to sponsoring agency. Prerequisite(s): courses 3 or 100. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

193A. Developmental Field Study. F,W,S
Work in a community-based setting while completing self-directed academic work focused in the developmental area under the guidance of a faculty member. Students submit petition to sponsoring agency; applications due one quarter in advance to the Psychology Field Study Office. Prerequisite(s): courses 3 or 100. Enrollment restricted to junior and senior psychology majors. Enrollment limited to 100. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

193B. Cognitive Field Study. F,W,S
Work in a community-based setting while completing self-directed academic work focused in the cognitive area under guidance of a faculty member. Students submit petition to sponsoring agency; applications due one quarter in advance to the Psychology Field Study Office. Prerequisite(s): courses 3 or 100. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

193C. Social Field Study. F,W,S
Work in community-based setting while completing self-directed academic work focused in the social area under guidance of a faculty member. Students submit petition to sponsoring agency; applications due one quarter in advance to the Psychology Field Study Office. Prerequisite(s): courses 3 or 100. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

193D. Clinical/Personality Field Study. F,W,S
Work in community-based setting while completing self-directed academic work focused in clinical or personality area under guidance of a faculty member. Students submit petition to sponsoring agency; applications due one quarter in advance to the Psychology Field Study Office. Prerequisite(s): courses 3 or 100. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. (General Education Code(s): PR-S.) The Staff

194. Advanced Research in Special Topics.
Provides a means for a small group of students to do research on a particular topic in consultation with a faculty sponsor. The Staff

194A. Advanced Developmental Research. F,W,S
Provides students with intensive experience conducting current research in developmental psychology. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194B. Advanced Cognitive Research. F,W,S
Provides students with intensive experience conducting current research in cognitive

psychology. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194C. Advanced Social Research. F,W,S
Provides students with intensive experience conducting current research in social psychology. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195A. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students contemplating a senior thesis should have a superior academic record and be well prepared with a suitable background of previous course work or independent study for performing their proposed research. Students must file a petition with the Psychology Office the quarter in which they would like to begin the thesis. Senior thesis petitions are available in the Psychology Department Office. Check with office for enrollment conditions. The Staff

195B. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students contemplating a senior thesis should have a superior academic record and be well prepared with a suitable background of previous course work or independent study for performing their proposed research. Students must file a petition with the Psychology Office the quarter in which they would like to begin the thesis. Senior thesis petitions are available in the Psychology Department Office. Check with office for enrollment conditions. The Staff

195C. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. When taken as a multiple-term course extending over two or three quarters, the grade and evaluation submitted for the final quarter apply to each of the previous quarters. Students contemplating a senior thesis should have a superior academic record and be well prepared with a suitable background of previous course work or independent study for performing their proposed research. Students must file a petition with the Psychology Office the quarter in which they would like to begin the thesis. Senior thesis petitions are available in the Psychology Department Office. Check with office for enrollment conditions. The Staff

198. Independent Field Study. F,W,S
Provides psychology majors with the opportunity to apply what has been learned in the classroom to direct experience in a community agency outside the local community. Students earn academic credit by working as interns at a variety of psychological settings, where they are trained and supervised by a professional on site. Faculty also supervise the students' field study, providing guidance and help integrating psychological theories with their hands-on experience. Two-quarter commitment required. Admission requires completion of lower-division psychology major requirements; students submit petition to sponsoring agency. Applications are due one quarter in advance to the Psychology Field Study Office. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual directed study for upper-division undergraduates. Students must file a petition with the Psychology Office the quarter in which they would like to take the tutorial. Petitions may be obtained in the Psychology Department Office. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Specialized study with individual faculty as psychology peer advisors. May not be applied toward major requirements. Students submit petition to sponsoring agency. Application and interview required during the previous quarter. Enrollment restricted to junior and senior psychology majors. May be repeated for credit. The Staff

199G. Tutorial (3 credits). F,W,S
Specialized study with individual faculty. May not be applied toward major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

204. Quantitative Data Analysis. F
Intermediate statistical methods widely used in psychology (e.g., ANOVA, ANCOVA, multiple-comparisons, repeated-measures, correlational analyses) and corresponding SPSS or R programs. Enrollment restricted to graduate students. Enrollment limited to 20. D. Bonett

210. The Experimental Method in Social Psychology. *
Explores the philosophy and practice of the experimental method in social psychology. Enrollment restricted to graduate students. E. Zurbriggen

211A. Proseminar: Social Justice and the Individual. F
Provides an introduction to social psychology, focusing on various individual-level social justice topics, including the self, social comparison, individual and collective identity, social historical and social structural determinants of behavior and various policy and social change-related issues. Enrollment restricted to psychology graduate students; undergraduates planning graduate work in social psychology may enroll with permission of instructor. Enrollment limited to 15. P. Hammack

211B. Social Justice, Society, and Policy. W
Provides an introduction to social psychology, focusing on empirical and theoretical developments related to social justice and group and intergroup dynamics. Topics include: prejudice and discrimination, power, collective action, and psychology's relationship to social policy. (Formerly Proseminar: Groups in Society .) Enrollment restricted to psychology graduate students. Undergraduates planning graduate work in social psychology may enroll with permission of instructor. Enrollment limited to 20. C. Haney

213. Special Topics in Social Psychology. W
Focuses on particular issues of theoretical and practical importance in social psychology. Topics vary from year to year and often concentrate on issues of social justice, social identity, intergroup relations, and social policy. Enrollment restricted to graduate students. May be repeated for credit. The Staff

214A. Multivariate Techniques for Psychology. W
Introduces multiple regression (MR) and multivariate analysis of variance (MANOVA). Both methodological and statistical aspects of multivariate data analysis are discussed. Practical problems in estimating and testing regression and general linear models are addressed. Students gain experience in carrying out and interpreting analyses using SPSS or R. Prerequisite(s): course 204. Enrollment limited to graduate students. Enrollment limited to 20. D. Bonett

214B. Advanced Multivariate Techniques for Psychology. S
Introduces factor analysis and structural equation modeling (SEM). Develop skills in defining, estimating, testing, and critiquing models. Topics include the rationale of SEM, model identification, goodness of fit, and estimation. Learn how to use relevant software packages (R, SAS, LISREL, EQS, or AMOS) to conduct exploratory and confirmatory factor analyses and latent variable path analyses. Prerequisite(s): course 214A. D. Bonett

215. Production and Comprehension of Spontaneous Communication. S
Seminar on spontaneous communication. Typical topics include discourse markers (including historical origins, cross-linguistic borrowing, second-language learning, children's acquisition), enquoting devices, backchannels, and spontaneous written communication. (Formerly Production and Comprehension of Spontaneous Speech.) Enrollment restricted to psychology graduate students. J. Fox Tree

220. Special Topics in Human Memory. *
Topics announced when offered. Seminars involve discussion and critical evaluation of current, historical, and interdisciplinary readings relevant to topic. Emphasis on development of research ideas. Enrollment restricted to graduate students. Enrollment limited to 12. The Staff

221. Visual Perception. *
Seminar to study human perception, its methodology, and driving issues as illustrated by selected research topics (e.g., adaptation to unusual sensory environments). Where

possible, parallels with other areas of psychology are drawn. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

222. Topics in Lexical Organization. *
The recognition of words is a critical step in natural language processing. Discusses a range of contemporary issues related to the representation of a word and the access of this information from the perspective of psychology, linguistics, and artificial intelligence. Enrollment restricted to psychology graduate students; undergraduates who have completed course 124 may enroll with permission of instructor. Enrollment limited to 10. A. Kawamoto

224A. Proseminar: Cognitive I. F
A proseminar reviewing current topics in cognitive psychology, designed to introduce new graduate students to the field. Enrollment restricted to psychology graduate students. Enrollment limited to 10. B. Storm, S. Whittaker

224B. Proseminar: Cognitive II. W
A proseminar reviewing current topics in cognitive psychology, designed to introduce new graduate students to the field. Enrollment restricted to psychology graduate students. Enrollment limited to 10. T. Seymour, J. Fox Tree

225A. Introduction to Developmental Research I (3 credits). F
Surveys the rationale and techniques of research in developmental psychology. Students build skills in evaluating published research, in translating theoretical ideas into researchable hypotheses, and in selecting appropriate research designs, measurement, and statistical approaches for research problems. Multiple-term course; students receive 6 credits in the second quarter of attendance; the grade and evaluation submitted for the final quarter applies to both quarters. Enrollment restricted to psychology graduate students or with instructor's permission. May be repeated for credit. A. Thorne

225B. Introduction to Developmental Research II. S
Focuses on drawing reasonable conclusions from research findings by focusing on students' first-year research projects and critiques of existing research. Enrollment restricted to psychology graduate students. S. Wang

227. Contemporary Issues in Psychology of Language. *
Special topics in thought and language are examined from the perspectives of cognitive science. Particular attention given to embodied experience and higher-order cognition. Enrollment restricted to graduate students. May be repeated for credit. R. Gibbs

230. Research in Cognitive Psychology Seminar. F,W,S
Colloquium series to study and critique research in cognitive psychology and cognitive science. Enrollment restricted to psychology graduate students. May be repeated for credit. (F) B. Storm, (W) T. Seymour, (W) J. Fox Tree

231. Research in Social Psychology Seminar. F,W,S
Seminar to study, critique, and develop research in social psychology. Enrollment restricted to psychology graduate students. May be repeated for credit. (S) E. Zurbriggen, (FW) The Staff

232. Evolution of Cognition. *
Explores current research on evolution of human cognition, drawing on findings from other species and from the archaeological record. Topics include language, working memory, episodic memory, numerical abilities, and social cognition. Enrollment restricted to graduate students. The Staff

235. Infant Development in Contexts. *
Seminar on how contextual factors influence the development in infancy, especially on cognitive domains. Discusses at least four types of contextual factors: cultural, experiential, event, and interpersonal contexts. Enrollment restricted to psychology graduate students. S. Wang

236. Paradigms of Culture. *
Integrative seminar on the relationship between individual psychological experience and its social, cultural, and institutional context. Explores various paradigms of "culture" in social science literature, including psychoanalytic theory, culture and personality, cultural

psychology, Marxism, symbolic interactionism, poststructuralism, postcolonial theory, narrative, and Vygotsky's sociocultural theory. (Formerly Person, Culture, Society .) Enrollment restricted to graduate students. Enrollment limited to 10. P. Hammack

242. Research in Developmental Psychology Seminar. F,W,S
Seminar to study, critique, and develop research in developmental psychology. Enrollment restricted to psychology graduate students. May be repeated for credit. (F) B. Rogoff, (W) A. Thorne, (S) The Staff

244A. Proseminar I: Cognitive and Language Development. F
Explores major theories and research in the fields of cognitive development and language development. Begins with classic theorists, such as Piaget and Vygotsky, and proceeds to theories and research on topics of current interest, such as the relation between culture and cognitive and language development. Enrollment restricted to graduate students. M. Callanan

244B. Proseminar II: Social and Personality Development. W
An examination of contemporary theory and research on social and personality development across the lifespan. Enrollment restricted to graduate students. M. Azmitia

245. Computational Models of Discourse and Dialogue. W
Focuses on classic and current theories and research topics in the computational modeling of discourse and dialogue, with applications to human-computer dialogue interactions; dialogue interaction in computer games and interactive story systems; and processing of human-to-human conversational and dialogue-like language such as e-mails. Topics vary depending on the current research of the instructor(s) and the interests of the students. Students read theoretical and technical papers from journals and conference proceedings and present class lectures. A research project is required. (Also offered as Linguistics 245. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. May be repeated for credit. M. Walker

246. Cultural Diversity in Human Development. S
Examines cultural influences in development from the perspective of current theories and empirical research in developmental psychology and related fields (including social psychology, anthropology, sociology, history, education, and social policy). Focuses on understanding development in diverse cultural, ethnic, and socioeconomic communities by examining the interplay of social, cultural, institutional, and psychological processes. Enrollment restricted to graduate students. Enrollment limited to 20. B. Rogoff

247. Special Topics in Developmental Psychology. *
Focuses on particular issues of theoretical importance in developmental psychology. Topics vary from year to year. Particular issues in language, culture, cognitive, social, and personality development may be covered. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

248. Survey Methods. *
Practicum to give students hands-on experience with survey methods by conducting their own survey on the topic of their choice. Course requires the survey to be conducted off campus at a local agency or program chosen by student with approval of instructor. Enrollment restricted to graduate students. Enrollment limited to 10. S. Grabe

249. Field Methodologies and Social Ethnography. *
Designed to train graduate students in applied field methods. Emphasis is on gaining knowledge and experience with actual field methods, by conducting social ethnography in the community. Field research in community placements required. Enrollment restricted to graduate students. Enrollment limited to 10. Offered in alternate academic years. C. Haney

250. Prejudice and Social Relations. *
Examines the ways in which the various branches of psychology have approached the issue of prejudice. Attention paid to the assumptions underlying each approach and their relation to core psychological ideas such as the self and emotion. Enrollment restricted to graduate students. The Staff

251. Feminist Theory and Social Psychology. *
Course bridges feminist theory and social psychological research to explore connections

between theory covered and empirical studies on various topics in social psychology. Seminar format allows students opportunity for extensive discussion. (Also offered as Feminist Studies 251. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. The Staff

252. Special Topics in Cognitive Psychology. F,W
Focuses on particular issues in cognitive psychology. Topics vary from year to year. Particular issues in language, memory, perception, cognitive modeling, cognitive neuroscience, and more are covered. Enrollment restricted to graduate students. May be repeated for credit. (F) N. Davidenko, (W) B. Storm

253. Theory and Research in Intergroup Relations. *
Examines, compares, and contrasts a variety of theories in intergroup relations while examining relevant empirical research. The relevance of both theory and research findings to contemporary social issues is explored. Enrollment restricted to psychology graduate students; undergraduates considering graduate work in social psychology are encouraged to enroll with permission of instructor. Enrollment limited to 12. Offered in alternate academic years. The Staff

254. Psychology of Gender. *
Course reviews recent theory, research, and applications in the psychology of gender. Developmental, social-psychological, cultural, and feminist approaches are emphasized. Enrollment restricted to graduate students. C. Leaper

256. Psychology of Social Class and Economic Justice. *
Course examines the social psychological antecedents, correlates, and consequences of economic inequality in contemporary U.S. society. The impact of social class on attitudes, beliefs, and behaviors is assessed. Strategies for reducing classist discrimination, improving interclass relations, and strengthening social policy are discussed. Enrollment restricted to graduate students. Enrollment limited to 10. H. Bullock

261. Participatory Action Research. S
Participatory Action Research (PAR) is a theoretical standpoint and collaborative methodology that is designed to ensure that those affected by the research project have a voice in that project. Topics include philosophies of science; defining and evaluating PAR; ethics; and reflexivity. Enrollment restricted to graduate students. Enrollment limited to 10. R. Langhout

264. Transnational Feminism, Development, and Psychology. *
A transnational feminist lens examines international development as linked to broader ideologies that transform gender relations and enhance women's empowerment. A social-psychology framework brings theoretical and practical import to the issues and examines how research can contribute to social justice and women's human rights. Enrollment restricted to graduate psychology students, or by permission of instructor. S. Grabe

290. Proseminar.
Various topics to be offered throughout the year. The Staff

290B. Advanced Developmental Research and Writing (2 credits). F,W,S
Tailored to graduate students' interests among topics involving research and scholarship in sociocultural approaches to development, methods for research design, data collection, coding, and analysis, and preparing and reviewing grant proposals and journal manuscripts. Multiple-term course; students receive 6 credits in the third quarter of attendance; the performance evaluation and grade submitted for the final quarter applies to all three quarters. Enrollment restricted to graduate students. May be repeated for credit. B. Rogoff

290C. Professional Development (3 credits). *
Designed to aid advanced psychology graduate students with development of competence in professional activities (e.g., preparing a vita, making job and conference presentations, submitting and reviewing manuscripts and grant proposals, professional communication, career decisions). Multiple-term course; students receive 6 credits in the second quarter of attendance; the grade and evaluation submitted for the final quarter applies to the previous quarter. Enrollment restricted to advanced psychology graduate students. May be repeated for credit. A. Thorne

290E. Grant Writing for Psychologists. *
Discusses how to write and put together a grant proposal for psychological research, culminating in a completed proposal. Enrollment restricted to psychology graduate students. J. Fox Tree

293. Field Study. F,W,S
Student-designed and student-conducted research carried out in field settings. The Staff

297. Independent Study. F,W,S
Independent study and research under faculty supervision. The Staff

299. Thesis Research. F,W,S
The Staff

* Not offered in 2014-15

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Russian

2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. First-Year Russian. F
Aural comprehension, speaking, reading, and writing. Recitation and laboratory. Elementary sequence (1-2-3) begins in the fall quarter only. (Formerly Instruction in the Russian Language.) The Staff

2. First-Year Russian. W
Aural comprehension, speaking, reading, and writing. Recitation and laboratory. Students interested in this course who have not taken the prerequisite should meet with the instructor prior to the first class meeting. (Formerly Instruction in the Russian Language.) Prerequisite(s): course 1 or by consent of instructor. The Staff

3. First-Year Russian. S
Aural comprehension, speaking, reading, and writing. Recitation and laboratory. Students interested in this course who have not taken the prerequisite should meet with the instructor prior to the first class meeting. (Formerly Instruction in the Russian Language.) Prerequisite(s): course 2 or by consent of instructor. The Staff

4. Second-Year Russian. F
Second-year courses designed to improve functional competence in speaking, listening, reading, and writing by activating basic grammar covered in introductory courses. Grammatical explanations and exercises supplemented with short readings and films. (Formerly Intermediate Russian.) Prerequisite(s): course 3 or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

5. Second-Year Russian. *
Second-year courses designed to improve functional competence in speaking, listening, reading, and writing by activating basic grammar covered in introductory courses. Grammatical explanations and exercises supplemented with short readings and films. (Formerly Intermediate Russian.) Prerequisite(s): course 4 or by consent of instructor. (General Education Code(s): CC, IH.) The Staff

6. Second-Year Russian. *
Second-year courses designed to improve functional competence in speaking, listening, reading, and writing by activating basic grammar covered in introductory courses. Grammatical explanations and exercises supplemented with short readings and films. (Formerly Intermediate Russian.) Prerequisite(s): course 5 or by consent of instructor.

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- Porter College
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- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

(General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Upper-Division Courses

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. Enrollment limited to 10. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Science Communication

2014-15 General Catalog

Kresge Annex A
(831) 459-4475
http://scicom.ucsc.edu

Faculty | Program Statement

Upper-Division Courses

160. Introduction to Science Writing. S
A rigorous examination and practice of the skills involved in writing articles about science, health, technology, and the environment for the general public. Covers the essential elements of news writing and explanatory journalism, including developing a story idea, interviewing scientists, fact checking, composition, and editing of multiple drafts about scientific research. (Also offered as Biology:Ecology & Evolutionary 188. Students cannot receive credit for both courses.) Prerequisite(s): satisfaction of the Entry Level Writing and C1, C2 requirements. Enrollment restricted to junior and senior physical and biological sciences majors. Enrollment limited to 18. (General Education Code(s): W.) R. Irion

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. The Staff

Graduate Courses

201A. Reporting and Writing Science News. F
A survey of the conventions of newspaper journalism and the special application of those conventions to scientific and technological subjects. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. R. Irion, E. Check Hayden

201B. The Science Feature. W
A survey of selected feature articles in the current national science magazines, with attention to strategy, level of complexity, explanation technique, and style. Writing assignments include a publishable feature article. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. R. Irion

201C. Profile and Essay Writing. W
A survey of science and nature profiles and essays. Purpose, content, form, and style are considered. Writing assignments include original profiles and essays on current issues in science, technology, and society. (Formerly The Science Essay.) Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. E. Strauss

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201D. Policy and Investigative Reporting. S
Rigorous examination of techniques for reporting topics where science and technology meet public policy and society. Covers essential skills of investigative reporting, including obtaining documents through Public Records Act requests, using online reporting resources, and writing about ethical and legal issues. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. P. Aldhous, M. Mendoza

201E. Multimedia Science News. S
Introduces web-media tools for reporting science stories and enhancing coverage for broad audiences, including video packages, narrated slideshows, podcasts, blogs, and still photography. Laboratory sections address skills for handling equipment and online editing. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. M. Miller, R. Irion

202. Writing and Editing Workshop. F
Theory and practice of writing and editing articles on scientific, medical, environmental, and technological subjects for newspapers, magazines, and special publications directed at non-technical readers. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. May be repeated for credit. K. Mclaughlin, M. Desjardins

297. Independent Study. F,W,S
A media internship is completed with faculty tutorial assistance, to satisfy a need for the student when a regular course is not available. Enrollment restricted to graduate students formally accepted into the writing track of the Science Communication Program. May be repeated for credit. The Staff

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Social Documentation

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101 Communications Building
(831) 459-3445
socdoc@ucsc.edu
http://film.ucsc.edu/socdoc

Faculty | Program Statement

Graduate Courses

200. Approaches to Social Documentation. F
Comprehensive review and analysis of documentary strategies aimed at societal critique and social change, evaluating changes in argument, evidence, and process over development of the discipline. Enrollment restricted to graduate students. Enrollment limited to 15. B. Rich

202. Practice of Social Documentary. F
Introduction to social documentary genres including video, photography, new media and other mediums, which addresses social-scientific research and methodology in the context of these processes. Enrollment restricted to social documentation graduate students. Enrollment limited to 15. J. Taylor

204. Ways of Seeing and Hearing. *
Graduate-level advanced seminar explores ways that seeing, hearing, and knowing are influenced by culture, power, race, and other factors. Readings emphasize how documentary subjects are constituted and known, addressing questions of epistemology, social constructivism, objectivity, and method. (Also offered as Feminist Studies 204. Students cannot receive credit for both courses.) Enrollment restricted to graduate students. M. Ochoa

208. Social Science Research and Social Representation. W
Designed to acquaint students with how social science research represents social reality and how social documentarians represent social reality. Designed to encourage comparison among different modes of social science research and between social science and different modes of social documentation representations of social life. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

220. Oral History. *
Introduction to the theory and practice of oral history. Seminar participants read foundational texts in oral history, historical memory, public history, and social documentary. Students conduct two oral-history interviews; write synthesis essays; and complete a seminar paper. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

270. Project Planning for the Social Documentary. S

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Workshop seminar in project planning focusing on the form and content of the documentary project; research and preproduction; technical, financial, and logistical plans; and coordination with subjects and resources. Enrollment restricted to social documentation graduate students. Enrollment limited to 15. J. Leanos

280. Video Production of the Social Documentary. W
Intensive directing and producing course that covers conceptualization, research, treatment and proposal writing, interview technique, camera, editing, production, and distribution. Enrollment restricted to social documentation graduate students. Open to qualified undergraduates with permission of instructor. Enrollment limited to 15. J. Taylor

290. Special Topics in Social Documentation. F
Designed to provide supplemental instruction on specific topical and/or technical matters related to social documentation. Topics include technical standards and innovations within the field of social documentation, documentary subjects, location production, and/or the work of individual professional documentarians. Enrollment restricted to social documentation graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

292. Special Topics (2 credits). F,W,S
Provides supplemental instruction on specific topical and/or technical matters related to social documentation. Topics include technical standards, artistic strategies, and innovations within the field of social documentation, documentary subjects, and/or work of individual professional documentarians. Enrollment restricted to graduate students. Enrollment limited to 15. May be repeated for credit. The Staff

293. Studies and Practice for Social Documentation, Filmmaking, and New Media. W
This thematic, graduate-level, hybrid, production/critical studies course provides opportunities to learn specific technical skills while engaging in the analysis and critical interpretations of cinema, social documentary, animation, art, television, and new media. Technical topics may include animation; motion graphics; interactive web media; and installation, editing, cinematography, and sound. (Also offered as Film and Digital Media 233. Students cannot receive credit for both courses.) Enrollment restricted to graduate students in social documentation. Graduate students from other programs may enroll by permission of the instructor. Enrollment limited to 15. J. Leanos, L. Andrews

294A. Production/Analysis/Editing. F
Workshop seminar oriented toward actual fieldwork, production, and preparation for editing of the thesis project in the student's chosen genre. Techniques of collection and recording, analysis, preparation, and editing taught. Enrollment restricted to social documentation graduate students. Enrollment limited to 15. I. Lusztig

294B. Production/Analysis/Editing. W
Workshop seminar oriented toward the editing and creative assemblage of the thesis project in the student's chosen genre. Techniques of preparation, exhibition, and editing taught. Enrollment restricted to social documentation graduate students. Enrollment limited to 15. B. Rich

294C. Production/Analysis/Editing. S
Social documentation students in the final phase of completing their master's thesis receive guidance in shaping their projects, receive feedback, and are taught key elements of structure and narrative at a time when the demand for clarity and social documentation exposition is crucial. Prerequisite(s): courses 294A and 294B. Enrollment restricted to social documentation graduate students. G. Vazquez

295. Project Completion. F,W,S
Individualized study for second-year graduate students working on and completing their final projects. Limited to students enrolled in the social documentation program during their final quarter of study. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Study either related to a course being taken or a totally independent study. Enrollment restricted to graduate students. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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297F. Independent Study (2 credits). F,W,S
Students submit petition to course-sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

* Not offered in 2014-15

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Sociology

2014-15 General Catalog

226 College Eight
(831) 459-4306
http://sociology.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. Introduction to Sociology. F,S
A systematic study of social groups ranging in size from small to social institutions to entire societies. Organized around the themes of social interaction, social inequality, and social change. Fulfills lower-division major requirement. (General Education Code(s): IS.) F. Guerra

10. Issues and Problems in American Society. W
Exploration of nature, structure, and functionings of American society. Explores the following: social institutions and economic structure; the successes, failures, and intractabilities of institutions; general and distinctive features of American society; specific problems such as race, sex, and other inequalities; urban-rural differences. Fulfills lower-division major requirement. (General Education Code(s): IS.) The Staff

15. World Society. F
Introduction to comparative and historical sociology. Focuses on the global integration of human society. Examines social changes such as industrialization, globalization, colonial rule, and the rise of Islamic fundamentalism. Uses social theory (including ideas from Marx, Weber, and Adam Smith) to explore the making of institutions like the nation-state, the World Trade Organization, the World Bank, and the International Monetary Fund. Fulfills lower-division major requirement. (General Education Code(s): CC, IS, E.) S. Mc Kay, B. Crow

30A. Introduction to Global Information and Social Enterprise Studies (3 credits). F
Teaches how to use social-enterprise methodologies to transfer information-communication technologies (ICT) to community and non-governmental organizations. Concepts include: globalization, info-exclusion, social justice, information revolution, global civil-society networks, social entrepreneurship, "open source" resources, web design, databases, networking. Requires organizational assessment. Enrollment limited to 50. K. Eischen

30B. Designing ICT Projects for Social Enterprise (3 credits). W
Covers designing "doable" ICT-based projects to support the goals of community and NGOs. Topics include: social entrepreneurship/enterprise case studies; step-by-step project design; integrating social and technical solutions; project management. Technical topics include: Internet resources; advanced web/database design; computer networks/maintenance. Enrollment limited to 50. R. Lipschutz

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

30C. Project Implementation and Grant Writing for Social Entrepreneurs (3 credits). S
Covers conversion of ICT project into a fundable grant proposal for social justice, integration of social activism, entrepreneurship and justice, and implementation of project. Topics include: funders, proposal design, field methods, project assessment, innovative ICT applications, action research methods. Enrollment limited to 50. P. Lubeck

42. Student-Directed Seminar. F,W,S
Seminars on selected topics taught at various times by upper-division students under faculty supervision. (See course 192.) Consult the Schedule of Classes for specific offerings. The Staff

93. Field Study. F,W,S
Ordinarily call numbers for this course will not be issued after the first week of instruction. Students submit petition to sponsoring agency. The Staff

99. Tutorial. F,W,S
Directed reading and research. Petitions may be obtained from the Sociology Department Office. Ordinarily call numbers for this course will not be issued after the first week of instruction. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Directed reading and research. Petitions may be obtained from the Sociology Department Office. Students submit petition to sponsoring agency. Ordinarily call numbers for this course are not issued after the first week of instruction. May be repeated for credit. The Staff

Upper-Division Courses

103A. Statistical Methods. W
Fundamental concepts in statistics. Introduction to measuring causation. Learn to use computer to analyze data efficiently. Emphasis on practical applications. Enrollment restricted to sociology, proposed sociology, and combined sociology majors. (General Education Code(s): SR, Q.) H. Fukurai

103B. The Logic and Methods of Social Inquiry. S
The first part of the course focuses on basic ethical, political, and logical issues in social scientific inquiry. The second part develops a wide range of skills and methods appropriate to actual research. Course 103A, Statistical Methods, is strongly recommended. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; enrollment restricted to sociology and sociology combined majors, minors and proposed majors. (General Education Code(s): W, Q.) D. Takagi

105A. Classical Social Theory. F
This intensive survey course examines the intellectual origins of the sociological tradition, focusing on changing conceptions of social order, social change, and the trends observed in the development of Western civilization in the modern era. Readings are all taken from original texts and include many of the classical works in social theory with special emphasis on the ideas of Marx, Weber, and Durkheim which constitute the core of the discipline. Required for sociology majors planning on studying abroad (EAP). (Formerly Classical Sociological Theory.) Enrollment restricted to juniors and seniors in sociology, proposed sociology, the combined Latin American and Latino studies/sociology, and the proposed combined Latin American and Latino studies/sociology majors and sociology minors. D. Gould

105B. Contemporary Social Theory. W
Surveys major theoretical perspectives currently available in the discipline including functionalism, symbolic interactionism, ethnomethodology, conflict theory, critical theory, neo-Marxism, feminist theory. (Formerly Contemporary Sociological Theory.) Enrollment restricted to juniors and seniors in sociology, proposed sociology, the combined Latin American and Latino studies/sociology, and the proposed combined Latin American and Latino studies/sociology majors and sociology minors. A. Szasz

111. Family and Society. F
Focuses on the interaction between family and society by considering the historical and

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social influences on family life and by examining how the family unit affects the social world. Readings draw on theory, history, and ethnographic materials. W. Martyna

114. Sports and Society. *
Explores the interconnections between sports and society using sociological theories and methods. Topics include class, race, and gender; mass media and popular culture; political economy; education and socialization; leisure patterns (participants and spectators); globalization and cross-national comparisons. The Staff

115. Green Governance. *
Working collaboratively in group interactive laboratories, students assess the effectiveness of various forms of public and private decision-making in the creation of a sustainable future. Electrical Engineering 80S or the College Eight core course recommended as prerequisites. (Formerly Sustainable Design as Social Change.) Enrollment limited to 60. (General Education Code(s): PE-T.) The Staff

116. Communication, Media, and Culture. *
Examines media institutions, communication technologies, and their related cultural expressions. Focuses on specific ways the media—including media studies and criticism—operates as social and cultural factor. Contemporary theory or equivalent in related fields recommended. (Formerly "Communication and Mass Media.") Enrollment restricted to junior and senior majors, proposed majors, and minors in sociology, global information and social enterprise, and Latin American studies/sociology combined majors. The Staff

118. Popular Music, Social Practices, and Cultural Politics. F
Considers the role of popular music as a site of contemporary social practices and cultural politics. Examines the institutional organization and production of popular music, its cultural meanings, and its social uses by different communities and social formations. Also examines popular music as a vehicle through which major cultural and political debates about identity, sexuality, community, and politics are staged and performed. Prerequisite(s): course 105A or 105B. Enrollment restricted to juniors and seniors. The Staff

119. Sociology of Knowledge. *
Focus includes the following three areas: historical examination of sociological theories of knowledge with reference to Durkheim, Weber, Mannheim, and others; examination of black and feminist perspectives within sociology; examination of whether and how "outside" observers can analytically grasp the inner workings of other cultures. Prerequisite(s): course 103B or 105A or 105B. The Staff

120. Gender, Sexuality, and Cultural Politics. *
Focuses on the role feminist discourses play in cultural politics emphasizing sex, sexuality, and sex work as related to gender, race , and class. Examines the relationship between academic and popular feminisms. Interrogates post-feminism, third-wave feminism, and generational differences in feminisms. (Formerly Feminisms and Cultural Politics .) Prerequisite(s): course 129 recommended. Enrollment restricted to juniors and seniors. J. Bettie

121. Sociology of Health and Medicine. *
Analysis of the current health care "crises" and exploration of the social relationships and formal organizations which constitute the medical institution. Study of the political, economic, and cultural factors which affect the recognition, distribution, and response to illness. The Staff

122. The Sociology of Law. *
Explores the social forces that shape legal outcomes and the ways law, in turn, influences social life. Traces the history and political economy of American law; the relation between law and social change; how this relation is shaped by capitalism and democracy; and how class, race, and gender are expressed in welfare and regulatory law. (Also offered as Legal Studies 122. Students cannot receive credit for both courses.) Enrollment restricted to sociology majors and minors. C. Reinarman

123. Law, Crime, and Social Justice. *
Blends the latest research in criminology with that from social stratification, inequality, and social welfare policy with the objective of exploring the relationship between levels of general social justice and specific patterns of crime and punishment. The focus is primarily

on the U.S. although many other industrialized democracies are compared. An introductory course in sociology is recommended as preparation. (Also offered as Legal Studies 123. Students cannot receive credit for both courses.) The Staff

124. Visual Sociology. *
Learn to critically consume documentary, ethnographic film, photojournalism, and the genre of realism as these methods are increasingly used to describe the social world. Addresses theoretical, methodological, practical, and ethical issues of creating visual media. Optional media lab teaches students how to create visual products as well. (Formerly Visual Ethnography) Prerequisite(s): Enrollment restricted to juniors and seniors. J. Bettie

124L. Visual Sociology Media Lab (2 credits). *
Teaches the basics of digital narrative/storytelling, basic use of digital video cameras, digital video editing in iMovie and/or Final Cut Pro, and use of microphones and sound. Students use these skills to aid in creation of their final course project. (Formerly Visual Ethnography Media Lab .) Concurrent enrollment in course 124 is required. Enrollment restricted to juniors and seniors. J. Bettie

125. Society and Nature. F
A healthy society requires a stable and sustainable relationship between society and nature. Covering past, present, and future, the course covers environmental history of the U.S., the variety and extent of environmental problems today, and explores their likely development in our lifetimes. (General Education Code(s): PE-E.) The Staff

126. Sociology of Sex. *
Explores social and cultural aspects of human sexuality and reproduction, including how and why meanings and behaviors are contested. Analyzes sexuality and reproduction as forms of social and political control as well as cultural expression and self-determination. Enrollment restricted to upper-division students. Enrollment limited to 90. J. Bettie

127. Drugs in Society. W
Explores the history of the use and abuse of consciousness-altering substances like alcohol and other drugs. Social-psychological theories of addiction are reviewed in tandem with political-economic analyses to identify the social conditions under which the cultural practices involved in drug use come to be defined as public problems. An introductory sociology course is recommended prior to taking this course. (Also offered as Legal Studies 127. Students cannot receive credit for both courses.) Enrollment restricted to sociology majors and minors. C. Reinarman

128. Law and Politics in Contemporary Japan and East Asian Societies. *
Introduction to contemporary analysis of Japan's race relations, ethnic conflicts, and a government's failure to restore remedial justice for war victims in Japan, Asia, and the U.S. Specific issues include comfort women, national or state narratives on Hiroshima, forced labor during World War II, and Haydon legislation that allows war victims to sue Japanese government and corporations in California. (Also offered as Legal Studies 126. Students cannot receive credit for both courses.) Enrollment limited to 30. H. Fukurai

128I. Race and Law. F
An introduction to comparative and historical analyses of the relation between race and law in the U.S. Emphasis on examinations of continuous colonial policies and structural mechanisms that help maintain and perpetuate racial inequality in law, criminal justice, and jury trials. (Formerly Race and Justice) (Also offered as Legal Studies 128I. Students cannot receive credit for both courses.) Enrollment restricted to sophomores, juniors, and seniors. H. Fukurai

128J. The World Jury on Trial. *
Adoption of the jury and its varied forms in different nations provides ideal opportunities to examine differences between systems of popular legal participation. Course considers reasons why the right to jury trial is currently established in Japan or Asian societies, but abandoned or severely curtailed in others. American jury contrasted with other forms of lay participation in the legal process. (Also offered as Legal Studies 128J. Students cannot receive credit for both courses.) Enrollment restricted to sophomores, juniors, and seniors. Enrollment limited to 30. H. Fukurai

128M. International Law and Global Justice. *
Examines war crimes, crimes against humanity, and the evolution and role of the International Criminal Court (ICC). Examines the evolution of the concept of international law, the rationale for its birth and existence, roots of international conflicts and genocides, possible remedies available to victims, mechanisms for the creation and enforcement of international legal order, as well as the role of colonialism, migration, povery, race/ethnic conflicts, gender, and international corporations in creating and maintaining conflicts and wars. (Also offered as Legal Studies 128M. Students cannot receive credit for both courses.) Enrollment restricted to juniors and seniors. Enrollment limited to 30. H. Fukurai

129. Popular Culture and Cultural Studies. S
Examines the hidden politics of popular pleasure, studying the workings of domination and transgression in popular culture and everyday life. Explores not only media representations but cultural practices as well. Examines both cultural production and consumption. Considers how hegemonic discourses render the politics of resistance invisible. (Formerly Popular Culture.) Enrollment restricted to juniors and seniors. F. Guerra

130. Sociology of Food. *
Following food from mouth to dirt, explores the politics, economy, and culture of eating, feeding, buying, selling, and growing food. Topics cover both the political economy of the food system as well as how body and nature are contested categories at either "end" of this system. The Staff

131. Media, Marketing, and Culture. S
Explores relationship between modern forms of cultural production and the economy and society in which they emerge. Course reads, screens, and discusses variety of the cultural texts: from the historical and theoretical to the commercial, popular, and counter-cultural. (Formerly Culture, Economy, and Power.) Enrollment restricted to juniors and seniors. M. Greenberg

132. Sociology of Science and Technology. S
Reviews social and cultural perspectives on science and technology, including functionalist, Marxist, Kuhnian, social constructionist, ethnographic, interactionist, anthropological, historical, feminist, and cultural studies perspectives. Topics include sociology of knowledge, science as a social problem, lab studies, representations, practice, controversies, and biomedical knowledge and work. Prerequisite(s): course 103B, 105A, or 105B. Enrollment limited to 20. J. Reardon

133. Currents in African American Cultural Politics. S
Takes as its subject, the dialogues, debates, conceptions, and strategies of self representation produced by blacks in the U.S. and Atlantic world in the twentieth and twenty-first centuries. These issues are examined through the insights of feminist theory, cultural studies, media studies, sociology, and African American studies. Enrollment restricted to juniors and seniors. (General Education Code(s): E.) H. Gray

134. Television and the Nation. W
The role of American network television in the production of the post-war American national imagination is our focus. Our approach will explore issues of media power, especially television's industrial apparatus, its network structure, its strategies of representation in relationship to the construction of the image of the nation, and the meaning of citizens, consumers, and audiences. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors. (General Education Code(s): W.) H. Gray

136. Social Psychology. W
Major theories and concepts in sociological study of social psychology. Topics include identity and social interaction, deviance, sociology of emotions, social narratives, and the social construction of reality. (General Education Code(s): PE-H.) W. Martyna

137. Deviance and Conformity. W
Why certain social acts are considered threatening and how individuals or groups become stigmatized. Sociological analysis of the institutions and processes of social control and the experience of becoming deviant and living with a stigmatized identity. Introductory course in sociology recommended. Enrollment is restricted to junior and senior sociology majors, minors, and proposed majors, global information and social enterprise studies minors, and

Latin American and Latino studies/sociology combined majors and proposed majors. Enrollment limited to 68. (General Education Code(s): PE-H.) F. Guerra

139. Field Research Methods. *
Research practicum which examines methods and problems of qualitative field research both through examining literature published in this tradition and by carrying out directed field exercises. Students also design and carry out their own research project. Prerequisite(s): course 103B. Enrollment limited to 20. The Staff

140. Social Psychology of Power. F
This course uses historical, sociological, and social psychological materials to introduce students to issues concerning class and power, religion and power, minorities and power, women and power, the rise of the New Right, and the successes and failures of the Left. Prerequisite(s): course 1, 10, or 15 or Psychology 40. Enrollment restricted to juniors and seniors. G. Domhoff

141. Group Process. *
The study of group development and interpersonal behavior based primarily on observation of the class discussion group. Readings are drawn from psychology and fiction as well as from sociology. Offered in alternate academic years. Enrollment restricted to senior sociology majors. Enrollment limited to 18. The Staff

142. Language and Social Interaction. W
Concerns the routine and taken-for-granted activities that make up our interactions with one another, consisting in large part—but not exclusively—of verbal exchanges. Emphasis on the socially situated character of communication, whether intimacy between two people or dominance of a group. An introductory sociology course is recommended prior to taking this course. Enrollment restricted to sophomores, juniors, and seniors. W. Martyna

143. Conversation Analysis. S
A working seminar, involving the analysis of actual conversations. Covers fundamental ethical, conceptual, and methodological issues that arise in the collection of conversational data, as well as the skills and techniques of conversation analysis. Given our operating assumption, that talk is a primary means of constructing social identities, there is a heavy thematic emphasis on gender, status, and power in conversation. Prerequisite(s): course 142 or by permission of instructor. Enrollment restricted to juniors and seniors. Enrollment limited to 20. C. West

144. Sociology of Women. F
Analysis of the social significance and social production of gender. Some consideration of how sex differences have developed. Major emphasis on the impact of gender as a categorical imperative in the present social context. In this context, the course is also about sexual segregation, sexual inequality, and the dynamics of interpersonal power. Enrollment restricted to juniors and seniors. An introductory sociology course is recommended. C. West

145. Sociology of Men. F
Examines conflicting views on the development and state of modern masculinity as adaptation, transitional phase, or pathology. Did men lose the "gender war"? Do boys need rescuing? What are common and divergent social experiences of men within race, class, gender, culture, era? An introductory sociology course recommended. W. Martyna

146. Sociology of Violence, War, and Peace. *
Explores key issues, theories, and topics in the study of violence, war, and peace. Addresses aspects of aggression, personal violence, political violence, and war. In addition, various strategies for the prevention of violence and war are examined. The Staff

149. Sex and Gender. W
Modern analyses of sexuality and gender show personal life closely linked to large-scale social structures: power relations, economic processes, structures of emotion. Explores these links, examining questions of bodily difference, femininity and masculinity, structures of inequality, the state in sexual politics, and the global re-making of gender in modern history. Recommended as background: any lower-division sociology course. C. West

150. Sociology of Death and Dying. S

Explores contemporary, historical, cross-cultural and interdisciplinary perspectives on the social psychology of death and dying. Cultural norms and institutional contexts are studied, along with the individual experience, and the ways in which our perspectives on death and dying influence our experiences of life and living. Enrollment restricted to juniors and seniors. W. Martyna

152. Body and Society. F
Critically examines the place of the human body in contemporary society. Focuses on the social and cultural construction of bodies, including how they are gendered, racialized, sexualized, politicized, represented, colonized, contained, controlled, and inscribed. Discusses relationship between embodiment, lived experiences, and social action. Focuses on body politics in Western society and culture, especially the United States. An introductory sociology course is recommended prior to taking this course. Enrollment restricted to juniors and seniors. Enrollment limited to 50. F. Guerra

153. Sociology of Emotions. F
Examines sociological approaches to the understanding of emotions and the application of these approaches to work, learning, interpersonal relationships, health and illness, sports, and other aspects of everyday life. Enrollment restricted to juniors and seniors. W. Martyna

154. Cross-National and Cross-Cultural Research. *
Examines a variety of theoretical, methodological, and substantive approaches to cross-national and cross-cultural research. Focuses on the importance and variety of cross-national and cross-cultural studies. Prerequisite(s): course 103B. Enrollment limited to 20. The Staff

155. Political Consciousness. *
Explores the relationship between consciousness, ideology, and political behaviors from voting to rebellion. Special attention is given to the lived experience and the identity interests that complicate the nexus of class position and political ideology. An introductory sociology course is recommended as preparation. G. Domhoff

156. U.S. Latina/o Identities: Centers and Margins. F
Explores historical and contemporary constructions of Latina/o identities and experiences in U.S. Particular emphasis placed on transcultural social contexts, racial formations, and intersections with other identities including sexuality and gender. Enrollment restricted to juniors and seniors. Enrollment limited to 50. (General Education Code(s): ER, E.) The Staff

157. Sexualities and Society. F
Explores controversies in the sociology of sexuality. Focuses on tensions and disagreements that characterize debates over sex and society, and attempts to identify political and theoretical issues at stake in these debates. Enrollment limited to 30. R. Bryant-Anderson

158. Politics of Sex Work and Erotic Labor. *
Examines sex work in an historical and cultural context, considering how it has changed over time. Considers the relationship of pornography, exotic dance, and selling sex on the Internet to racialization, queer politics, globalization, and tourism. Employs theories and methods of cultural studies in rethinking historical debates on sex work. Enrollment restricted to juniors and seniors. J. Bettie

159. Latinos and Population Change. *
Examines key theories of demographics change (fertility, mortality, and migration) in important policy issues, such as the aging of America, racial categorization, and immigration. Explores political and economic factors that have led to the changing face of the U.S. over the last century and key legislative changes that have changed the experience of immigrants. Students use primary demographic data from the U.S. Census Bureau and learn basic tools for demographic data access and presentation. (Formerly Latin American and Latino Studies 163.) (Also offered as Latin American&Latino Studies 159. Students cannot receive credit for both courses.) Prerequisite(s): course 100A or Sociology 103A or Sociology 105A, or by permission of instructor. Enrollment restricted to sophomores, juniors, and seniors. (General Education Code(s): PE-H, E.) The Staff

160. Project Homeless Connect: The Integration of Theory and Practice. *
Discusses concepts of social research, development, and culture as they relate to

homelessness at both the local and global level. Themes include: the existence of power and resistance in society and the mechanism for social reproduction and change Enrollment by interview only. Enrollment restricted to juniors and seniors. Enrollment limited to 20. The Staff

162. Dutch Society. S
Reviews Dutch history from its religious wars, Golden Age colonial conquests, and state formation through the Nazi occupation, 1960's revolts, and the assassinations after 2000. Focuses on the rise of the Netherlands' famed culture of tolerance and its fall in the face of Islamic immigration. Enrollment limited to 30. (General Education Code(s): CC.) C. Reinarman

163. Global Corporations and National States. *
Examines the nature and development of the capitalist world system since 1945. Emphasis is on the power of multinational corporations as managers of the world system and the response of states: role of multilateral agencies such as the World Bank, International Monetary Fund, United Nations. H. Shapiro

164. Capitalism and Its Critics. *
Through comparative analysis of texts by several social theorists, explores the rise and consequences of capitalism. How has capitalism affected how humans understand and act in the world? How do oppressions along the lines of race, gender, sexuality, and nations intersection with capitalism? Is resistance desirable and/or possible? Enrollment restricted to junior and senior sociology, global information and enterprise, and combined Latin American and Latio Studies/sociology majors, proposed majors, and minors, or by instructor permission. (General Education Code(s): TA.) D. Gould

164T. Marx and Marxist Theory. *
Along with studying Marx's anatomy of capitalist society, this course also explores the work of Marxist theorists from the early 20th century through the contemporary moment. (Formerly Social Theory and the Marxian Tradition.) Prerequisite(s): course 105A or consent of instructor. D. Gould, B. Crow

165. World Systems Perspective. *
Seminar on the intellectual origins and contemporary exponents of the world-systems perspective in the social sciences: Marx, Braudel, Polanyi, Arrighi, Wallerstein. Prerequisite(s): courses 105A and 105B or permission of instructor. The Staff

166. Economics for Non-Economists. *
Fosters economic literacy among students who are not economics majors but are interested in the political and social ramifications of economic change. Emphasizes economic institutions and policy and is taught by case-study method, which requires active student participation. Enrollment restricted to juniors and seniors. Enrollment limited to 40. H. Shapiro

167. Development and Underdevelopment. W
Examines contemporary debates about development in the Third World: alternative meanings of development, recent work on the impact of colonial rule, how some economies have industrialized, ideas about agrarian change, and recent research on paths out of poverty. Students work in pairs to examine a development in one country since World War II. B. Crow

168. Social Justice. S
What is social justice? People answer this question differently, depending upon their sociological perspective. Using a combination of political philosophy and sociological studies, explore five perspectives on social justice within the Western sociological tradition: utilitarianism, Marxism, liberal egalitarianism, communitarianism, and pluralism. Students pick a topic and learn to articulate different visions of socially just change based on these perspectives. Prerequisite(s): course 105A. Enrollment limited to 60. W. Martyna

169. Social Inequality. S
A survey of theories and systems of social stratification focusing on such phenomena as race, class, power, and prestige. Enrollment restricted to juniors and seniors. (General Education Code(s): E.) D. Takagi

170. Ethnic and Status Groups. W

Examines the enduring and changing status of ethnic and other visible minority groups in the United States, e.g., Latinos, Asian Americans, African Americans, and immigrants, with comparative materials drawn from other societies. An introductory course in ethnicity and race is recommended as preparation. Satisfies American History and Institutions Requirement. (General Education Code(s): E.) The Staff

171. Exploring Global Inequality. *
Seminar focusing on readings of key texts and recent research papers on several dimensions of global inequality (material, health, gender, cultural, migration) to find innovative ways of understanding the connections among different dimensions of inequality and of visualizing inequality in digital media. Students prepare visual presentations on contemporary social inequalities suitable for an online (for example, http://ucatlas.ucsc.edu/) or print atlas. Enrollment restricted to seniors. Enrollment limited to 30. B. Crow

172. Sociology of Social Movements. *
Through readings on social movements that span the 20th century, course examines the causes of popular mobilizations, their potential for rapid social change, and the theories developed to understand and explain their role in modern social life. Enrollment restricted to junior and senior majors, proposed majors, and minors in sociology, global information and social enterprise, and Latin American studies/sociology combined majors. Enrollment limited to 40. (General Education Code(s): PE-H.) D. Gould

173. Water. *
Analyzes access to clean water, both in the American West and global South. Reviews water quality, pivotal role of water in settlement and society, history and contemporary inequalities, water supplies, international conflict over water, climate change, and human use of water. Enrollment restricted to juniors and seniors. Enrollment limited to 60. (General Education Code(s): PE-E.) B. Crow

174. Twenty-First-Century African American Social Structure. *
A sociological overview of African American society in the 21st century. The changing patterns of social/cultural organization, class structure, and modes of political action are analyzed. This analysis is located within the framework of migration, urbanization, and social struggle among black Americans. Prerequisite(s): course 10 or 20. (General Education Code(s): E.) The Staff

176. Women and Work. F
Examines the history of women and work; women's current conditions of work and political, economic, and social factors affecting these conditions; means by which women may shape working conditions including contributing leadership, developing policies, building unity, and creating alliances. Enrollment restricted to juniors and seniors. The Staff

176A. Work and Society. W
Addresses how work is organized and shapes life changes. Covers: the history of paid work; the impact of technology; race/class/gender at work; professional and service work; work and family; collective responses to work; and challenges of work in a globalizing economy. Enrollment restricted to juniors and seniors. S. Mc Kay

177. Urban Sociology. S
Historical and contemporary examination of urban life including community, race, geography, urban and suburban cultures and lifestyles, stratification, housing, crime, economic and environmental issues, demographic changes, and global urbanization. Enrollment restricted to junior and senior sociology majors. Enrollment limited to 60. M. Greenberg

177A. Latinos/as and the American Global City. *
Examines roles of emerging Latino/a majorities in urban centers across the U.S. Explores the "Latinization" of U.S. cities and various factors affecting the life chances of Latinos/as including, but not limited to, immigration, segregation, social movements, and other forms of political participation. Enrollment restricted to juniors and seniors. Enrollment limited to 40. The Staff

177E. Eco-Metropolis: Research Seminar in Urban and Environmental Studies. F
Explores the intersection of cities and the environment through the emerging field of urban

environmental studies. Focuses on varied and often contested efforts at "urban sustainability" in recent history. Draws on literatures in environmental history, environmental and urban sociology, geography, political ecology, and cultural studies. Enrollment restricted to juniors and seniors. M. Greenberg

177G. Global Cities. *
Explores how "global cities" have facilitated increasing integration of the diverse cultures and economies of the world. Using historical, sociological, and comparative methods, analyzes how these spaces both enable and constrain transnational flows of capital, labor, information, and culture. Enrollment restricted to juniors and seniors. M. Greenberg

178. Sociology of Social Problems. *
Views "problems" in society not as given but as social constructs. Examines the ways in which conditions in society become identified and defined as problems and consequences that follow from such a process. The Staff

179. Nature, Poverty, and Progress: Dilemmas of Development and Environment. S
Concerns about environmental change, including global warming, threats to the ozone layer, and industrial pollution, raise questions about Third World development. Simple views of the relation between society and nature, such as blaming population growth, industrialization, or poor people, seem to preclude higher living standards. Uses debates and case studies to explore more subtle and optimistic views of social-natural relations. B. Crow

179L. Nature, Poverty, and Progress Laboratory. *
For enrollees in course 179, this optional lab provides opportunity to research ideas and produce a rough business plan for green enterprise of choice. Examples include compostable packaging, gray water systems, sustainable manufacturing, solar-powered submarines, green consulting, and other enterprises. Concurrent enrollment in course 179 required. Enrollment limited to 20. B. Crow

180. Social Movements of the 1960s. *
Examines the roots, development, and political outcomes of black civil rights organizations during the Sixties. Explores social and structural forces, mobilization of black communities, strategies and tactics used, nature of the relationships between various civil rights organizations, unity and disunity among organizations, leadership gains, and impact on race relations in the U.S. Enrollment restricted to junior and senior sociology and combined sociology/Latin American and Latino studies majors. Enrollment limited to 45. D. Gould

184. Hunger and Famine. *
Why do famines happen? Why are some hungry and some over-fed? Recent advances in the understanding of food crises and chronic undernutrition are the focus of this course. B. Crow

187. Feminist Theory. *
Examination of shifts in 20th- and 21st-century feminist theory and epistemology. Considers various deconstructive challenges to second wave feminism based on the politics of race, ethnicity, nation, sexuality, and class. Focus changes regularly. Prerequisite(s): course 105B, and either course 144 or 149 or Feminist Studies 1 or 100. Enrollment limited to 35. D. Gould

188A. Social Change in the Global Economy. S
Explores local dimensions of globalization, focusing on experiencing more global divisions of labor in both industrialized and developing countries. Themes include: economic integration and dislocation; new forms of governance; globalizing consumption and culture; gender; and popular resistance. Enrollment restricted to juniors and seniors. (General Education Code(s): CC.) B. Crow

190. Proseminar.
The Staff

191. Sociology Teaching Practicum. F,W,S
Under the supervision of the instructor, the student works with a group of students in a lower-division course, leading discussions, explaining material, reading and marking submissions, consulting individually and/or in other ways assisting in the teaching of a course. Interview and selection by professor required. Prerequisite(s): Senior standing and

excellent performance in core courses in the major. Enrollment restricted to senior sociology majors. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. The Staff

193. Field Study. F,W,S
Provides for (department-sponsored) individual field study in the vicinity of the campus under the direct supervision of a faculty sponsor (as opposed to course 198 where faculty supervision is by correspondence). Up to three such courses may be taken for credit in any one quarter. Ordinarily call numbers for this course will not be issued after the first week of instruction. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides for department-sponsored individual field study in the vicinity of campus under the direct supervision of a faculty sponsor. May not be counted toward major requirements. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
Small group study of a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195A. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. The senior thesis satisfies the comprehensive requirement. Course is for independent thesis research and writing. Courses may be taken consecutively or concurrently. Prerequisite(s): course 103B. Students submit petition to sponsoring agency. The Staff

195B. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. The senior thesis satisfies the comprehensive requirement. Course is for independent thesis research and writing. Courses may be taken consecutively or concurrently. Prerequisite(s): course 103B. Students submit petition to sponsoring agency. The Staff

195C. Senior Thesis. F,W,S
Preparation of a senior thesis over one, two, or three quarters, beginning in any quarter. The senior thesis satisfies the comprehensive requirement. Course is for independent thesis research and writing. Courses may be taken consecutively or concurrently. Completion of course 195C (completion of the thesis) satisfies the W general education requirement. Prerequisite(s): course 103B and satisfaction of the Entry Level Writing and Composition requirements. Students submit petition to sponsoring agency. May be repeated for credit. (General Education Code(s): W.) The Staff

196A. Capstone: The Sociologist as Public Intellectual (3 credits). S
Students hear a selected group of faculty discuss their current research and how that research furthers public understanding and discussion of some vital contemporary social issue. Enrollment restricted to junior and senior sociology majors. J. Bettie

196G. Project Practicum: Global Information and Social Enterprise. F,W,S
Project summary and evaluation are required for completion of minor in global information and social enterprise studies (GISES). Projects require approval in advance by director of GISES. Completed projects must be uploaded electronically on the web site or archive of the global information internship program. Prerequisite(s): courses 30A, 30B, and 30C. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for (department-sponsored) individual study program off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Up to three such courses may be taken for credit in any one quarter. Ordinarily call numbers for this

course will not be issued after the first week of instruction. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Advanced directed reading and research. Petitions may be obtained from the Sociology Department Office. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Advanced directed readings and research. Petitions may be obtained from the Sociology Department Office. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

201. The Making of Classical Theory. F
Examines the establishment of "theory" in the discipline of sociology. Introduces students to close readings and analysis of a core selection of social theory. Problematizes the construction, maintenance, and reproduction of a theoretical canon in sociology. Enrollment restricted to graduate students in sociology and by permission number. Enrollment limited to 20. D. Gould

202. Contemporary Sociological Theory. W
Intensive survey of major tendencies in modern social thought, including functionalism, symbolic interactionism, ethnomethodology, critical theory, structuralism, phenomenology, neo-Marxism, and feminist theory. Enrollment restricted to graduate students in sociology and by permission number. C. Reinarman

203. Sociological Methods. F
Approaches methods as a series of conscious and strategic choices for doing various kinds of research. Introduces students to the epistemological questions of method in social sciences; to key issues in "technique," particularly control, reliability, and validity; and to good examples of social research. Enrollment restricted to graduate students in sociology and by permission number. C. West

204. Methods of Quantitative Analysis. W
Students are provided with intuitive explanation of fundamental concepts in statistics and learn how to use statistics to answer sociological questions. Experience and guidance in using computers to efficiently analyze data are provided. Enrollment restricted to graduate students in sociology and by permission number. Enrollment limited to 20. D. Takagi

205. Field Research Methods. S
Gives students first-hand experience doing fieldwork with an emphasis on participant observation and some interviewing. Students submit weekly field notes and a final project analysis. At seminar meetings, field experiences and relevant literature are examined. Enrollment restricted to graduate students in sociology and by permission number. Enrollment limited to 10. Offered in alternate academic years. The Staff

206. Comparative Historical Methods. *
Overview of research strategies and methods used in historical and social sciences. Students read works exemplifying a variety of analytical approaches. Written assignments cultivate critical skills, weighing of tradeoffs inherent in all methodological choices, and elaboration of hypothetical research designs. Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

208. Writing Practicum. F
Writing intensive course designed to facilitate the completion of the master's thesis, orals field statement, or the dissertation in sociology. The seminar is convened by a faculty member in conjunction with students and their adviser or appropriate committee chair. Students are expected to produce and present drafts of work completed in the seminar. Enrollment restricted to sociology graduate students and by permission number. Enrollment limited to 12. The Staff

209. The Analysis of Cultural Forms. S
Examines material and symbolic forms such as media products, cultural artifacts, language, nonverbal communication and social practices using discourse, textual, content,

interpretive, and conversation analyses as well as ethnography and different channels of communication. Theoretically, relies on cultural studies, communication studies, cultural sociology, film studies, and ethnomethodology. Enrollment restricted to sociology graduate students. J. Bettie

220. Global Transformation: Macrosociological Perspectives. W
Classical concepts and contemporary approaches in macrosociology, the study of large-scale, long term social change. Readings drawn primarily from the Marxian and Weberian traditions (new institutionalism, varieties of neo-Marxism, environmental history, state centrism) as they focus on agrarian and industrial structures and commodity chains; household, village, and neighborhood organization; social movements and revolutions; culture, ideology, and consciousness; policy analysis; comparative urban, national, and civilizational development. Enrollment restricted to graduate students in sociology. Enrollment limited to 15. S. Mc Kay

222. Political Sociology. *
A survey of major works and themes in the relationship of politics and society, with primary emphasis on the compatibilities and contradictions of pluralist, elite, and class perspectives on the state. Enrollment restricted to graduate students. The Staff

223. Sociology of the Environment. *
Advanced treatment of the dominant ideas of nature and the environment in the West and their relationship to the development of Western capitalism. Leading Western theories of environmental crisis and their relation with ideologies of environmentalism and environmental movements. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. The Staff

224. Globalization: Theories and Social Movements. *
Examines the structures, processes, and movements associated with globalization processes. Reviews political economy theories, cultural theories systems, state industrial policies, and popular responses to globalization. Also assesses contribution of resistance movements informed by class, ethno-nationalism, religion, or gender. Enrollment restricted to graduate students. Enrollment limited to 25. Offered in alternate academic years. May be repeated for credit. The Staff

225. Political Economy for Sociologists. *
Examines rudiments of historical materialism in light of advances in cultural and ecological Marxism. Basic categories of Marxist political economy. Thematic focus on the "first" and "second" contradictions of capitalism in world economy today. Enrollment restricted to graduate students. Enrollment limited to 15. B. Crow

227. Learning from Environmental Historians. *
Looks at several major themes in the sociology of the environment and asks how the works of environmental history address those themes. Includes reflections on how history as a method interrogates social questions. Possible themes include: sustainability; social justice; universalism vs. particularity; city and country; and social movements. Enrollment restricted to graduate students. Enrollment limited to 8. The Staff

229. Work and Labor Markets in the New Economy. *
Focuses on the interaction of work restructuring and existing race/class/gender inequalities. Themes include: the labor process and theories of consent; labor market segmentation; job and occupational segregation; information technologies, flexible work, and post-industrialism; flexible employment relations; and low-wage service and labor markets. Enrollment restricted to graduate students. S. Mc Kay

230. Theory and Method in the Sociology of Marx. *
Examines theoretical and methodological implications of Marxist theory for empirical social research. Analyzes how historians and social scientists apply Marxist method in explaining society, social change, globalization, culture, and late capitalism. Goal is to assist students to employ Marxist theory and method creatively in their research projects. Enrollment restricted to graduate students. Enrollment limited to 12. The Staff

240. Inequality and Identity. S
Explores recent theoretical and empirical studies of race, class, gender, and sexuality with an emphasis on the production of identities and their relationship to processes and

structures of power in a postcolonial context. Enrollment restricted to graduate students in sociology. H. Fukurai

241. Cross-National and Cross-Cultural Research. *
Seminar examining theoretical and methodological issues in doing cross-national and cross-cultural research. In addition to a consideration of different research paradigms and approaches, representative works from each comparative tradition are examined. Enrollment restricted to graduate students. Enrollment limited to 15. The Staff

242. Feminist Research Seminar. *
Provides scholarly support to students doing feminist research. Examines issues concerning conceptualization of feminism and feminist research. Explores relation of feminist research to intersections of gender, class, and race; to the self; to power; and to transformative social praxis. Students present and are given assistance with their work, as well as listen to, read, and assist with the work of others. Enrollment restricted to graduate students. Enrollment limited to 10. The Staff

244. Race and Ethnicity. *
A critical survey of the theoretical issues of persistence and change, public policy, and recent empirical studies in the field of race and ethnic relations. Readings introduce comparative race relations and a historical background of major theoretical paradigms in the field which purport to explain race and ethnic relations in general and race relations in America specifically. Enrollment restricted to graduate students. Enrollment limited to 15. Offered in alternate academic years. The Staff

245. Feminist Theory. *
Examination of shifts in 20th- and 21st-century feminist theory and epistemology. Explores the decentering of universalist feminist theories and asks what constitutes feminist theory after gender has been decentered. Considers various deconstructive challenges to second-wave feminist theory based on the politics of race, ethnicity, nation, sexuality, and class. Focus changes regularly. Enrollment restricted to sociology graduate students. Enrollment limited to 12. J. Bettie

246. Class, Culture, and Movement. *
Analyzes impact of ethnicity, gender, and religion on the class situation of laboring people in a globalized economy by intensive reading and critique of classic studies, explaining how social movements reflect combinations of social relations and cultural practices. Enrollment restricted to graduate students. Enrollment limited to 15. C. Reinarman

247. Race and Class. *
Introduces the student to the recent literature on race and class. Covers several different theoretical perspectives including internal colonialism, labor market segmentation theories, racial formation, and neo-gramscian cultural analyses. In addition to study of theory, also compares theoretical perspectives to the historical experience of minority groups, in particular, blacks, Hispanics, and Asians. Enrollment restricted to sociology graduate students. The Staff

249. Feminisms and Cultural Politics. *
Focuses on the role feminist discourses play in contemporary cultural politics with the main focus on the politics of sex, sexuality, and sex work. Begins with considerations of (mis)representations of feminisms in popular cultures; considers the relationship between academic and popular feminisms; and interrogates the meaning of terms post-feminism and third-wave feminism . Enrollment restricted to graduate students. J. Bettie

250. Course Design and Grant-Writing Seminar. *
A professional training seminar devoted to the philosophical, conceptual, and practical issues of course design, pedagogy, and grant writing. Topics covered: institutional contexts; curriculum (including syllabi, course content, assignments, evaluation); pedagogy; teaching as work/labor process; grant writing; budgets. Enrollment restricted to sociology graduate students. Enrollment limited to 15. The Staff

252. Symbolic Interactionism and Sociology of Emotions. *
Examines classic and contemporary theories and concepts that play a major role in sociological studies of identity, symbolic and social interaction, and the sociology of emotions. Examines how cultural forms, rules, and rituals define, structure, and mediate

emotions and how identities are situated within social institutions. Enrollment restricted to graduate students. Enrollment limited to 10. The Staff

253. Race, Crime, and Justice. *
An introduction to comparative and historical analyses of relations between race and the criminal justice system. Specific topics include defining race/ethnicity, sentencing disparities, jury nullification, jury selection and decisions, prosecutorial misconduct, government's charging and investigative discretions, and other racially biased law enforcement practices and criminal court processes. Also covers a number of highly publicized trials that involved unmistakable elements of race and racism such as Chin, King, Simpson, and Unabomber cases. Students are also exposed to World Wide Web (Internet) to learn how to do research in the field of criminal justice. Enrollment restricted to graduate students. Enrollment limited to 15. H. Fukurai

255. Engaging Cultural Studies. *
Examines feminist and ethnic studies production, appropriation, and transformation of cultural studies theories and methodologies. Considers the utility of various theoretical apparatuses and methodological strategies employed in the interdisciplinary site that combines feminist, ethnic, and cultural studies. Enrollment restricted to graduate students. Enrollment limited to 15. J. Bettie

256. Urban Sociology. *
Introduction to core writings and key theoretical pardigms in urban sociology. Examines the history and contemporary conditions of cities in the U.S. and the urban experience. Urbanization, suburbanization, community, social inequality, urban politics, relationship between the built environment and human behavior. Enrollment restricted to graduate students. The Staff

257. Colonialism, International Law, and Global Justice. *
Examines colonialism, war crimes, crimes against humanity, and legal remedies, and the role of the International Criminal Court (ICC); traces the history of colonial expansionism, starting from the Roman Empire to the present American imperial dominance in global politics. Enrollment restricted to graduate students. Enrollment limited to 15. H. Fukurai

258. Global Lay Justice Systems and Direct Democracy. *
Introduces historical analysis of lay justice participation. Examines global exploration of the use of lay judge institutions in citizen's movements and the assumption that juries are a derivative institution of democratic ideals. Focuses on corporate media creation of anti-jury sentiment. Enrollment restricted to graduate students. Enrollment limited to 10. H. Fukurai

260. Culture, Knowledge, Power. F
An introduction to theoretical approaches and exemplary studies of culture, knowledge, and power which critically interrogate the relationship between cultural formations and the production, circulation, and meaning of knowledges, materials, artifacts, and symbolic forms. Explores the concrete ways that power is organized and operates through different forms and sites, how it interpolates with other forms of power, and examines knowledges and culture as specific forms of power and sites of political struggle. Enrollment restricted to sociology graduate students. Enrollment limited to 15. M. Greenberg

261. Sociology of Knowledge. *
Explores three main issues: the social determination of knowledge, including natural science; the character of intellectual labor and intellectuals as a social group; the role of organized knowledge and "knowledge industries" in contemporary social change. Texts examined include class-based theories (Lukacs, Mannheim, Gramsci), feminist standpoint analysis (Smith, Harding, etc.), and theories of postmodern culture (Lyotard, Harvey, etc.). Enrollment restricted to graduate students. Enrollment limited to 20. The Staff

262. Cultural Practice and Everyday Life. *
Examines contemporary debates about the role of mass produced expressive symbols in modern industrial societies, and the circumstances of cultural production for its impact on the creation, organization, and use of cultural artifacts. Concern with the use and experience of popular symbols for the ways that their use involves the creation of meanings and the role of such meanings in the social organization of society. Enrollment restricted to graduate students. Enrollment limited to 10. H. Gray

263. Cultural Politics of Difference. W
Considers the cultural turn and the turn to difference in understanding relations of power and struggles over representation in studies of race, media, and culture. Examines national identity, difference, subjectivity, and authenticity, especially as they bear on quests to create new identifications, alignments, and efforts to protect existing identities. Enrollment restricted to graduate students. Enrollment limited to 10. H. Gray

264. Science, Technology, and Medicine. *
Explores social and cultural perspectives on science, technology, and medicine. Analyzes theoretical approaches that open up "black boxes" of scientific and biomedical knowledge, including the politics of bodies, objects, and health/illness. Links are made to medical sociology. Enrollment restricted to graduate students. J. Reardon

268A. Science and Justice: Experiments in Collaboration. *
Considers the practical and epistemological necessity of collaborative research in the development of new sciences and technologies that are attentive to questions of ethics and justice. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267A, Biomolecular Engineery 268A, and Feminist Studies 268A. Students cannot receive credit for more than one course.) Enrollment limited to 15. J. Reardon

268B. Science and Justice Research Seminar.
Provides in-depth instruction in conducting collaborative interdisciplinary research. Students produce a final research project that explores how this training might generate research that is more responsive to the links between questions of knowledge and questions of justice. Prerequisite(s): Sociology 268A, Biomolecular Engineering 268A, Feminist Studies 268A, or Anthropology 267A. Enrollment by permission of instructor. Enrollment restricted to graduate students. (Also offered as Anthropology 267B, Biomolecular Engineery 268B, and Feminist Studies 268B. Students cannot receive credit for more than one course.) Enrollment limited to 15. J. Reardon

282. Social Policy Research. *
Policy research. Covers a variety of theoretical perspectives found in policy studies. Surveys various methodological approaches used in policy research. Theories and methods linked to research agendas on the various phases of the policy life cycle. Students are required to design a research proposal. Enrollment restricted to graduate students. Enrollment limited to 10. Offered in alternate academic years. The Staff

290. Advanced Topics in Sociological Analysis. *
The topics to be analyzed each year vary with the instructor but focus upon a specific research area. Enrollment restricted to graduate students by consent of the instructor. The Staff

293. Going on the Job Market. *
A seminar devoted to the practical problems of securing a job as a professional sociologist. Topics covered: researching colleges, universities, and public and private organizations that employ sociologists; designing a curriculum vitae; writing an application letter; preparing a "job talk;" handling questions during the interview process; the etiquette of visiting (and its aftermath); finding out about them; and the terms of employment: what is negotiable and what is not. Enrollment restricted to graduate students. C. West

294. Writing for Social Scientists. *
Seminar on the genres of social science writing, and the problems of starting and finishing a publishable thesis, book, or article. For advanced graduate students working on the composition of their dissertations and journal articles. Enrollment restricted to graduate students. Enrollment limited to 10. The Staff

297. Independent Study. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

* Not offered in 2014-15

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2014-15 General Catalog

Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. First-Year Spanish.
The first-year program is aimed at developing proficiency in Spanish. Listening, speaking, reading, and writing are addressed through classroom practice and supplemented by language laboratory work. Classes are taught entirely in Spanish and are held three days a week. (Formerly Instruction in the Spanish Language.) Prerequisite(s): Placement into Spanish 1 via the online Spanish Placement Examination. The Staff

1A. Accelerated Beginning Spanish. W
The first part of a sequence (courses 1A and 1B) that covers first-year Spanish in two quarters. Taught entirely in Spanish at an accelerated pace. Aimed at developing students' proficiency in speaking, listening, reading, and writing. Prerequisite(s): Placement into Spanish 1 via the online Spanish Placement Examination. The Staff

1B. Accelerated Beginning Spanish. S
The second part of a sequence (courses 1A and 1B) that covers first-year Spanish in two quarters. Taught entirely in Spanish at an accelerated pace. Aimed at developing students' proficiency in speaking, listening, reading, and writing. Prerequisite(s): course 1A. The Staff

2. First-Year Spanish.
The first-year program is aimed at developing proficiency in Spanish. Listening, speaking, reading, and writing are addressed through classroom practice and supplemented by language laboratory work. Classes are taught entirely in Spanish and are held three days a week. (Formerly Instruction in the Spanish Language.) Prerequisite(s): course 1 or placement into Spanish 2 via the online Spanish Placement Examination. The Staff

3. First-Year Spanish.
The first-year program is aimed at developing proficiency in Spanish. Listening, speaking, reading, and writing are addressed through classroom practice and supplemented by language laboratory work. Classes are taught entirely in Spanish and are held three days a week. (Formerly Instruction in the Spanish Language.) Prerequisite(s): course 2 or placement into Spanish 3 via the online Spanish Placement Examination. The Staff

4. Second-Year Spanish.
Includes comprehensive grammar review, composition, readings, and discussion. Reading and audiovisual material deal with various sociopolitical and cultural issues in the Spanish-speaking world. Classes are conducted in Spanish. (Formerly Intermediate Spanish.)

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

Prerequisite(s): course 1B or 3 or placement into Spanish 4 via the online Spanish Placement Examination. (General Education Code(s): CC, IH.) The Staff

5. Second-Year Spanish.
Includes comprehensive grammar review, composition, readings, and discussion. Reading and audiovisual material deal with various socio-political and cultural issues in the Spanish-speaking world. Classes are conducted in Spanish. (Formerly Intermediate Spanish.) Prerequisite(s): course 4 or placement into Spanish 5 via the online Spanish Placement Examination. (General Education Code(s): CC, IH.) The Staff

5M. Medical Spanish.
Students learn medical vocabulary, useful expressions, suitable grammatical structures, and cultural background to be able to interact with Spanish-speaking patients and doctors. Medical Spanish fulfills language requirement for the health sciences and human biology majors. Prerequisite(s): Spanish 4; or Spanish for Spanish Speakers 61 or 62 or 63; or Spanish for Heritage Speakers 4, or 5, or 6, or 125; or placement into Spanish 5 via the online Spanish Placement Examination. Enrollment restricted to health sciences majors. (General Education Code(s): CC, IH.) The Staff

6. Second-Year Spanish.
Increases oral and written proficiency using authentic reading materials which focus on such topics as social class, ethnicity, education, religion, economic, and political developments in the Spanish-speaking world. (Formerly Intermediate Spanish.) Prerequisite(s): course 5 or 5M or placement into Spanish 6 via the online Spanish Placement Examination. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

105. Introduction to Spanish Studies. W
Speaking, reading, and writing proficiency in Spanish is required. Explores the social, cultural, economic, and political changes that connect Latin America, Spain, and the United States Latina/o communities. Satisfies the Modern, Spanish, and World Literature concentrations; also satisfies the Global distribution requirement. (Also offered as Spanish/Latin Amer/Latino Lit 105. Students cannot receive credit for both courses.) Prerequisite(s): course 6 or Spanish for Heritage Speakers 6 or permission of instructor. (General Education Code(s): ER.) J. Poblete

114. Advanced Conversation and Composition. W,S
Advanced conversation and composition based on extensive readings in the humanities and social sciences. Students interested in this course who have not taken the prerequisite should meet with the instructor prior to the first class meeting. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; SPAN 6, or SPAN 56, or SPSS 63, or SPHS 6, or placement into Spanish 114 via the online Spanish Placement Examination The Staff

150. Topics in Hispanic Linguistics: Introduction to Hispanic Linguistics. W
Taught in Spanish. Students learn the major properties of the Spanish language from a linguistics perspective. Topics covered include: phonetics/phonology, morphology, and syntax. (Formerly Languages 150.) Prerequisite(s): Linguistics 50; and Spanish 6 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or equivalent Spanish proficiency. E. Zyzik, M. Gonzalez Pagani

151. Topics in Hispanic Linguistics: Varieties of Spanish. F
Taught in Spanish. Explores the linguistic variety of the Spanish language in the Iberian Peninsula, the former Spanish colonies, and the Americas from a descriptive, synchronic

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perspective. Issues of languages in contact, variation in speech communities, and bilingualism are also introduced. (Formerly Languages 151.) Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Heritage Speakers 6 or Spanish for Spanish Speakers 63 or placement into Spanish 151 via the online Spanish Placement Examination. M. Gonzalez Pagani

152. Topics in Hispanic Linguistics: Spanish in the U.S. *
Taught in Spanish. Serves as a linguistic introduction to the varieties of Spanish that are currently spoken in the United States. Some central topics include: code-switching, language maintenance, and language contact phenomena. (Formerly Languages 152.) Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Heritage Speakers 6 or Spanish for Spanish Speakers 63 or placement into Spanish 152 via the online Spanish Placement Examination. Enrollment limited to 30. E. Zyzik

156. Topics in Hispanic Language and Culture.
An analytic study of 20th-century Hispanic language and culture as revealed in print and audio visual media. The Staff

156A. The Language of Latin America Cinema. W
Explores Latin American culture through its cinematic art. Students are exposed to and participate in discussion, analysis, and commentary on important social, historical, and political issues presented in the films. Provides a greater understanding of Latin America, and works toward advanced communicative proficiency and comprehension of linguistic variations in countries such as Cuba, Argentina, México, Bolivia, Chile, and others. Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or placement into Spanish 156A via the online Spanish Placement Examination. (General Education Code(s): CC, E.) C. Calierno

156E. Spanish Culture. *
A broad survey of Spanish cultural topics, including history, politics, religions, art forms, music, and films. It is based on extensive conversations, discussion, and composition. Particular emphasis is placed on key changes that have occurred during the 20th century in Spain. Classes conducted through commentary on texts read (or viewed), oral presentations, and debate. Recommended for students preparing to go to Spain with EAP. Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or placement into Spanish 156E via the online Spanish Placement Examination. The Staff

156F. El Humor en Espanol. *
Topic-oriented language course on sociopolitical and historical issues as seen through humor in different genres and media. Topics include Mafalda and Condorito (comic strips), Rius (collage of comic strips, photographs and original documents), Continflas and Almodovar (cinema), El Teatro Campesino (theater), Ana L., Vega (literature), Les Luthiers (song and music). Course deals with written and oral discourse pertaining to the following Spanish language varieties: Rio de la Plata, Mexican, Caribbean, U.S., and Peninsular. Intensive writing and speaking in Spanish. Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or placement into Spanish 156F via the online Spanish Placement Examination. (General Education Code(s): TA.) M. Gonzalez Pagani

156G. Spanish for the Professions. *
Taught in Spanish. Students learn vocabulary and expressions as well as pertinent cultural background to understand, speak, read, and write about business and professional situations in connection with the Latino experience. Legal, educational, medical, and business topics are covered. Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or placement into Spanish 156G via the online Spanish Placement Examination. (General Education Code(s): ER.) The Staff

156M. Mexico and the Southwest. F
An interdisciplinary survey of the cultural history of the Mexican people in both Mexico and the U.S. Southwest. Topics include literature, art, folklore, oral tradition, music, politics, as well as "everyday" cultural manifestations. Conducted in Spanish. May be counted toward fulfillment of upper-division major requirements for Latin

American and Latino studies and language studies. (Formerly Spanish for Spanish Speakers 125.) Prerequisite(s): Spanish 6 or Spanish 56 or Spanish for Spanish Speakers 63 or Spanish for Heritage Speakers 6 or placement into Spanish 156M via the online Spanish Placement Examination. (General Education Code(s): CC.) The Staff

194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195F. Senior Essay (2 credits). F,W,S
Concurrent enrollment in an approved upper-division Spanish, languages, or Spanish literature concentration course not used for core or concentration credit satisfies the capstone requirement. Students work with a faculty adviser to complete the senior capstone essay in addition to course requirements for the upper-division course. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to Spanish studies majors only. The Staff

199. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Spanish for Heritage Speakers

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

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Lower-Division Courses

4. Spanish for Heritage Speakers.
Deals with orthography, lexicon development, morphology, syntax, and other linguistic topics as applied to the development of all language skills (listening, reading, speaking, and writing). Emphasizes reading and writing about well-known and pivotal authentic texts of varying genres and formats from the Spanish-speaking world. Emphasis is on the United States, Mexico, and Spain. Students need to use the self-placement questionnaire posted on the Language Program web page. (Formerly course 61, Spanish for Spanish Speakers.) (General Education Code(s): CC, IH.) The Staff

5. Spanish for Heritage Speakers.
Deals with orthography, lexicon development, morphology, syntax, and other linguistic topics as applied to the development of all language skills (listening, reading, speaking, and writing). Emphasizes reading and writing about well-known and pivotal authentic texts of varying genres and formats from the Spanish-speaking world. Emphasis is on Central America and the Caribbean. (Formerly course 62, Spanish for Spanish Speakers.) Prerequisite(s): SPSS 61 or SPHS 4 or by consent of program coordinator. (General Education Code(s): CC, IH.) The Staff

6. Spanish for Heritage Speakers.
Deals with orthography, lexicon development, morphology, syntax, and other linguistic topics as applied to the development of all language skills (listening, reading, speaking, and writing). Emphasizes reading and writing about well-known and pivotal authentic texts of varying genres and formats from the Spanish-speaking world. Emphasis is on South America. (Formerly course 62, Spanish for Spanish Speakers.) Prerequisite(s): SPSS 62 or SPHS 5. (General Education Code(s): CC, IH.) The Staff

94. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. Enrollment limited to 10. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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194. Group Tutorial. F,W,S
Provides a means for a small group of students to study a particular topic in consultation with a faculty sponsor. Enrollment limited to 10. May be repeated for credit. The Staff

199. Tutorial. F,W,S
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199F. Tutorial (2 credits). F,W,S
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Stevenson College

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College Office
(831) 459-4930
http://stevenson.ucsc.edu/

For college description and list of faculty, see colleges.

Lower-Division Courses

10. Skills for College and Beyond (2 credits). F,S
Applications of practical skills for effective, meaningful study in the context of a full, busy life. Topics include learning styles, time management, test preparation, and life balance. Specific techniques for efficient reading comprehension, note-taking, memorization, and self-assessment are introduced. Enrollment restricted to college members and by permission of instructor. Enrollment limited to 15. C. Camblin

16. Stevenson Community Garden (2 credits). *
Hands-on course in ecological horticulture at the Stevenson garden. Students grow the Stevenson community through gardening and projects focused on building a healthy and regenerative local-foods culture. Enrollment by interview only. Enrollment restricted to Stevenson College members. Enrollment limited to 16. D. Shaw

18. Eighteenth Century Kabalistic Thought and Literature (2 credits).
Emphasis on analyzing (translations of) original text to explore critical areas of kabalistic thought, including tzimtzum, the sefirot, theodicy, and hermeneutics. S. Chein

20. The Harder They Come—The Postcolonial Self in Jamaica (2 credits). *
Examines Jamaica's transition to independence: the history of colonialism, its legacy of violence, and how the subaltern incorporate and rework hegemonic tropes of the gunslinger, gangster, preacher, politician, and policeman in literature, music, and film. Enrollment restricted to Stevenson College members. Enrollment limited to 20. The Staff

21. Citizens and Nations: Self and Society in the 19th Century (2 credits). S
A reading seminar focusing on a set of key texts. Examines how the political and industrial revolutions of the 19th century fundamentally transformed the relationships between individuals and their respective societies. Enrollment restricted to Stevenson College members. Enrollment limited to 20. K. Silver

22. Self and Society in Classical Social Theory (2 credits). *
Reading seminar focusing on a set of key texts from classical social theory. Explores the transition from traditional to modern societies. Authors addressed may include Locke, Rousseau, de Tocqueville, Marx, Weber, and Durkheim. Enrollment restricted to Stevenson College members. Enrollment limited to 20. K. Silver

23. Monsters and the Monstrous in the Early British Novel. S
Examines figurations of monsters and the monstrous in the 18th- and 19th-Century British novel to explore the function of monsters as cultural tools for affirming and subverting

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social boundaries. (General Education Code(s): TA.) S. Sweat

24. Cultural Intelligence: Developing a Higher CQ (Cultural Intelligence) (2 credits). F
We begin by examining the three basic facets involved in developing one's cultural intelligence (CQ): cognitive, motivational, and behavioral. Topics include: complexities of intercultural communication; importance of cultural self-identity and filters; power and privilege; and their impact on one's perceptions. (Formerly Cultural Intelligence: Diversity Facilitator Team.) Enrollment limited to 18. D. Smith

24B. Developing Facilitation Skills for Cultural Intelligence (2 credits). W
Presents six dimensions of facilitation: goal development, cognitive aspects, confronting resistance, managing emotions, methods of learning, and creating a supportive and respectful climate. Students practice different styles of facilitation to learn which one(s) fit their personal styles and goal(s) for any given workshop. The importance of developing "cultural intelligence" is presented as well. Students must be available to facilitate diversity trainings. Enrollment by instructor consent. Enrollment restricted to sophomores, juniors, seniors, and graduate students. Enrollment limited to 20. The Staff

26. Navigating the Research University (2 credits). W
Explores critical engagement in education in the context of a research university. Introduces first-year issues and success strategies and ways to participate in the institution's academic life. Investigates strategies for clarifying education goals and devising a plan for success. Enrollment restricted to first-year students. A. Yang

28. Residential Life Leadership (2 credits). S
Examines the role and facilitates the development of Stevenson College Residential Advisers. Class themes include an exploration of leadership, resource management, and the process of community building within the college. Course evaluation based on paper writing, participation, engagement with course materials, and a small group final project that requires students to create a year-long program model designed to address an issue facing the Stevenson community. Prerequisite(s): Must have been hired as a Stevenson residential adviser or alternate for the following academic year. Enrollment limited to 30. May be repeated for credit. B. Redding, S. Prather

30. Thesis Writing and Editing (2 credits). W
Identifies and examines the assumptions, expectations, and formats of writing in students' fields, with the goal of beginning—or continuing—academic research. Prerequisite(s): satisfaction of the Composition requirement. Enrollment restricted to junior and senior college members and by permission of instructor. Enrollment limited to 25. A. Weaver

33. Self and Society Examined Through Ethical Dilemmas (2 credits). *
Examines ethical dilemmas in contemporary topics, such as the status of moral principles during warfare; animal rights and the ethics of eating meat; privacy in the age of the Internet; imprisonment and rehabilitation; legal and illegal immigration; same-sex marriage; and health care. The Staff

35. Everyday Ethics for College Life (2 credits). *
Exploration of and reflection on everyday values and virtues such as integrity, open-mindedness, honesty, and community. Objectives include learning how to think about moral dilemmas and how to begin drafting one's own code of ethics. Enrollment restricted to college members. Enrollment limited to 20. C. Camblin

36. Women in the Bible (2 credits).
Explores and analyzes many of the biblical narratives pertaining to female characters in the Hebrew Bible. Students are required to read the original texts, pose questions, suggest answers, and explore possible meanings of the narrative. Enrollment limited to 10. The Staff

38. The Prophetic Tradition: The Work and Thought of Norman O. Brown (2 credits). S
Continued study of themes of Stevenson Core through the writings of Norman O. Brown. A former UCSC professor, Brown was a classicist and a reader of Marx, Freud, and Nietzsche. Through Brown students deepen their understanding of Core ideas. Enrollment restricted to first-year and sophomore college members. Other students may enroll by permission of the instructor. S. Carter

40. The Self Under Moral Siege: Challenges for the Individual in 20th-Century Totalitarian

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Europe (2 credits). *
Examines how individuals and communities confronted dilemmas when laws, state ideology, and war challenged traditional morality. Themes include: ethics, responsibility, victimhood, moral compromise, retribution, and reconciliation. Enrollment priority given to Stevenson College students. Enrollment limited to 22. The Staff

41. Spirituality in a Modern World (2 credits). *
Investigates scientific and pragmatic perspectives on spirituality from William James to Fritjof Capra. Explores spirituality in Western and Eastern traditions from Martin Buber to Pema Chodron. Students analyze, support, and articulate their spiritual positions in a culminating paper. Enrollment restricted to Stevenson College members. Enrollment limited to 20. C. Camblin

42. Student-Directed Seminar. F,W,S
Seminars taught by upper-division students under faculty supervision (see course 192). The Staff

50A. Stevenson Alumni Careers in Law (2 credits). S
Online course connecting Stevenson students with alumni who provide practical advice for careers in law. Topics covered include preparing for majors, internships, graduate school, networking, applying for jobs, interviewing, and future employment. Enrollment restricted to Stevenson College members. R. Trumbull

50B. Stevenson Alumni Careers in Science and Technology (2 credits). S
Online course connecting Stevenson students with alumni who provide practical advice for careers in science and technology. Topics covered include preparing for majors, internships, graduate school, networking, applying for jobs, interviewing, and future employment. Enrollment restricted to Stevenson College members. R. Trumbull

80A. Introduction to University Discourse: Self and Society. F
Explores rhetorical principles and conventions of university discourse providing intensive practice in analytical writing, critical reading, and speaking. Stevenson's core course considers the roots of modern society using foundational religious texts and major classical and modern philosophical works. Students cannot receive credit for this course and course 80B. Enrollment restricted to first-year college members who have not satisfied the C1 requirement. Enrollment limited to 25. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C1.) The Staff

80B. Rhetoric and Inquiry: Self and Society. F
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Stevenson's core course investigates the roots of modern society, using foundational religious texts and classical and modern philosophical works. Students cannot receive credit for this course and course 80A. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year college members. Enrollment limited to 25. (General Education Code(s): T5-Humanities and Arts or Social Sciences, C2.) The Staff

80F. Self and Society Through Film (2 credits). *
Seminar designed to expand upon the discussions begun in the Stevenson Core Course. Course uses documentary and feature films to investigate and discuss all sides of modern conflicts that bring class back to the Core Course theme. Prerequisite(s): completion of two-quarter core course sequence. Enrollment limited to 25. The Staff

80H. Rainbow Theater: An Introduction to Multicultural Theater. F
Introduction to Asian American, Chicano/Latino, and African American plays through reading of major authors, discussion of social and historical context of their work, and development of a production of a one-act play from each cultural group. In-depth examination of key historical context of these three cultural groups. Video presentations followed by class discussion. May be repeated for credit. (General Education Code(s): T4-Humanities and Arts, E.) D. Williams

80T. Self and Society for Transfer Students. *
Condensed version of Stevenson's core course for transfer students. Develops analytical writing, critical reading, and effective speaking by considering influential philosophical works while exploring cultural conflicts in modern society. Themes include imperialism,

racism, and class conflict. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to college members. Enrollment limited to 25. (General Education Code(s): T5-Humanities and Arts or Social Sciences, W, E.) The Staff

81A. Self and Society 2. W
Winter quarter of Stevenson's core course continues development of analytical writing, critical reading, and effective speaking in exploring conflicts inherent in modern society. Investigates themes of colonization, race, gender, class, and cultural conflict. Enrollment restricted to first-year and sophomore college members. Students cannot receive credit for this course and course 81B. Enrollment limited to 25. (General Education Code(s): TA, E.) The Staff

81B. Rhetoric and Inquiry: Self and Society 2. W
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Winter quarter of Stevenson's core course investigates themes of colonization, race, gender, class, and cultural conflict. Permission of instructor required; selection for this course based on application submitted. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment restricted to first-year and sophomore college members. Students cannot receive credit for this course and course 81A. Enrollment limited to 25. (General Education Code(s): TA, C2, E.) The Staff

90. The Nuclear Pacific. S
Examines the history of nuclear weapons and nuclear power in the Pacific region from 1945 to 2013. Students do research on nuclear science, medicine, energy, and weapons testing and their social, political, demographic, and environmental impacts. Enrollment restricted to first-year Merrill, Kresge, or Stevenson College challenge students. Enrollment limited to 25. Satisfies American History and Institutions Requirement. (General Education Code(s): PE-T.) A. Christy

91F. Challenge Speakers Colloguium (2 credits). F
Eight lectures, six by faculty about research problems in their disciplines. Students attend two dinners with the speakers; respond to research papers in each speaker's field; conduct a research interview with a professor; and investigate a research question. (Also offered as Merrill College 91F. Students cannot receive credit for both courses.) Prerequisite(s): course 90, or Merrill 90, or Kresge 171. E. Abrams

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120. Self and Society: Teaching Practicum. W
Each student facilitates one of the discussion sections of Stevenson 81A or attends lectures, and meets with staff for practicum on the teaching process. Prerequisite(s): qualifications as determined by instructor at first class meeting. Enrollment limited to 5. The Staff

121. Advanced Research and Strategic Planning for Graduate School. W
Guided by a faculty mentor, students engage in an advanced research experience including developing a research proposal, conducting research, and writing and presenting a research paper. Students also prepare for graduate school by practicing the graduate school application process. Enrollment is restricted to students accepted into the Educational Opportunity Programs faculty mentor program. Enrollment also restricted to junior and senior majors in the Divisions of Arts, Humanities, and Social Sciences. Enrollment limited to 20. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision (see course 42). Prerequisite(s): upper-division standing and a proposal supported by a faculty member willing to supervise. The Staff

193. Field Study. F,W,S
Provides for individual programs of study, sponsored by the college and performed off-campus. This course may be counted for up to three courses of credit in any quarter. Prerequisite(s): approval of student's adviser and the academic preceptor, and, in the case of full-time study, the board of studies supervising the major. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty instructor. Enrollment restricted to members of Stevenson College. Enrollment limited to 12. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty instructor. Course designed for members of Stevenson College. Students submit petition to sponsoring agency. Enrollment limited to 10. May be repeated for credit. The Staff

198. Independent Field Study. F,W,S
Provides for college-sponsored individual study programs off campus, for which faculty supervision is not in person (e.g., supervision is by correspondence). Up to three such courses may be taken for credit in any one quarter. Prerequisite(s): approval of the student's adviser, certification of adequate preparation, approval by the academic preceptor. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for college-sponsored individual study programs off campus, for which faculty supervision is not in person (e.g., supervision is by correspondence). Up to three such courses may be take for credit in any one quarter. Students submit petition to sponsoring agency. Requires approval of the student's adviser and academic preceptor. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual projects carried out under the supervision of a Stevenson faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual projects carried out under the supervision of a Stevenson faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Baskin School of Engineering
(831) 459-2158
http://www.soe.ucsc.edu

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20. Innovations and Entrepreneurship Seminar (2 credits). W
Helps students convert their ideas into a viable business. Students must provide their own idea for a new product or company. Local entrepreneurs provide advice and mentoring to each student team. Enrollment limited to 50. (General Education Code(s): PR-E.) S. Desa, B. Haddad

50. Business Information Systems. F,W,S
Addresses the use of information systems (IS) within a business enterprise. Subjects include computer hardware and software concepts, system design and implementation, telecommunications, data management, transaction-based systems, management information systems, and the use of IS to compete. Intended for technology and information management and business management economics majors. J. Musacchio, R. Akella

58. Systems Analysis and Design. W
Students learn how information technology is used to deal with business requirements and/or solve business problems. Provides an understanding of structured computer systems analysis and design methodologies and techniques and their application to business information systems. Intended for technology and information management and business management economics majors. Prerequisite(s): course 50. Enrollment limited to 40. Y. Zhang

80C. Starting a New Technology Company. S
Focuses on the creation and management of technology start-ups and small companies, using case studies and team projects as the basis for learning and applying the course materials. (General Education Code(s): T7-Natural Sciences or Social Sciences.) The Staff

94. Group Tutorial. F,W,S
A means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

94F. Group Tutorial (2 credits). F,W,S
A means for a small group of students to study a particular topic in consultation with a faculty sponsor. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

99. Tutorial. F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Management of Technology Seminar (2 credits). F,W,S
Uses weekly talks by leading industry practitioners and university researchers to provide in-depth exposure to the management of technology. Topics covered include product development, operations, strategy, finance, and marketing for technologies such as software and information systems. May be repeated for credit. S. Desa, The Staff

105. Introduction to Management of Technology I. F
An in-depth examination of technological, strategic, marketing, and financial methods and analytical tools for the management of technology to enable cost-effective and rapid development of profitable and high quality technologies. Includes case studies and a comprehensive project. (Formerly Management of Technology I.) Prerequisite(s): Mathematics 19B or 11B or Applied Mathematics and Statistics 11B or Economics 11B. S. Desa

115. Entrepreneurial Organization and Leadership. S
Provides a framework for analysis and practical insights into the issues associated with managing people, including motivation, team creation, and management and managing performance. Entrepreneurial leadership roles are emphasized. Enrollment restricted to juniors, seniors, and graduate students. Enrollment limited to 50. (General Education Code(s): PE-H.) The Staff

125. Introduction to Management of Technology II. W
High-technology enterprises must understand and operate effectively within their technology-business value chains in order to maximize profitability. This course develops and applies methods and tools for the design, optimization, selection, and management of these value chain networks. (Formerly Management of Technology II.) Prerequisite(s): course 105. S. Desa, The Staff

130. Financial Engineering and Management in High Technology Firms. W
Addresses methods and tools for financing technology development and projects. Includes approaches for coordinating finance and accounting with strategy and operations of firms; discounted cash-flow analysis; activity-based costing; financial planning; and elements of financial account and investment science. Prerequisite(s): Economics 113 or Applied Mathematics and Statistics 131 or Computer Engineering 107 or by instructor permission. Enrollment limited to 20. R. Akella

158. Business Strategy and Information Systems. S
Analysis of effective use of information systems within a business enterprise, with emphasis on gaining a competitive advantage. Integration of information systems with business strategy, financial justification, personnel, and organizational considerations are highlighted. Intended for technology and information management majors or senior engineering majors who have a business interest. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 50 or permission of instructor. (General Education Code(s): W.) The Staff

166A. Game Theory and Applications I.
Introduces modern game theory, including applications in social science, biology, and engineering. Topics include extensive form, strategic form, mixed strategies, incomplete information, repeated games, evolutionary games, and simulation techniques. (Also offered as Computer Science 166A and Economics 166A. Students cannot receive credit for more than one course.) Prerequisite(s): Applied Math and Statistics 5 or 7 or Economics 113; and Economics 11B, Applied Math and Statistics 11B, or Mathematics 11B or 19B. Enrollment restricted to juniors and seniors. Enrollment limited to 100. J. Musacchio

193. Field Study. F,W,S
Provides individual programs of study with specific academic objectives carried out under

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- Writing Program
- Theater Arts
- Yiddish

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direction of faculty member of Information Systems Management and a willing sponsor at field site. Uses resources not normally available on campus. Credit based on presentation of evidence of achieving objectives by submitting written and oral presentation. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193F. Field Study (2 credits). F,W,S
Provides individual programs of study with specific academic objectives carried out under direction of faculty member of Information Systems Management and a willing sponsor at field site. Uses resources not normally available on campus. Credit based on presentation of evidence of achieving objectives by submitting written and oral presentation. Cannot normally be repeated for credit. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194F. Group Tutorial (2 credits). F,W,S
A program of independent study arranged between a group of students and a faculty member. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

195. Senior Thesis Research. F,W,S
Intended for majors. Students submit petition to sponsoring agency. The Staff

195F. Senior Thesis Research (2 credits). F,W,S
Intended for majors. Students submit petition to sponsoring agency. The Staff

198. Individual Study or Research. F,W,S
Intended for majors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Individual Study or Research (2 credits). F,W,S
Intended for majors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Individual Study or Research. F,W,S
Individual directed study for upper-division undergraduates. Students submit petition to sponsoring agency. Enrollment restricted to senior information systems management majors. May be repeated for credit. The Staff

Graduate Courses

204. Introduction to Optimization in Business. F
Covers optimization with emphasis on problems arising in management. Students become proficient at mathematical modeling of business decisions and familiar with a range of techniques and tools used to solve optimization problems. Enrollment restricted to graduate students. The Staff

205. Management of Technology I. F
Addresses technological, strategic, marketing, financial methods, and analytical tools for management of technology in an integrated manner that enables the cost-effective and rapid development of profitable and high quality technologies. Includes case studies and a comprehensive project. Enrollment restricted to juniors, seniors, and graduate students. S. Desa

206. Optimization Theory and Applications. F
A first graduate course in optimization with an emphasis on problems arising in management and engineering applications. Objectives are to become experts in problem formulation, comfortable with software for solving these problems, and familiar with analytical methods behind these solver technologies. Prerequisite(s): calculus and linear algebra. Enrollment restricted to graduate students. J. Musacchio

207. Random Process Models in Engineering. S
A first graduate course in stochastic process modeling and analysis with an emphasis on applications in technology management, information systems design, and engineering.

Enrollment restricted to graduate students. Prerequisite: Computer Engineering 107 or other undergraduate probability course recommended. J. Musacchio

209. Data Mining and Business Analytics in Knowledge Services. F
Provides students with systematic methodology and analytical tools in data and text mining and business analytics. Also provides an integrated perspective and examines use of these methods in the field of knowledge services, such as online marketing, sponsored search, health care, financial services, recommender systems, etc. Includes training in the basic elements of stochastic optimization and other algorithmic approaches, such as stochastic dynamic programming, statistics, constrained optimization, and machine learning with exposure to software tools. These methods enable firms to achieve rapid, effective, and profitable optimization of knowledge-services management. Enrollment restricted to graduate students. Students are expected to have undergraduate preparation in probability and statistics. Undergraduates may enroll with instructor approval. R. Akella

210. Marketing Analytics and Engineering. *
Provides students with a systematic methodology and the corresponding set of methods and analytical tools to address the analytic approaches to marketing in a real-world context. Trains students in the basic elements of statistics decision trees, stochastic optimization, and other algorithmic approaches. Students should have a solid background in the following: probability equivalent to statistics, stochastic methods, calculus, linear algebra, stochastic processes and optimization, and/or mathematical maturity. Recommended courses: course 207, course 250, Applied Mathematics and Statistics 203, Applied Mathematics and Statistics 205, Computer Engineering 230. Enrollment restricted to graduate students. Enrollment by permission of instructor. The Staff

211. E-Business Technology and Strategy. S
Surveys structure of modern information technology, the relation of that structure to structure of the industry that creates it, and the economic forces that drive the players in the industry. Building on these technological and economic concepts, studies how firms can craft a technology and business strategy to create and capture value in the information technology product and/or services sectors. Enrollment restricted to graduate students. J. Musacchio

215. Organizations and Leadership. W
Addresses organizational and managerial aspects of high-tech enterprises, providing an understanding of various corporate functions. Considers issues of human resources: motivation and rewards, group dynamics, communication, ethics, and leadership. Includes perspectives from behavioral theories and corporate practice/culture. Enrollment restricted to graduate students. The Staff

225. Management of Technology II. W
High technology enterprises must understand and operate effectively within their technology-business value chains in order to maximize profitability. Course develops and applies methods and tools for the design, optimization, selection, and management of these value chain networks. Prerequisite(s): course 205 or consent of instructor. Enrollment restricted to juniors, seniors, and graduate students. The Staff

230. Financial Engineering and Management in High Technology Firms. *
Course provides students with a systematic methodology, and the corresponding set of methods and analytical tools, to address the field of financial engineering and its use in high-tech enterprises in an integrated manner. Covers basic concepts of stochastic optimization and other algorithmic approaches, such as stochastic dynamic programming; decision models and analysis; and binomial trees; and their application in financial engineering in the context of high-tech enterprises. Prerequisite(s): Computer Engineering 107 or Economics 113 or Applied Mathematics and Statistics 131, or instructor approval. Enrollment restricted to graduate students. The Staff

240. Information Technology for Decision Support: An Introduction. *
Introduction to the information technologies useful to IT management. Reviews/surveys four major topics: 1) information systems: from computer technology—systems architecture (hardware and software), multiprocessors and cluster—to client-server, networking and distributed computing, data storage and data servers, file management, database systems, input/output technology, graphics and multimedia; 2) IT as a "service":

commercial and open-course tools for information-system development and knowledge management; 3) managing, searching, and mining of structured and unstructured data; 4) decision-support systems that integrate knowledge with data mining and text mining tools to support decision-making in product development, supply-chain management, marketing, sales and logistics. Enrollment restricted to graduate students. The Staff

245. Data Mining. S
Covers the principles, algorithms, and applications of data mining, including mining sequential data, structured data, stream data, text data, spatiotemporal data, biomedical data, and other forms of complex data. Enrollment restricted to graduate students. Y. Zhang

250. Stochastic Optimization in Business Intelligence: Digital Advertising and Online Marketing. *
Trains students in stochastic optimization and other algorithmic approaches, such as stochastic dynamic programming, to achieve business intelligence (BI) optimization. Special emphasis on digital advertising, and online and computational marketing. Students should have solid background in: probability equivalent to statistics, stochastic methods, calculus, liner algebra, mathematical maturity, stochastic processes, and optimization. First of a sequence of courses in information systems and technology management (ISTM). Provides students with systematic methodology and corresponding set of methods and analytical tools to address the field of ISTM in an integrated manner. Enrollment restricted to graduate students;undergraduates who have completed Computer Engineering (CMPE) 107 or Applied Mathematics & Statistics (AMS) 131 may enroll by permission of instructor. AMS 205A, CMPE 230 recommended. The Staff

251. Large-Scale Web Analytics and Machine Learning. *
Provides a systematic methodology and corresponding set of methods and analytical tools in stochastic models; reinforcement learning; stochastic (neuro-)dynamic programming; Bayesian graphical models; inference; and social networks used for web analytics and machine learning to achieve business intelligence (BI) and support research and applications in computer science, computer engineering, and electrical engineering, applied mathematics and statistics, business, management, and economics. Includes exposure to Hadoop for large-scale computation. Students should have solid background in probability equivalent to statistics, stochastic, methods, calculus, (and preferably) stochastic processes and optimization, or mathematical maturity and exposure to business intelligence and algorithms. Prerequisite(s): Computer Engineering 107 or Applied Mathematics and Statistics 131 or permission of instructor. Enrollment restricted to graduate students. Course 230, 250 ,and Applied Mathematics and Statistics 205A or 205B recommended. The Staff

260. Information Retrieval. *
Course covers major topics of information retrieval, including statistical characteristics of text, several important retrieval models, text clustering, text classification, text filtering, web analysis, information extraction, peer to peer research, distributed search, personalized search, and other related topics. Enrollment restricted to graduate students. Undergraduates may enroll with permission of instructor. The Staff

270. Service Engineering and Management. W
Introduction to service engineering and management, from the role of services in the global economy to analytical models in service operations management. This field is developing rapidly; the material covers the fundamental principles of services as well as recent research. Topics include designing efficient service networks, forecasting, resource allocation, and globalization. Enrollment restricted to graduate students. The Staff

280A. Graduate Research Seminar (2 credits). *
Weekly seminar series in topics of current research in information systems and technology management. Enrollment by permission of instructor. Enrollment limited to 30. May be repeated for credit. The Staff

280I. Seminar on Information Retrieval and Knowledge Management (2 credits). W
Seminar series discussing advanced topics in information retrieval and knowledge management. Current research and literature are presented during each meeting. Enrollment restricted to graduate students. Enrollment limited to 20. May be repeated for credit. Y. Zhang

280M. Sales and Marketing for Technologists and Engineers (2 credits). F
Perspective on the theory, plus examples, and tools useful to technologists and engineers for successfully guiding and supporting sales and marketing endeavors and, thereby, ensuring funding, staffing, product appeal, positive customer relationships, and marketplace success. R. Akella

280S. Seminar Topics (2 credits). W
Weekly seminar series of current research on a special topic in information systems and technology management. The theme of research presented throughout the course selected by the instructor. Topics may include, but are not limited to, knowledge planning, new product development and management of technology. Enrollment with permission of instructor. Enrollment limited to 30. May be repeated for credit. The Staff

283. Special Topics in Technology and Information Management (3 credits). W
Graduate seminar on topics in technology and information management that varies with the particular instructor. Topics may include, but are not limited to: data analytics, information retrieval, recommender systems, technology management, and the economics of information and technology. Enrollment restricted to graduate students. B. Haddad, Y. Zhang, J. Musacchio, P. Mantey

293. Advanced Topics in Technology and Information Management (TIM).
Advanced research topics in TIM (as determined by instructor). Topics include, but are not limited to, approaches and solutions to complex business problems, and development of information-based technology and services. Enrollment restricted to graduate students. Enrollment limited to 25. May be repeated for credit. The Staff

297. Independent Study. F,W,S
Independent study under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

299. Thesis Research. F,W,S
Thesis research under faculty supervision. Students submit petition to sponsoring agency. Enrollment restricted to graduate students. May be repeated for credit. The Staff

* Not offered in 2014-15

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Revised: 09/01/14

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UCDC Program

2014-15 General Catalog

25 Merrill College
(831) 459-2855
politics@ucsc.edu
http://politics.ucsc.edu

Program Statement

Upper-Division Courses

194A. UCDC Internship Research Seminar. F,W,S
Weekly seminar that focuses on the production of a major research paper or equivalent scholarly undertaking connected to an internship in Washington, D.C., government, non-profit, or private institution. Seminar stresses institutional analysis, the development of bibliographic expertise in the use of Washington-based resources, and participant-observer skills. Required for and enrollment restricted to students participating in the UCDC Program. (Formerly Social Sciences 194A.) Enrollment limited to 22. The Staff

194B. UCDC Internship Seminar (7 credits). F,W,S
A 30- to 36-hour-per-week internship in a Washington, D.C., government, non-profit, or private institution. Required for and enrollment restricted to UCDC program participants. (Formerly Social Sciences 194B, UCDC Internship and Internship Seminar.) Enrollment limited to 22. May be repeated for credit. The Staff

199. Tutorial. F,W,S
A program of directed study arranged with a Social Sciences Division faculty member. Enrollment restricted to participants in the UCDC program. (Formerly Social Sciences 199.) The Staff

199F. Tutorial (2 credits). F,W,S
A program of directed study arranged with participating faculty. Class time is proportionally less than a 5-credit course. Enrollment restricted to participants in the UCDC program. (Formerly Social Sciences 199F.) The Staff

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Writing Program

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209 Humanities 1
(831) 459-2431
http://writing.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

2. Rhetoric and Inquiry. F,W,S
Explores the intersections of investigation, interpretation, and persuasion and hones strategies for writing and research. Students develop specific, practical ways of improving their writing through sustained critical thinking about diverse issues from multiple points of view. Students cannot receive credit for this course and course 1. Prerequisite(s): satisfaction of the Entry Level Writing and C1 requirements. Enrollment limited to 25. (General Education Code(s): C2.) The Staff

11A. Adjunct Tutorial in Writing (2 credits per quarter) (2 credits). F
A tutorial designed to provide follow-up assistance in writing for students who have passed the Entry Level Writing Requirement, but wish to continue to work on various aspects of their writing. Counts only for academic standing and financial aid purposes, but does not apply toward degree requirements (i.e., counts as workload credit only). Prerequisite(s): approval of the Writing Program; satisfaction of the Entry Level Writing Requirement. May be repeated for credit. The Staff

11B. Adjunct Tutorial in Writing (2 credits per quarter) (2 credits). W
A tutorial designed to provide follow-up assistance in writing for students who have passed the Entry Level Writing Requirement, but wish to continue to work on various aspects of their writing. Counts only for academic standing and financial aid purposes, but does not apply toward degree requirements (i.e., counts as workload credit only). Prerequisite(s): approval of the Writing Program; satisfaction of the Entry Level Writing Requirement. May be repeated for credit. The Staff

11C. Adjunct Tutorial in Writing (2 credits per quarter) (2 credits). S
A tutorial designed to provide follow-up assistance in writing for students who have passed the Entry Level Writing Requirement, but wish to continue to work on various aspects of their writing. Counts only for academic standing and financial aid purposes, but does not apply toward degree requirements (i.e., counts as workload credit only). Prerequisite(s): approval of the Writing Program; satisfaction of the Entry Level Writing Requirement. May be repeated for credit. The Staff

20. The Nature of Written Discourse. W
Explores the dynamics of written language: its relationships to speech, thought, and culture; its uses in different personal, academic, professional, and public contexts; its abuses in jargon and propaganda. Course work includes extensive practice in different kinds of writing. Enrollment restricted to students who have not passed the Entry Level

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
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- Porter College
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Writing Requirement. Open to others by permission of instructor. Enrollment limited to 22. The Staff

21. Meaning and Style: The Sentence in Context. S
Explores, via cross-cultural readings, the nature, uses, and abuses of language. Course work includes extensive writing, both take-home and in-class. Emphasis on revising for power of expression and for variety and accuracy at the sentence level. Enrollment restricted to students who have not passed the Entry Level Writing Requirement. Open to others by permission of instructor. Enrollment limited to 22. The Staff

22A. Grammar and Editing Workshop (3 credits). F
Offers instruction on selected topics in grammar and conventions of written English as needed to strengthen the writing skills of students whose primary language is not standard English. Provides students practice in applying these concepts to editing their own writing. Designed for entering first-year students. Enrollment restricted to first-year students. Enrollment limited to 22. The Staff

22B. Grammar and Editing Workshop (3 credits). W,S
Offers instruction on selected topics in grammar and conventions of written English as needed to strengthen the writing skills of students whose primary language is not standard English. Provides students practice in applying these concepts to editing their own writing. Designed for continuing students who have already taken course 20 and/or 21. Enrollment limited to 22. The Staff

23. Grammar and Rhetoric: Language for Writing. F
Builds on writing skills gained in previous writing courses; focuses on effective language use in academic writing. Students reinforce their written English proficiency by reading, studying, practicing, and writing structures and patterns of written English. Enrollment restricted to fourth-quarter students who have not passed the Entry Level Writing Requirement. Open to others by permission of instructor. Enrollment limited to 22. The Staff

42. Student-Directed Seminar.
Seminars taught by upper-division students under faculty supervision. (See course 192.) The Staff

64. Newswriting Workshop. *
Introduction to the basic techniques of newswriting, including practice in leads, formats, and different kinds of news reporting. Emphasis on developing skills in research, interviewing, and shaping stories. Includes an examination of the contemporary media. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements, instructor determination at first class meeting. Enrollment limited to 22. (General Education Code(s): W.) The Staff

70. Communication and Rhetoric: An Introduction. *
This course introduces the field of contemporary communication studies, locating its roots in rhetoric and showing how key concepts play out in mass media and other settings as well as in everyday life. Prerequisite(s): satisfaction of the Entry Level Writing requirement. The Staff

93. Field Study. F,W,S
For lower-division students: supervised study within commuting distance of campus. May include internships at magazines, newspapers, publishing houses, or newsletters of corporations, and civic or service organizations. Prerequisite(s): satisfaction of the Entry Level Writing requirement; certification of adequate preparation; approval of Writing Program. May be repeated for credit. The Staff

93F. Field Study (2 credits). F,W,S
For lower-division students: supervised study within commuting distance of campus. May include internships at magazines, newspapers, publishing houses, or newsletters of corporations, and civic or service organizations. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99. Tutorial. F,W,S
Individual, directed study for lower-division students in expository writing, editing, or

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journalism. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

99F. Tutorial (2 credits). F,W,S
Individual, directed study for lower-division students in expository writing, editing, or journalism. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Upper-Division Courses

101. Introduction to the History, Theory, and Practice of Rhetoric. W
A survey of classical and contemporary ideas about rhetoric which explores, practically and theoretically, "the best means of persuasion in any situation whatsoever" and will consider the nature of human discourse in diverse areas of knowledge. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to college members. (General Education Code(s): W.) The Staff

102. The Rhetoric of the Social Sciences. *
Develops rhetorical facility in disciplinary writing for upper-division social science majors. Requires critical and disciplinary reading, writing in modes appropriate to social science disciplines, and a substantial research or critical paper within the student's own discipline. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): W.) The Staff

103. Rhetoric of the Natural Sciences. *
This course explores writing genres within the natural sciences. Emphasis is on the relationships between good science and good writing, clear thinking and clear writing. Frequent papers and substantive revisions required. Prerequisite(s): completion of 10 units coursework in the natural sciences, satisfaction of the Entry Level Writing and Composition requirements. Enrollment restricted to juniors and seniors during priority enrollment. Enrollment limited to 30. (General Education Code(s): W.) The Staff

104. Writing in the Arts. *
A writing course focusing on the purposes and composition of various genres of writing about and in the performing arts, visual arts, and music such as reviews, program and exhibit notes, journal and magazine articles, grant proposals, and press releases. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 30. (General Education Code(s): W.) The Staff

106. Public Speaking. *
Students learn strategies to write, analyze, and deliver effective speeches of various kinds as well as professional presentations using PowerPoint and other visuals. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 25. The Staff

107. Technical and Business Writing: An Overview. *
An exploration of the conventions and formats of business and technical writing. Course work involves writing effective resumes, proposals, letters, end-user manuals, and the fundamentals of Web site design. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 30. The Staff

108. Electronic Communication. *
An introduction to the evolving conventions of effective Web site design as well as collaborative writing. Course work includes evaluation of Web site content and structure and creation of hypertext. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 24. The Staff

109. Argument and Practical Reasoning. *
An investigation of contemporary persuasive discourse with special attention to the elements and forms of argument, the nature of evidence, questions of validity and probability, and the workings of rhetorical reasoning. Emphasizes the analysis of arguments rather than their construction. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 40. The Staff

110A. Writing in the Professions. *
Study of writing required in the selected professions, including law, politics, and

government. Considers the rhetoric of each discipline and relevant texts. Includes lectures from visiting professionals and a series of writing assignments based on reading and research. Topic may vary from year to year, focusing on the rhetoric of other professional divisions: medicine, engineering, economics, and so forth. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 40. (General Education Code(s): W.) The Staff

120. Editing English Prose. *
This course offers extended, detailed instruction in editing one's own and other people's prose for accuracy, clarity, appropriateness, and effectiveness. It provides some history of theories of style and stylistic analysis, and instruction in prose variation according to social context. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 40. The Staff

159. Grammar for Tutors and Teachers (3 credits). W
English grammar from a pedagogical perspective, emphasizing structures, patterns, and conventions of written English that commonly challenge basic writers. Students learn strategies for helping multilingual and other writers improve their writing skills by increasing their awareness of grammar. Prerequisite(s): course 169, or by instructor permission. Enrollment limited to 45. The Staff

161. Academic Writing and Research Methods. *
Introduces library and field research methods and also provides instruction and practice in writing from research, addressing issues such as voice, argument, and documentation. Students write four lengthy essays and do considerable informal writing. Course 161 includes sections for re-entry women, transfer students, and students in the EOP Faculty Mentor Program. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements. Students should contact the instructor for enrollment information. Enrollment limited to 20. (General Education Code(s): W.) The Staff

163. Advanced Workshop in Expository Writing. *
A composition course for students who, having mastered basic writing skills, wish to concentrate on increasing their effectiveness as rhetoricians, prose stylists, and editors. Assignments include writing and revising essays, responding to other students' work, and reading published essays. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 22. May be repeated for credit. (General Education Code(s): W.) The Staff

165. Practicum in Reporting. *
In-depth, community-based reporting, with an emphasis on skills ranging from interviewing techniques to profiles, integrating research with writing. Students choose a specific area or "desk" of concentration, and all the stories reflect that beat. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; a writing sample, completed in class, is required at first class meeting. Enrollment restricted to journalism minors during priority enrollment. Enrollment limited to 22. (General Education Code(s): W.) The Staff

166. Topics in Journalism. *
Courses under this heading explore fields of newspaper and magazine journalism: feature writing, investigative reporting, reviewing, commentary, etc. Students study published writing and hone their own skills as writers under the supervision of a practicing journalist. See the Schedule of Classes for specific offerings. The Staff

166A. Magazine Writing. *
Introduces students to the various forms of magazine writing, as well as to pertinent reporting techniques. Students work intensively on process, style, and editing, producing numerous formal and informal pieces. Enrollment priority will be given to journalism minors. Students produce a writing sample on the first day of class. Prerequisite(s): satisfaction of Entry Level Writing and Composition requirements; course 64 or permission of instructor. Enrollment limited to 22. (General Education Code(s): W.) The Staff

166B. Investigative Reporting. *
Students acquire basic investigative and research skills, with particular emphasis on how to develop investigative subjects, obtain data, check accuracy, and convert information into well written, publishable articles. Priority given to students concentrating in journalism.

Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; interview with instructor to review journalism portfolio. Enrollment limited to 22. (General Education Code(s): W.) The Staff

166D. Minorities in Journalism. *
Focuses on the minority press and how it has shaped journalism in the U.S. as well as viewing how the media has dealt with this segment of our society. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements and consent of instructor. Enrollment limited to 22. (General Education Code(s): W.) The Staff

166J. Online Journalism. *
A course in using electronic sources to report articles for publication and in publishing journalistic pieces online. Prerequisite(s): course 64 or journalism experience; instructor determination at first class meeting. Enrollment limited to 25. The Staff

166N. The Rhetoric of Radio. *
Examines the theory and practice of radio. Students explore how the formats of radio create its meaning, and investigate radio's place in the landscape of the media, particularly in the U.S. and Mexico. Prerequisite(s): satisfaction of the Entry level Writing and Composition requirements and consent of instructor. Enrollment limited to 25. The Staff

167. Making the News. *
A writing course examining news and feature articles in popular print media. Students write their own articles and analyze how a particular content is mandated by conventional forms, by the structure of the industries, and by ideas of "newsworthiness." Designed for journalism minors and students for whom a course in media criticism is central to their program. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; qualifications determined by instructor at first class meeting. Enrollment limited to 43. (General Education Code(s): W.) The Staff

169. Theory and Practice of Tutoring Writing (3 credits). F
An introduction to theory and research on the composing process and practical strategies for teaching writing, especially in tutorial situations. Recommended for writing assistants. Prerequisite(s): instructor determination at first class meeting; course intended for writing tutors only. Enrollment limited to 30. (General Education Code(s): PR-S.) The Staff

180. Seminar in Editing and Publishing. *
Newswriting seminar for City on a Hill editors and writers. Weekly sessions evaluate newspaper in depth, including writing, reporting, and issues in journalism ranging from ethics to legal questions. Prerequisite(s): instructor determination at first class meeting; open only to editors, interns, and writers at City on a Hill Press. Enrollment limited to 40. May be repeated for credit. The Staff

189. Methods of Teaching Writing. *
Supervised by a writing instructor, each student attends a weekly seminar on teaching writing and either assists in a class or serves as a facilitator of a small writing group in a course at UCSC or a public school. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

191. Internships.
Individual work in journalism, publishing, or broadcasting. Internships require a contracted amount of writing or other work, and generally involve group tutorials with faculty in the Writing Program as well as individual conferences. The Staff

191A. Internship in Writing. F,W,S
Regular writing for newspaper or magazine. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

191B. Internship in Editing. F,W,S
Work in an editorial position involving critique and guidance of reporters. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

191C. Internship in Publishing. F,W,S
All phases of work for a publishing house, from manuscript reading to editorial. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

191D. Internship in Broadcasting. F,W,S

Writing, editing, scheduling, and/or broadcast work for television or radio. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

192. Directed Student Teaching. F,W,S
Teaching of a lower-division seminar under faculty supervision. (See course 42.) Students submit petition to sponsoring agency. May be repeated for credit. The Staff

193. Field Study. F,W,S
For upper-division students: supervised study within commuting distance of the campus. May include internships at magazines, newspapers, publishing houses, or newsletters of corporations, and civic or service organizations. Prerequisite(s): satisfaction of Entry Level Writing requirement; students submit petition to sponsoring agency. The Staff

193F. Field Study (2 credits). F,W,S
For upper-division students: supervised study within commuting distance of the campus. May include internships at magazines, newspapers, publishing houses, or newsletters of corporations, and civic or service organizations. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

194. Group Tutorial. F,W,S
A writing, editing, or publishing project undertaken by a small group of students under the direct supervision of a writing instructor. Students submit petition to sponsoring agency. Enrollment limited to 15. May be repeated for credit. The Staff

195. Senior Thesis. F,W,S
Individual work on a thesis for any campus major or individual major. Faculty in the Writing Program help students on all phases of work, from selection and focus to development of bibliographies, research techniques, revision, and editing. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

196. Developing and Editing Field Documentation (2 credits). *
Helps students transform field documentation into fully developed, professional projects. Employs a weekly production schedule and teaches principles of rhetoric as a means of effectively selecting and arranging documentary materials. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; interview with instructor to review documentary materials. Enrollment limited to 20. The Staff

198. Independent Field Study. F,W,S
Individual study for which faculty supervision is possible only by correspondence. May include internships at newspapers, magazines, publishing houses, or the newsletters of corporations, and civic or service organizations. Prerequisite(s): satisfaction of Entry Level Writing requirement; students submit petition to sponsoring agency. May be repeated for credit. The Staff

198F. Independent Field Study (2 credits). F,W,S
Individual study for which faculty supervision is possible only by correspondence. May include internships at newspapers, magazines, publishing houses, or the newsletters of corporations, and civic or service organizations. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual, directed study for upper-division students in expository writing, editing, or journalism. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual, directed study for upper-division students in expository writing, editing, or journalism. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

202. Writing and Learning Seminar (3 credits). *
Strategies for teaching assistants to help undergraduates become better learners and writers in disciplinary courses. Topics include using writing to improve reading and thinking, analysis of assignments, avoiding plagiarism, responding to and evaluating

papers, ESL writers, peer response, and technological aids. Enrollment restricted to graduate students. Enrollment limited to 30. The Staff

203. Teaching Writing. W,S
Prepares graduate students to teach first-year composition at UCSC and elsewhere. Development of a syllabus, teaching strategy, and class plans based on study of composition and rhetorical theories, research on students' writing development, and effective writing pedagogies. Enrollment restricted to graduate students. Enrollment limited to 18. T. Ritola, H. Shearer

* Not offered in 2014-15

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Theater Arts

2014-15 General Catalog

J106 Theater Arts Center
(831) 459-2974
theater@ucsc.edu
http://theater.ucsc.edu/

Faculty | Program Statement

Lower-Division Courses

10. Introduction to Theater Design and Technology. F,S
Addresses imagination and creativity. Using the framework of theater production, students explore the process of translating a script into a performance. Topics include visual literacy, creative problem solving, establishing effective working teams, tear sheets, storyboarding, drawing, sound and color theory. This course is a prerequisite for all upper-division design courses. (General Education Code(s): IM, IH, A.) B. Baron, K. Edmunds

12. Stage Management. F
Designed to acquaint students with the complexities of staging productions from the audition process to final performance. Directing, lighting, scenic production, sound, cueing, and personnel management are aspects that will be touched upon in class. Students are billed a materials fee. (Formerly Production Management .) (General Education Code(s): A.) The Staff

14. Drawing. W
A fundamental course in drawing from still life, the figure, and in the landscape. The approach is from the tonal and volumetric aspects of the object. Color is introduced as the course progresses. Instruction fashioned to the individual needs of the student. The inexperienced are welcomed as well as the experienced. Students are billed a materials fee. (General Education Code(s): PR-C, A.) K. Edmunds

15. Special Topics in Textiles. *
Introduces varied techniques in textile manipulation to create scenic and costume-design properties including drapery, upholstery, masks, bags, and millinery. Students learn basic sewing and surface-design methods, such as knitting, screen-printing, painting/dyeing, and distressing. Enrollment limited to 20. (General Education Code(s): PR-C, A.) B. Baron, The Staff

17. Costume Construction. *
The process of interpreting a costume designer's sketch into a finished theatrical costume. Some techniques included are dyeing, fabric selection, draping, flat pattern drafting, pattern manipulation, adaptation, fitting, and alteration. Using various techniques, students make basic pattern pieces and learn to modify them to create costumes. Students are billed a materials fee. Enrollment limited to 20. (General Education Code(s): PR-C, A.) The Staff

18. Drafting for Theatrical Production. *

- Community Studies
- Computer Engineering
- Cowell College
- Critical Race and Ethnic Studies
- Crown College
- Digital Arts and New Media
- Earth and Planetary Sciences
- Ecology and Evolutionary Biology
- Economics
- Education
- Electrical Engineering
- Environmental Studies
- Feminist Studies
- Film and Digital Media
- French
- German
- Greek
- Hebrew
- History
- History of Art and Visual Culture
- History of Consciousness
- Italian
- Japanese
- Jewish Studies
- Kresge College
- Languages
- Latin
- Latin American and Latino Studies
- Legal Studies
- Linguistics
- Literature
- Mathematics
- Merrill College
- Microbiology and Environmental Toxicology
- Molecular, Cell, and Developmental Biology
- Music
- Oakes College
- Ocean Sciences
- Physical Education
- Physics
- Politics
- Porter College
- Portuguese
- Psychology
- Russian
- Science Communication
- Social Documentation
- Sociology
- Spanish
- Spanish for Heritage Speakers
- Stevenson College
- Technology and Information

An examination of the fundamentals of drafting scale drawings for production, including floor plans, elevations, sections, working drawings, dimensions, layout, and lettering. Students learn isometric drawing, perspective, and rendering techniques. Students are billed a materials fee. Enrollment limited to 20. (General Education Code(s): A.) K. Edmunds

18C. Drafting-Computer Aided. *
In-depth exploration of computer-aided drafting, specifically the programs Vectorworks, Spotlight, and Renderworks. Topics include: the user interface, ground plan, section and detail views, paper space vs. working space, tool palettes, USITT drafting standards, layers, line weights, objects, classes, library annotations, importing rasters, and 3D modeling. Students required to do weekly projects such as ground plans, lighting plots, perspectives, and detail drawings, as well as turn in a major final project, and complete a mid-term, final, and quizzes. Students are billed for a materials fee. Enrollment restricted to theater arts majors. Enrollment limited to 10. (General Education Code(s): A.) D. Cuthbert, The Staff

19. Design Studio: Lighting Studio A. S
An introduction to the theory and practice of lighting design with attention to the practical skills and creative approaches to lighting performance pieces; the technical side of lighting design via demonstrations, lectures, and labs. Students complete projects evolving and executing concepts for lighting chosen pieces. Students are billed a materials fee. Prerequisite(s): course 10. (General Education Code(s): PR-C, IH, A.) D. Cuthbert

20. Introductory Studies in Acting. F,S
Introduction to basic acting skills and the problems of performance. Concentrates on expanding the students' range of expression and ability to respond to and analyze dramatic text. Students with little or no experience are encouraged to attend. (General Education Code(s): IM, IH, A.) P. Gallagher, The Staff

21A. Acting Studio 1A: Psychological Realism. W,S
Explores the fundamentals of the work of Konstantin Stanislavski as developed at the Moscow Art Theater to the works of his and our contemporary playwrights. Specifically, students apply those techniques of action, physical score, given circumstances, subtext, interior monologue, goals, and objectives, throughline, superobjective, and emotional recall to works of Henrik Ibsen, Anton Chekov, and appropriate American realists, such as Sam Shepard, August Wilson, etc. Enrollment by interview only: audition at first class meeting. Enrollment limited to 31. (General Education Code(s): A.) D. Scheie

21B. Acting Studio 1B, Actors' Physicality. F
Uses a rigorous physical approach to acting (rather than the text-based approach of course 21A). Provides an "outside-in" starting point for theatrical creation and study, balancing and countering the "inside-out" approach of Stanislavski-based actor training. Emphasis on physical characterization, ensemble theater, mask work, and object performance. May involve practices, theories, and readings of Jerzy Grotowski, Eugenio Barba, Jacques Lecoq, and/or Tadashi Suzuki. Enrollment by interview only. Enrollment limited to 30. (General Education Code(s): A.) P. Gallagher

22. Indonesian Dance and Drama. F
Students learn the basic movement repertoire of the specific characters of the Indonesian dance-drama/puppetry tradition over the quarter with explication of how these types operate in their own cultural context. The course culminates in an open showing of scene work. May be repeated for credit. (General Education Code(s): CC, A, E.) P. Gallagher, M. Foley

23. Voice for the Actor. *
Students work on developing resonance, range and expressivity for stage performance via physical exercises and text explorations undertaken in small groups. Prerequisite(s): course 20. Audition required for acceptance into class. Enrollment limited to 20. (General Education Code(s): A.) The Staff

30. Introduction to Dance Theory and Technique. W,S
Intensive instruction in developing the dancer's mind/body, with introduction to movement theory and practice. Students are billed a materials fee. (Formerly Introduction to Modern Dance Theory and Technique.) May be repeated for credit. (General Education Code(s): PR-C, IH, A.) E. Warburton, The Staff

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Teaching and Administrative Staff

Appendixes

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Nondiscrimination Statement

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31P. Postmodern Dance I. *
Introduction to postmodern dance theory and technique. Focus on performance practices of historically significant postmodern dance choreographers in the U.S. and worldwide. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): IM, A.) E. Warburton

33C. Dance Studio I. F
Intensive instruction in developing the dancer's physical instrument. Intended for students who have a previous fundamental knowledge of the basics of classic dance, combined with movement theory. Students are billed a materials fee. Formerly Theater Arts 33, Advanced Introduction to Modern Dance. Prerequisite(s): course 30. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): IH, A.) G. Casel

36. Introduction to Dance Composition. W
Composing solo dances using a variety of approaches for developing movement combinations. Observation and recognition of personal movement patterns and discovering new sources for creative material. Students are billed a materials fee. May be repeated for credit. (General Education Code(s): PR-C, IH, A.) E. Warburton

37. African Dance. S
A griot (musician-entertainer from western Africa) from Burkina Faso teaches "The African Journey," which emphasizes dance as combined in Africa, including singing, history, oral tradition, and storytelling. Students are billed a materials fee. Enrollment limited to 30. (General Education Code(s): PR-C, A.) The Staff

40. Introduction to Directing. F
An overview of the analytical and creative processes that inform the director's work. Close examination of texts, concepts, and directorial choices in staged performances, opera, films, and video. (General Education Code(s): IM, IH, A.) The Staff

45. Student-Directed Production. F,W,S
Participation in a student-directed play or student-choreographed dance concert under faculty supervision. (See course 192). Rehearsals culminate in public performances. Prerequisite(s): admission by audition; see department office for more information. The Staff

50. Fundamentals of Theater Production (2 credits). F,W,S
Work is on various aspects of theatrical production, including scenery, lighting, costumes, sound, stage management, and video documentation. Satisfies the department's technical experience requirement. May be repeated for credit. D. Cuthbert

52. Basic Stagecraft. S
Provides introduction to technical theater and basic stagecraft. Course examines two-dimensional and three-dimensional scenery, scenic engineering, the physical theater, stage and scene shop equipment, project organization and process, technical theater graphics, materials, and theatrical construction techniques. Prerequisite(s): course 10. Enrollment limited to 30. (General Education Code(s): A.) The Staff

55A. Workshop in Performance: Barnstorm. F,W,S
Process-oriented investigation of practical theater production by working in and on productions in the Barnstorm season. Requires a total of 150 hours working backstage or onstage. Admission by audition at first class meeting; see department office for more information. May be repeated for credit. D. Cuthbert

55B. Workshop in Performance: Barnstorm Lab (2 credits). F,W,S
Process-oriented investigation of practical theater production by working in and on productions in the Barnstorm season. Requires a total of 50 hours working backstage or onstage. Admission by audition at first class meeting; see department office for more information. May be repeated for credit. K. Edmunds, D. Cuthbert

61A. Ancient and Medieval Drama. F
Ancient enmities; horrific acts of parricide; monumental errors; suffering and contrition. This course examines the enormous appeal of the ancient Greek tragic and comic visions from their inception through their enthusiastic adaptation by the Romans and on into the Middle Ages. For comparison purposes, Greek and Roman dramas are studied back-to-back with the contemporary non-Western dramatic forms of Noh and ancient Sanskrit

drama. (Formerly Issues and Methods in Theater Arts.) (General Education Code(s): TA, IH, A.) M. Chemers

61B. Drama from the Renaissance to the Modern Age. W
Examines major trends in European drama from the rediscovery of ancient Greek and Roman drama in the early 17th century to the late 19th century. Examines major trends in European drama from the discovery of ancient Greek and Roman drama in the early 17th century to the late 19th century. These trends include neo-classical drama, the rise of middle-class drama, social realism, romanticism, early naturalism, and the well-made play. These trends are compared with the parallel developments of the non-Western forms of Japanese Kabuki and Javanese Wayang. (Formerly Tragedy.) Enrollment limited to 40. (General Education Code(s): TA, IH, A.) K. Jannarone, The Staff

61C. The Birth of the Modern: Drama and Performance After the Renaissance. S
Examines dramatic and theatrical works that sprang into being in the wake of the European Renaissance. Follows the ways modern artists have dramatized their questions, struggles, beliefs, and despair in the face of world wars, cultural fragmentation, unprecedented prosperity, and new technologies that changed the concrete experience of life itself. Enrollment limited to 60. (General Education Code(s): TA, IH, A.) K. Jannarone

80A. Introduction to African American Theater. *
Surveys African American theater from late 19th century to contemporary 21st-century playwrights and examines dramatic narratives to trace creation, evolution, and development of African American cultural identity formation in American theater. Enrollment limited to 50. (General Education Code(s): ER, T4 (TH), A, E.) The Staff

80B. Rock 'n' Roll Design. *
Examination of the genesis, history, and development of technical theater practices used in large arena rock shows. Topics will include the development of rigging practices used in arenas, touring logistics, lighting instrumentation and aesthetics of rock shows, and the nature, practice, and approach of sound in these venues. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80C. Monsters. W
Examines the operation of monsters in plays from Ancient Greece to today, inquiring as to why these powerful cultural tools for the expression of social tension show no sign of diminishing despite our ostensible advance into scientific rationalism. (General Education Code(s): PE-H.) M. Chemers

80D. Commercial Design 1900 to Present. *
History of 20th-century commercial design for the theater through the eyes of the Western consumer. (Formerly course 161W, Critical Survey of Commercial Design, 1900 to Present .) (General Education Code(s): IM, T4-Humanities and Arts, A.) B. Baron

80H. Hamlet Conundrums. *
Offered online, the course explores major issues of interpretation of Shakespeare's classic play, which has occupied the minds of audiences, directors, designers, performers, and critics during its 400-year history. In doing this, it offers a sense of history of people's preoccupations with and thoughts about the play. Students taking this class are expected to complete the course during the quarter for which they are enrolled. All students enrolled in this course should visit elsinore.ucsc.edu and write to elsinore@ucsc.edu. (General Education Code(s): T4-Humanities and Arts, A.) J. Bierman

80K. Shakespeare 4every1. F
Introduces all students, regardless of experience, to the plays and theater of Shakespeare, and directly addresses linked relevance to contemporary 21st century American culture. (General Education Code(s): TA, T4-Humanities and Arts, A.) D. Scheie

80L. Muppet Magic: Jim Henson's Art. *
The artistic and social impact of the Muppets on American puppetry, children's television, and Hollywood film is explored through viewings, guest lectures, and analysis. Henson's legacy in artistic innovation, mainstreaming of puppet theater for adult audiences, and establishment of puppetry in media and marketing are also explored. (General Education Code(s): IM, T4-Humanities and Arts, A.) M. Foley

80M. Chicano/a Teatro. *

Introduction to Teatro Chicano/a with examination of how cultural diversity plays a role in theater. Through lectures, films, and workshop exercises, reflect upon the process of Teatro Chicano. Students write their own acts, improvise, and perform in class. (General Education Code(s): ER, T4 (TH), A, E.) The Staff

80N. Walt Disney. S
An examination of Walt Disney's creation of the American vision of "family entertainment." Particular attention will be paid to the classic animated feature films of Walt Disney and to the way this Disney invention has been preserved and developed since his death. We will also look at the live action films, theme parks, and other Disney creations. (General Education Code(s): IM, T4-Humanities and Arts, A.) The Staff

80P. The Pixar Feature. *
Combines examination of the canon of Western dramatic literature and theater history through viewings of Pixar Animation Studios' full-length animated features, representing the most popular form of digital art and new media in the world today, and lectures focusing on digital art and new media viewed through established rules and traditions of dramatic art in literature, plays, and the theater. (General Education Code(s): IM, T4-Humanities and Arts, A.) D. Scheie

80Q. Introduction to Queer Theater. *
Examines the history of the queer perspective in dramatic literature, from the Greeks to Marlowe and Shakespeare through the calcification of homosexuality in the era of Freud, then traces theater stewardship by gay and lesbian artists from within the closet and without. (General Education Code(s): IM, T4-Humanities and Arts, A.) The Staff

80S. Theater Arts Education and the Community. *
This course is designed to develop ways in which we can direct our interest in the arts into concrete and successful community projects. Although the emphasis will be on developing skills to work within K-12 classrooms, other community projects will be discussed and designed. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80T. Flashmob! Mass Performance in the Information Age. S
Flashmobs represent a new social configuration using information technology. Course covers the history of experiments in art and technology and the role of mass performance in society. Students consider the socio-cultural ramifications of flashmobs and participate in them. (General Education Code(s): PE-T.) E. Warburton

80V. The Circus in American Culture. *
Circus arts from their shamanic roots to contemporary practice will be analyzed in a historical, aesthetic, and creative dimension. Lecture, discussion, and demonstrations will explore the theory and practice of American circus arts. In section, students will explore basic circus skills from clowning to tumbling to exhibition of freaks. (General Education Code(s): T4-Humanities and Arts, A.) The Staff

80X. The Performance of Story in Theater and Film. *
An examination of the theory and practice of theater and film, comparing and contrasting works that have been adapted from one genre to another. Lecture, film and video viewing and discussion of materialist, psychoanalytic, and feminist approaches will be shared. (General Education Code(s): TA, T4-Humanities and Arts, A.) The Staff

80Y. American Musical Theater. *
The history of American musical theater, from it's roots to today, is studied through scripts, scores, and film. Major composers and lyricists' work is shown, discussed, and analyzed. (General Education Code(s): T4-Humanities and Arts, A.) K. Edmunds

80Z. Indian Dance. F
Classical Indian dance will be studied as a performance practice. Understanding of drum syllables and associated steps, religious and sociological context, and mimesis (abinaya) as well as introduction to epic stories (Ramayana, Mahbharata, Bhagavata Purana) and classical song. (General Education Code(s): CC, T4-Humanities and Arts, A.) The Staff

99. Tutorial. F,W,S
Students must file their petitions for this course with the department office by the end of the fifth day of instruction in the quarter in which they would like to take the tutorial.Prerequisite(s): petition required, approved by instructor and department. May be

repeated for credit. The Staff

Upper-Division Courses

100A. Asian Theater/Dance and Global Impacts. *
Overview of selected theater/dance performance genres of India, Indonesia, China, Korea, and Japan with attention to how cultural, political, and social flows have impacted contemporary performance in Asia and beyond. Lectures supplemented by workshops. (General Education Code(s): A, E.) M. Foley

100B. Black Theater USA. *
Spanning slavery, emancipation, reconstruction, the great depression, civil rights, and the black power/black arts movements, course explores African American drama from literary, historical, and biographical perspectives in lecture/discussions, film excerpts, dramatizations, and visits from award-winning guests. (General Education Code(s): A, E.) The Staff

100C. Courts, Courtesans, Shamans, and Clowns: Asian Drama. *
Asian court and popular performance are traced. Sanskrit drama is contrasted with Indian epic recitation, medium, and courtesan dance. Gender specialization is noted in Indonesian courts using Indian and local legends in dance, mask/puppetry, and clowning. Buddhist and Confucian impulses in Chinese theater and early Korean and Japanese mask and puppetry are introduced. Students are evaluated on participation, tests, writing, and a performance project. (General Education Code(s): A.) P. Gallagher, M. Foley

100W. Black/African Diasporic World Theater. *
Examines major black African diasporic playwrights and theater. Focuses on the historical, cultural, and literary contexts that gave rise to the works of dramatists such as Ama Ata Aidoo, Derek Walcott, Wole Soyinke, Aime Cesaire, Debbie Green Tucker, and Paul Boakye. Prerequisite(s): course 61 or 60A or 60B or 60C. (General Education Code(s): A, E.) The Staff

104. Multimedia Authoring. *
Introduces students to basic tools for the creation of multimedia digital projects. Special attention is given to the integration of video, sound, graphics, text and virtual reality and to the creation and execution of strategies for interaction between users and the projects themselves. With this in mind, students design and create computer puzzles and games. Enrollment limited to 25. (General Education Code(s): A.) J. Bierman

106. Digital Illustration. W
Introduces digital rendering techniques using the Adobe Creative Suite. Using Photoshop, Illustrator, Acrobat Writer and InDesign, students solve design problems relevant to scenic, costume, and property design. Material is applicable to anyone with an interest in the Adobe platform. Enrollment by permission of instructor. Application form available at department office. Enrollment limited to 15. (General Education Code(s): A.) B. Baron

113. The History of Design for Theater. *
The development of scenic design from the Greek period to the present. Concentration is on the changing styles of set design in relation to the changing attitudes toward dramatic literature, art, and theater architecture. (General Education Code(s): IM, A.) B. Baron

114. Design Studio: Sound. *
The intangible and transitory nature of the acoustic reality. Electronically regenerated sounds for use in the performing arts. Broad scope of the course consideration begins with found sound and includes sound propagation. Emphasis on tape-recording, editing, sound control functions, and equipment utility. Students are billed a materials fee. Prerequisite(s): course 10. (General Education Code(s): PR-C, A.) The Staff

115A. Design Studio: Scenic Design. *
Advanced work in principles and theory of scenic design. Students are billed fa materials fee. Prerequisite(s): course 10. (General Education Code(s): PR-C, A.) K. Edmunds

115B. Design Studio: Scenic Design B. *
Advanced theory and practice of theatrical set design. Prerequisite(s): course 115. (General Education Code(s): PR-C, A.) K. Edmunds

116A. History of Clothing and Costume. *

Survey of clothing and theatrical costumes; emphasis on dress of the audience and actor in historical periods of theatrical activity. Students are billed a materials fee. (General Education Code(s): IM, A.) B. Baron

117. Design Studio: Costume. S
Advanced principles and theory of costume design for theatrical productions. Students are billed for a materials fee. May be repeated for credit. (General Education Code(s): IM, A.) B. Baron

117A. Advanced Costume Construction. *
Advanced principles in costume construction, including tailoring, advanced pattern drafting, and draping techniques. Focuses on translating modern techniques into historical garment construction. Teaches how to study artifacts and do primary research to unlock the past. Prerequisite(s): course 17. Enrollment limited to 25. (General Education Code(s): A.) The Staff

118. Design Studio: Scene Painting. *
Emphasis on techniques used in painting scenery for the theater. Students are billed a materials fee. Prerequisite(s): course 10. (General Education Code(s): A.) The Staff

119. Design Studio: Lighting Studio B. *
The theory and practice of lighting design with emphasis on practical application. Light plots, electricity, optics, design, and manipulation of lighting for the theater and related performance events are investigated. The student explores mechanics and aesthetics with hands-on experience. Students are billed a materials fee. Prerequisite(s): course 19. (General Education Code(s): PR-C, A.) D. Cuthbert

121. Acting Studio II. F
Continuing concentrated work on basic acting skills and textual analysis through scene study. May be repeated for credit with consent of instructor. Prerequisite(s): admission by audition at first class meeting. See department office for more information. Course 21 recommended as preparation. May be repeated for credit. (General Education Code(s): A.) P. Gallagher

122. Indian Performance: Rama, Siva, Krishna. *
Study of the classical theater and dance of India, with attention to performance practice, aesthetic theory, relationship to religious practice devoted to Rama, Siva, and Krishna, political implications and intercultural experimentation. (General Education Code(s): CC, IH, A.) The Staff

126. Acting Studio III. W,S
Individual work on acting skills and problems, with emphasis on individual interpretation and scene work with other students. Prerequisite(s): course 121; permission of instructor; audition at first class meeting—contact department office for more information. Enrollment limited to 18. May be repeated for credit. (General Education Code(s): A.) P. Gallagher, The Staff

128. Choreographic Workshop (2 credits). W
Intensive upper-division choreographic workshop that begins from the key motifs of historical dance to develop original work. Dancers made available to the student choreographers. Concurrent enrollment in course 139 is required. Enrollment limited to 15. May be repeated for credit. (General Education Code(s): PR-C, A.) G. Casel, E. Warburton

130. Intermediate Dance Theory and Technique. W
A progression from the simple phrasing and articulation of beginning technique class to more complex material requiring more acute perceptive skills and richer dynamic range. Emphasis is on both alignment and maintaining the kinetic integrity of the body while moving through space. Students are billed a materials fee. (Formerly Intermediate Modern Dance Theory and Technique.) Prerequisite(s): course 30 or 31 or permission of instructor. May be repeated for credit. (General Education Code(s): IM, A.) G. Casel, The Staff

131. Advanced Dance Theory and Technique. *
Advanced instruction in developing the dancer's mind/body, combined with contemporary movement theory and practice. Students are billed a materials fee. (Formerly Advanced Modern Dance Theory and Technique.) Prerequisite(s): course 30 or 31 or permission of instructor. May be repeated for credit. (General Education Code(s): A.) E. Warburton

131C. Dance Studio II. *
Continued study of contemporary dance theory and practice. Focus on intermediate dance technique, individual and group movement invention, choreographic voice, and theatrical applications. Students are billed a materials fee. Enrollment limited to 30. (General Education Code(s): A.) The Staff

131P. Postmodern Dance II. *
Continued study of postmodern dance theory and technique. Focus on advanced compositional practice, theatrical applications, and critical analysis of contemporary postmodern dance choreographers in the U.S. and worldwide. Audition at first class meeting. Enrollment limited to 30. May be repeated for credit. (General Education Code(s): IM, A.) E. Warburton

135. Dance Improvisation and Theory. *
Exploring sources for movement; gaining facility in a wide range of movement elements; working in ensemble and solos. Students are billed a materials fee. (General Education Code(s): A.) E. Warburton

136. Choreography. *
Advanced study, exploration and analysis of choreographic form and content. Solo, duet, and group work are created with a focus on developing the creative process, interpreting styles and trends, and knowledge of compositional devices and generative movement practices. (Formerly course136C, Dance Studio III.) Enrollment limited to 30. May be repeated for credit. (General Education Code(s): PR-C, A.) G. Casel

137. Studies in Performance (Dance). S
Studies in dance, taken in connection with performance in a major dance concert. Students are required to work on all aspects of the production. Students work with guest and faculty choreographers. May be repeated for credit with consent of instructor. Students are billed a materials fee. Admission by audition held late winter quarter; see department office for more information. May be repeated for credit. (General Education Code(s): A.) G. Casel

139. Random: With a Purpose. W
Participation in a student-choreographed and directed dance concert under faculty supervision. Rehearsals culminate in public performances. Students are billed a materials fee. Auditions to be held on the first day of class. May be repeated for credit. (General Education Code(s): PR-E, A.) E. Warburton

141. Play Direction Studio I. W
Basic studio exploration through scene problems and exercises of the development of directing principles. Intensive work on the director's pre-rehearsal work from text selection, analysis, and casting. Audition at first class. Enrollment limited to 20. K. Jannarone

142. Play Direction Studio II. *
Intensive studio exploration of the art and craft of directing. Primary focus on text analysis, collaboration with designers, developing a point of view and visual/auditory language for the play, staging techniques, and communication techniques with actors. Prerequisite(s): course 40, 141, or permission of instructor. Enrollment limited to 15. May be repeated for credit. (General Education Code(s): A.) The Staff

151. Studies in Performance (Drama). F,W
Studies in theater, taken in connection with participation in a Theater Arts Department sponsored production. Enrollment is limited to those persons chosen to take part in a particular production. Admission by audition; audition schedule to be announced at first class meeting. May be repeated for credit. (General Education Code(s): A.) The Staff, M. Foley, D. Scheie

151A. Studies in Performance: African American Theater Arts Troupe. W
Studies in drama; emphasis on African American theater taken in connection with participation in a theater arts sponsored production. Enrollment by audition only, and limited to those persons chosen to take part in a particular production. May be repeated for credit. (General Education Code(s): ER.) D. Williams

151I. Studies in Performance: Indonesian Dance and Drama. F

Studies in drama; emphasis on Indonesian theater taken in connection with participation in a theater arts sponsored production. Enrollment by audition only, and limited to those persons chosen to take part in a particular production. May be repeated for credit. (General Education Code(s): CC.) P. Gallagher, M. Foley

152. Advanced Stagecraft. *
Exploration of stage technology from the scene shop's perspective. Conversion of scenic designs to construction drawings. Pursuit of scenic-engineering and construction techniques using steel, wood, and other materials. Training on use of stage machinery: rigging, flying, wagons, tracking, and propulsion. Prerequisite(s): course 52. Enrollment limited to 25. (General Education Code(s): A.) The Staff

155. Workshop Experiments in Performance. W
A process-oriented investigation of specific playwrights or theatrical styles consisting of work which may culminate in a final production. Admission by audition at first class meeting; see department office for more information. May be repeated for credit. (General Education Code(s): A.) P. Gallagher

157. Playwriting. F
Students are given the opportunity to write their own scripts and refine them as the result of class discussion and scenework with actors. Work is on specific problems involving such elements as the structuring of a plot or the development of character. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. May be repeated for credit. (General Education Code(s): W,A.) J. Bierman

158. Chautauqua Workshop. *
Advanced course that provides directors, writers, and performers with an opportunity to develop new works in performance. Students enrolling in this course as playwrights are selected on basis of submissions turned in the previous quarter. Students are billed a materials fee. Students taking the course as directors are required to obtain consent of the instructor. Other students may enroll as usual. May be repeated for credit. The Staff

159. Advanced Playwriting. W
A study, through practice, of the constituent elements in the construction of a drama. Students concentrate, in particular, on the organization of complex plots, the expression of character through conflict, and maximizing the emotional impact of dramatic situations. Prerequisite(s): course 157 or equivalent, satisfaction of the Entry Level Writing and Composition requirements. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): W,A.) J. Bierman

160. Dramatic Theories. S
An examination of the theories of acting and directing from the 19th century to our own time, starting with the classic theater and concentrating on the 20th-century debate centered in Stanislavski and Brecht, Grotowski, and Robert Wilson. This course must be taken prior to student's senior year; required for course 185. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements. (General Education Code(s): A.) M. Chemers

161. Theater, Literature, and History. *
The Staff

161A. Irish Theater. F
Examines the idea of a "National Theater" in Ireland from its beginnings in the founding of the National Literary Society in 1892 to the current vitality of the contemporary Irish Theater. Enrollment limited to 45. (General Education Code(s): A.) P. Whitworth

161C. The Theater and Drama of Renaissance Europe. *
An examination of selected plays from Renaissance Europe (1580-1680, Italy, Spain, and France) from an explicitly theatrical viewpoint which will include practical scene study. Covers Renaissance theater buildings and some related critical materials. Offered in alternate academic years. (General Education Code(s): A.) P. Whitworth

161D. Asian Theater: An Anthropological Approach. F
Art serves simultaneously to educate its audience to the group's traditional values and to test new ideas. Indian, Indonesian, and Japanese forms are studied in relation to their cultural context. Through videotapes, lecture demonstrations, performances, and

scenework, students explore the forms. Offered in alternate academic years. (General Education Code(s): CC, A, E.) The Staff

161M. Sexuality, Gender, Drama, and Performance. *
Exploration and analysis of the interrelationships between gender, sexuality, and performance on stage and on the page. Topics include gender and homosexuality in the history of performance and dramatic literature, drag, queer Shakespeare, closet drama, same-sex performance conditions (e.g., Greece) vs. dual-gendered (e.g., Restoration England). Combines study of theoretical texts and script with analysis and practice. (Formerly Gender and Performance .) (General Education Code(s): A.) D. Scheie

161P. Theater in the "Chicano Power" Movement.
Covers the rise of Teatro Chicano as a cultural-political force within the 1960's "Chicano Power" Movement starting with founding playwriter Luis Valdez and El Teatro Campesino and covering Chicana/o playwrights inspired by the movement, e.g. Cherrie Moraga, Luis Alfaro, and Josefina Lopez. (Also offered as Latin American&Latino Studies 161P. Students cannot receive credit for both courses.) (General Education Code(s): ER, A, E.) The Staff

161Q. Queer Theatricks: Representations and Sensibilities. *
An examination of the idea, form, and significance of queer/gay sensibility and representation in the English-speaking theater from the Renaissance to the present. (General Education Code(s): A.) The Staff

161R. Theater of American Cultures. *
Interrelationship of ethnicity and the rise of significant American theater groups including the black theater movement, Chicano Teatro, and Asian American theater will be shared via lecture, viewing, and discussion. (General Education Code(s): A, E.) The Staff

161S. American Drama: Politics and Theater. *
The dream of group theater, a long-term partnership of actors, directors, and playwrights, has fueled extraordinary and exciting change in the 20th-century American theater theory and practice. We examine ten exemplary manifestations of this dream. (General Education Code(s): A.) The Staff

161T. Women in Theater. *
Explores 20th-century American female playwrights from textual, historical, and multicultural perspectives. The course progresses from Trifles (1916) through the Harlem Renaissance, Broadway's Lillian Hellman, and today's post-Feminist theatrical explosion in lectures, films, dramatizations, and award-winning playwrights' visits. (General Education Code(s): A.) P. Gallagher

161U. Performance of Story in Theater and Film. S
Examination of theory and practice of theater and film comparing and contrasting works having been adapted from one genre to another. Lecture, film, and video viewing. Discussions of materialist, psychoanalytic, and feminist approaches shared. Students cannot receive credit for this course and course 80X. (General Education Code(s): A.) The Staff

161Y. Modern Ancient Drama. *
Studies 20th- and 21st-century productions and adaptations of ancient Greek drama in theater, dance, music, and film, including Stravinsky, O'Neill, Graham, Pasolini, and Breuer, discussing artists' goals, the sociopolitical context, ideas of authenticity, and audience response. Enrollment limited to 30. (General Education Code(s): A.) The Staff

163. Special Studies in Individual Playwrights.
The Staff

163A. Shakespeare. *
Focuses on selected plays of Shakespeare. Explores the range and variety of interpretations of the plays, both in critical writings and in performance. Also studies other writings and graphic art created on the subjects and themes of the plays. Offered in alternate academic years. (General Education Code(s): A.) P. Whitworth

163E. Chekhov and His Impact. *
Delves into the work of Chekhov and the Moscow art theater. Through scene work Stanislavski's acting techniques are related to the scripts. The impact on later Russian

innovators, especially Meyerhold, and on the American theater is considered. (General Education Code(s): A.) The Staff

163G. Special Studies in Playwrights: Artaud. *
Antonin Artaud through three critical lenses: influence on modern and contemporary theater, subject and site of psychoanalytic and social criticism, and theater practitioner. Exercises cultural, historical, and analytic approaches to his work. Prerequisite: course 160 recommended. Enrollment limited to 40. (General Education Code(s): A.) K. Jannarone

163H. Henrik Ibsen and His Impact: Ghosts of the Future. W
Examines representative texts of Ibsen's work: early plays, realistic middle plays, and late plays. The cultural/historical context of Ibsen's oeuvre is considered as well as its impact, through contemporary translations and productions, on subsequent theater theory and practice. (General Education Code(s): TA.) P. Whitworth

163K. Special Studies in Playwrights: Euripides. S
Examines the works of the classical Athenian tragedian Euripides. The class undertakes a thorough consideration of the playwright's plays in cultural, historical, theatrical, and literary context. Prerequisite(s): course 61A or permission of the instructor. Enrollment limited to 40. (General Education Code(s): TA.) J. Bierman

164. Issues in Dance History and Theory. *
A research seminar. Topics range from problems in dance aesthetics, criticism, or theory to particular movements, periods, or the work of a choreographer. (Formerly course 133.) Enrollment limited to 20. May be repeated for credit. (General Education Code(s): A.) E. Warburton

165. Dance Modernism. F
Rare historical footage and the writings of famous choreographers provide an overview of 20th-century dance within the perspective of modernism. Topics include romanticism, "natural" dance, Orientalism, Ausdruckstanz, American modern dance and neo-classicism, chance procedure, postmodernism, and the avant-garde commodity marketplace. (Formerly Introduction to Dance Modernism.) (General Education Code(s): IM, A.) E. Warburton

166. Ballet: A History. *
Chronological critical and historical overview of ballet as a form of ethnic dance from its European origins to the present. Focus is on development of form in Americas and Asia as it crossed with other socio-culturally constructed categories such as race, gender, class, sexual orientation. (General Education Code(s): ER, A.) M. Franko

185. Senior Seminar. F
A required seminar for majors involving readings and discussions of important texts in dance, design, and drama. Prerequisite(s): satisfaction of the Entry Level Writing and Composition requirements; course 160. D. Scheie

190. Group Projects. F,W,S
Prerequisite(s): petition required, approved by instructor and department. May be repeated for credit. The Staff

192. Directed Student Teaching. F,W,S
Teaching a lower-division seminar under faculty supervision. (See courses 42 and 45). Petition required, approved by instructor and department. The Staff

193. Proseminar. *
Exposes students to an aspect of the theory or practice of theater arts. Visiting scholars share their area of expertise in lectures to a small group of students. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) The Staff

193F. Proseminar (2 credits). *
Exposes students to an aspect of the theory or practice of theater arts. Visiting lecturers share their area of expertise in lectures to a small group of students. Enrollment limited to 25. May be repeated for credit. (General Education Code(s): A.) The Staff

198. Independent Field Study. F,W,S
Provides for department-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Students engaging in

field study must complete application procedures for such study by the fifth week of the previous quarter. Petition required, approved by instructor and department. The Staff

198F. Independent Field Study (2 credits). F,W,S
Provides for department-sponsored individual study programs off campus for which faculty supervision is not in person (e.g., supervision is by correspondence). Students engaging in field study must complete application procedures for such study by the fifth week of the previous quarter. Petition required, approved by instructor and department. May be repeated for credit. The Staff

199. Tutorial. F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

199F. Tutorial (2 credits). F,W,S
Individual study in areas approved by sponsoring instructors. Students submit petition to sponsoring agency. May be repeated for credit. The Staff

Graduate Courses

290A. Text Analysis. F
Presents a range of performance blueprints (texts, scores, libretti, etc.), and introduces key methodologies for translating text into performance. A final paper required. Enrollment restricted to graduate students in theater arts. May be repeated for credit. P. Whitworth

290B. Performance Histories. W
Contextualizes major movement in performance. Students are exposed to a wide range of historical and visual material pertinent to the creation of theater and dance. A final paper is required. Enrollment restricted to graduate students in theater arts. May be repeated for credit. J. Bierman

290C. Performance Analysis. S
Examines the production approaches of a range of performance practitioners, production companies, and performance traditions. Includes exercises in analysis and reconstruction of performance. A final reconstruction project is required. Enrollment restricted to graduate students in theater arts. May be repeated for credit. B. Baron, K. Jannarone

291. Field Study. F,W,S
Student-designed and conducted research carried out in field settings. A brief prospectus must be filed with the department office before undertaking the research, and a brief final report of activities must be filed upon return. Course intended for students with graduate standing in theater arts. Petition required, approved by instructor and department. The Staff

292. Teaching-Related Independent Study. F,W,S
Directed graduate research and writing coordinated with the teaching of undergraduates. Course intended for graduate students in theater arts. Petition required, approved by instructor and department. The Staff

293. Performance Research Project (10 credits). F,W,S
Internship with a professional theater company in the student's area of emphasis. This work will have a significant academic component supervised and assessed by a theater arts faculty member during the quarter it is taken. Enrollment restricted to graduate students. The Staff

295. Group Critique. W
Peer review and constructive assessment of works in progress. Students are required to give individual presentations to the group at least once a quarter. Educational objectives are to develop the ability to articulate themes and ideas in student's body of work; to strengthen critical skills in making, evaluating, and discussing theater art; to explore the role of the audience in context and criticism; and to investigate the ways artists construct, use, and maintain support communities. Enrollment restricted to graduate students. B. Baron

297. Independent Study. F,W,S
Independent study or research for graduate students in theater arts. Petition required,

approved by instructor and department. May be repeated for credit. The Staff

297F. Independent Study/Graduate (2 credits). F,W,S
Independent study or research for graduate students in theater arts. Petition required, approved by instructor and department. Enrollment restricted to graduate students in theater arts. May be repeated for credit. The Staff

299. Capstone Thesis. S
Involves participation in a major collaborative performance project (either faculty-directed or graduate student-directed with faculty supervision) or a research project group. Includes a written thesis, though the length will vary depending upon the student's particular emphasis. Enrollment restricted to graduate students. The Staff

* Not offered in 2014-15

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Yiddish

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Department of Languages and Applied Linguistics
218 Cowell College
(831) 459-2054
http://language.ucsc.edu

Faculty | Program Statement

Lower-Division Courses

1. First-Year Yiddish.
Introduces the Yiddish language. Students learn to speak and to ask others in Yiddish about themselves and about common situations (the classroom, work, family), and learn to read and write simple Yiddish texts. (Formerly Introduction to Yiddish.) The Staff

2. First-Year Yiddish. *
Follows course 1 (formerly Hebrew 10), expanding vocabulary to include the weather, physical health and sickness, holidays, clothing, etc., and increasing student ability for self-expression using different tenses and grammatical cases. (Formerly Introduction to Yiddish.) Prerequisite(s): course 1 or Hebrew 10 or by consent of instructor. The Staff

99F. Tutorial (2 credits). F,W,S
Students submit petition to sponsoring agency. May be repeated for credit. The Staff

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Teaching and Administrative Staff

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Teaching Staff

Faculty titles for 2014–15 were verified as of July 31, 2014, and subsequent changes may not be reflected in the following list. Please note that inclusion in this list is not a guarantee that the faculty member will be teaching throughout the 2014–15 academic years. In addition, some faculty listed here as emeriti may be recalled to teach courses.

The listing for most faculty members includes college membership, year of arrival at UC Santa Cruz, academic title, degrees, and former affiliations.

Martin Abadi, Stevenson College (2001)
Professor Emeritus, Computer Science
B.S., M.S., Ph.D., Stanford University. Former affiliations: Systems Research Center, Compaq; Bell Labs Research; Lucent Technologies.

Lamis Abdelaaty (2013)
Acting Assistant Professor, Politics
B.A., M.A., American University in Cairo; M.A., McGill University; Ph.D., Princeton University.

Ralph H. Abraham, Kresge College (1968)
Professor Emeritus, Mathematics
B.S.E., M.S., Ph.D., University of Michigan. Former affiliations: Princeton University; Columbia University; University of California, Berkeley.

W E. Abraham, Cowell College (1973)
Professor Emeritus, Philosophy
B.A., University of London; M.A., B.Phil., Oxford University. Former affiliations: Macalester College; University of Ghana; University of California, Berkeley; Stanford University.

Elizabeth S. Abrams, Porter College (2000)
Lecturer, Writing
A.B., University of California, Berkeley; M.A., M.Phil., Yale University. Former affiliation: Harvard Expository Writing Program.

Zsuzsanna Abrams (2010)
Associate Professor, German Language
B.A., University of Wisconsin, Eau Claire; M.A., Ph.D., University of Tucson. Former affiliations: University of Texas at Austin.

Demetrios Achlioptas (2005)
Professor, Computer Sciences
B.Eng., University of Patras; M.Sc., Ph.D., University of Toronto. Former affiliations: Microsoft research, Redmond, WA..

Robert Adams, Crown College (1967)
Professor Emeritus, Economics
B.A., Oberlin College; M.A., Ph.D., University of Michigan. Former affiliations: University of Pittsburgh; University of Maryland.

Anthony N. Aguirre (2003)
Professor, Physics
B.A., Brown University; M.A., Ph.D., Harvard University. Former affiliation: Institute for Advanced Study (Princeton).

Julia M. Aguirre (2001)
Assistant Professor, Education
B.A., University of California, Berkeley; M.A., University of Chicago; Ph.D., University of California, Berkeley.

Patrick P. Aherne, Porter College (1966)
Professor Emeritus, Art
B.F.A., University of Kansas; M.A., Northwestern University. Former affiliation: Artist-in-Residence, Kings Canyon and Sequoia National Parks.

Judith L. Aissen, Stevenson College (1983)
Research Professor Emerita, Linguistics
B.A., Fordham University; M.A., Yale University; Ph.D., Harvard University. Former affiliations: University of California, Los Angeles; Yale University; University of California, Santa Barbara.

Joshua Aizenman, College Nine (2001)
Professor Emeritus, Economics
B.A., M.A., Hebrew University of Jerusalem; Ph.D., University of Chicago. Former affiliations: University of Pennsylvania; University of Chicago; Hebrew University of Jerusalem; Dartmouth College.

Ramakrishna Akella (2003)
Professor, Information Systems Management
B.S., Indian Institute of Technology; Ph.D., Indian Institute of Science. Former affiliations: State University of New York at Buffalo; Carnegie Mellon University.

Mark A. Akeson (1996)
Professor, Biomolecular Engineering
B.A., University of California, San Diego; Ph.D., University of California, Davis.. Concurrent Affiliation: Former affiliations: University of California, Santa Cruz; National Institutes of Health; University of California, Davis..

Nameera N. Akhtar, Crown College (1995)
Professor, Psychology
B.S., M.S., Ph.D., Dalhousie University (Canada).

Jorge Aladro Font, Merrill College (1992)
Professor, Spanish Literature
M.A., University of Barcelona; Ph.D., State University of New York at Albany. Former affiliations: Skidmore College; State University of New York at Albany.

Peter Aldhous
Lecturer in Science Writing
B.S., University of Bristol, England; Ph.D., University of Nottingham, England.

Eric Aldrich (2012)

Assistant professor, Economics
B.S., Duke University; M.S., University of Washington; M.A., Ph.D., Duke University. Former Affiliations: Federal Reserve Bank of Atlanta; Duke University.

Mark Amengual (2014)
Assistant Professor, Languages and Applied Linguistics
Ph.D., University of Texas at Austin; M.A., Pennsylvania State University; B.A. (Llicenciatura), Universitat de les Illes Balears.

George T. Amis, Cowell College (1965)
Professor Emeritus, English Literature
B.A., Amherst College; M.A., Ph.D., Yale University. Former affiliations: Yale University; Williams College.

Pranav Anand, Stevenson College (2006)
Associate Professor
A.B., Harvard University; Ph.D., MIT.

Elliot W. Anderson, Porter College (1997)
Associate Professor, Art
B.A., M.A., San Francisco State University. Former affiliation: San Francisco Art Institute.

Mark D. Anderson, Merrill College (2003)
Associate Professor, Anthropology
B.A., University of North Carolina at Chapel Hill; M.A., Ph.D., University of Texas at Austin. Former affiliation: University of Chicago.

Roger W. Anderson, Porter College (1968)
Professor Emeritus, Chemistry and Biochemistry
B.A., Carleton College; M.A., Ph.D., Harvard University.

Frank C. Andrews, Merrill College (1967)
Professor Emeritus, Chemistry and Biochemistry
B.S., Kansas State University; M.A., Ph.D., Harvard University. Former affiliation: University of Wisconsin.

Lawrence Andrews, Porter College (1991)
Associate Professor, Film and Digital Media
B.F.A., San Francisco Art Institute.

Karen L. Andrie (1993)
Lecturer, Music (Cello)
B.M., Performer's Certificate, Eastman School of Music. Concurrent affiliations: Cabrillo College; Popper-Keizer Summer Music Conservatory; Santa Cruz Chamber Players; Santa Cruz New Music Works; Monterey Symphony.

David H. Anthony, Oakes College (1988)
Associate Professor, History
A.B., New York University; A.M., Ph.D., University of Wisconsin-Madison. Former affiliation: University of Oregon.

Bettina F. Aptheker, Kresge College (1979)
Professor, Feminist Studies and History
B.A., University of California, Berkeley; M.A., San Jose State University; Ph.D., University of California, Santa Cruz. Former affiliation: San Jose State University.

Dane Archer, Stevenson College (1972)
Professor Emeritus, Sociology
B.A., Yale University; M.A., Ph.D., Harvard University.

Sondra M. Archimedes (2004)
Lecturer, Writing

B.A., M.A., San Francisco State University; Ph.D., University of California, Santa Cruz.

Manuel Ares, Porter College (1987)
Professor, Molecular, Cell, and Developmental Biology
B.S., Cornell University; Ph.D., University of California, San Diego. Former affiliation: Yale University.

Anjali R. Arondekar, Kresge College (2000)
Associate Professor, Feminist Studies
I.B., Armand Hammer United World College; B.A., Cornell University; Graduate Certificate, Ph.D., University of Pennsylvania.

Elliot Aronson, Stevenson College (1974)
Professor Emeritus, Psychology
B.A., Brandeis University; M.A., Wesleyan University; Ph.D., Stanford University. Former affiliations: Harvard University; University of Minnesota; University of Texas at Austin.

Gabriela F. Arredondo, Merrill College (1998)
Associate Professor, Latin American and Latino Studies
B.A., Reed College; M.A., San Francisco State University; Ph.D., University of Chicago.

Derede L. Arthur (2001)
Lecturer, Writing
M.A., Stanford University. Former affiliations: Santa Clara University; De Anza College; Cogswell College, Sunnyvale.

Doris B. Ash, Porter College (2000)
Associate Professor, Education
B.S., M.S., Cornell University; Ph.D., University of California, Berkeley. Former affiliation: San Francisco Exploratorium.

Noriko Aso, Merrill College (1998)
Assistant Professor, History
B.A., Yale University; M.A., Ph.D., University of Chicago. Former affiliation: Portland State University.

Erik Asphaug, College Eight (1998)
Professor Emeritus, Earth and Planetary Sciences
B.A., Rice University; Ph.D., University of Arizona, Tucson. Former affiliations: SETI Institute; NASA Ames Research Center.

Neda Atanasoski (2008)
Associate Professor, Feminist Studies
B.A., University of Minnesota Twin Cities; M.A., Ph.D., University of California, San Diego. Concurrent Affiliation: Former affiliations: SUNY Stony Brook University.

Charles O. Atkinson, Porter College (1978)
Lecturer, Creative Writing
B.A., Amherst College; M.A., Ph.D., University of California, Santa Cruz. Former affiliation: Hampshire College.

William B. Atwood (2001)
Adjunct Professor, Physics
B.S., California Institute of Technology; Ph.D., Stanford University. Former affiliation: Stanford Linear Accelerator Center.

Margarita Azmitia, Cowell College (1989)
Professor, Psychology
B.A., M.A., University of North Carolina at Greensboro; Ph.D., University of Minnesota. Former affiliation: Florida International University.

Delbert D. Bailey (2004)

Research Associate, Computer Science
B.S., Portland State University; M.S., Ph.D. University of California, Santa Cruz. University of Oregon, Medical School.

Mark Baker (2000)
Lecturer, Writing
B.A., University of California, Irvine; M.A., San Francisco State University. Former affiliation: San Francisco State University.

John C. Balachandra (2009)
Adjunct Professor, Electrical Engineering
B.S., University of Sri Lanka; M.S., Ph.D., Texas A&M University. Former affiliations: Distributed Power & Electronics Center; California State University, Sacramento..

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The governance of the university is entrusted, under the state constitution, to the Regents of the University of California. The Board of Regents is presently composed of 18 members who are appointed by the governor of California, subject to California State Senate confirmation; seven members who participate because of the offices they hold; and a student member appointed by the board.

The president of the university is the chief executive of the 10-campus system. He or she is appointed by the Regents and is directly responsible to them.

Each of the 10 campuses of the university has a chancellor, its chief administrative officer, who is responsible for the organization and operation of the campus, including academic, student, and business affairs.

The Academic Senate, consisting of the faculty and certain administrative officers, determines the conditions for admission and degrees, subject to the approval of the Regents; authorizes and supervises courses and curricula; and advises the university administration on important matters such as appointments and promotions, budgets, student discipline, and administration of the library.

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Appendix A: California Residency and Nonresident Supplemental Tuition

The University of California (UC) Residence Policy and Guidelines is the main source of residency information and is utilized by the Campus Residence Deputy to make determinations regarding residency. Read the full text of the UC Residence Policy and Guidelines here.

If you do not meet the University of California requirements for residence for tuition purposes on the residence determination date for each term in which you propose to attend the university, you must pay a Nonresident Supplemental Tuition in addition to all other fees. The residence determination date is the day instruction begins at the last of the University of California campuses to open for the quarter, and for schools on the semester system, the day instruction begins for the semester.

Regulations Governing Residence

The determination of residence for tuition purposes at the University of California is governed by the UC Residence Policy and Guidelines established by the UC Regents, and implemented by the UC President in consultation with the UC General Counsel.

Under the UC Residence Policy and Guidelines, adult citizens and certain classes of aliens can establish residence for tuition purposes. The presumption of residence deputies is that students and their parents have read and understand the UC residence requirements prior to submitting their residence information for determination of residence for tuition purposes. Decisions on residence status are made after a student accepts an offer of admission to the university by submitting a Statement of Intent to Register and completes a Statement of Legal Residence.

Note: Registered domestic partners are included in rules that apply to spouses.

Who Is a Resident?

If you are an adult student (at least 18 years of age), you may establish residence in California if

(1) You are a U.S. citizen.

(2) You are a permanent resident or other immigrant.

(3) You are a nonimmigrant who is not precluded from establishing a domicile in the U.S. This includes nonimmigrants who hold valid visas of the following types: A, E, G, H-1B, H-4, I, K, L, N, O-1, O-3, R, T, U, or V.

To establish residence you must be physically present in California for more than one year, and you must come here with the intent to make California your home as opposed to coming to this state to go to school. Physical presence within the state solely for educational purposes does not constitute the establishment of California residency, regardless of the length of stay. You must demonstrate your intention to make California your home by severing your residential ties with your former state of residence and establishing those ties with California. If your parents are not California residents, you are required to be financially independent in order to be a resident for tuition purposes. Your residence cannot be derived from your spouse, a registered domestic partner or a parent.

Requirements for Financial Independence

You are considered "financially independent" if one or more of the following applies:

(1) You are at least 24 years of age by December 31 of the calendar year of the term for which you are requesting resident classification.

(2) You are a veteran of the U.S. Armed Forces.

(3) You are a ward of the court or both parents are deceased.

(4) You have legal dependents other than a spouse or a registered domestic partner.

(5) You are married, a registered domestic partner, or a graduate student, and you were not/will not be claimed as an income tax deduction by any individual other than your spouse or domestic partner for the tax year immediately preceding the term for which you request resident classification.

(6) You are a single undergraduate student and you were not claimed as an income tax deduction by your parents or any other individual for the two tax years immediately preceding the term for which you request resident classification, and you can demonstrate self-sufficiency for those years and the current year.

Note: Financial independence is not a factor in determining residence status for graduate students who are employed 49 percent or more time or awarded the equivalent in university-administered funds (e.g., grants, stipends, fellowships) in the term for which a resident classification is sought.

Establishing Intent for California Residency

You must demonstrate your intent to make California your home by severing your residential ties with your former state of residence and establishing those ties with California shortly after arrival. Indications of your intent to make California your permanent residence include the following: registering to vote and voting in California elections; designating California as your permanent address on all school and employment records, including military records if you are in the military service; obtaining a California driver's license or, if you do not drive, a California identification card; obtaining California vehicle registration; paying California income taxes as a resident, including taxes on income earned outside California from the date you establish residence; establishing a home in California where you keep your personal belongings; and licensing for professional practice in California. Documentary evidence is required and all relevant indications will be considered in determining your classification. Your intent will be questioned if you return to your prior state of residence when the university is not in session.

General Rules Applying to Minors

If you are an unmarried minor (under age 18), the residence of the parent with whom you live is considered to be your residence. If you live with neither parent, your residence is that of the parent with whom you last lived. Unless you are a minor alien present in the U.S. under the terms of a nonimmigrant visa, which precludes you from establishing domicile in

the U.S., you may establish your own residence when both parents are deceased and a legal guardian has not been appointed. If you have a parent living, you cannot change your residence by your own act, by appointment of a legal guardian, or by relinquishment of your parent's right of control. If you derive California residence from a parent, that parent must satisfy the one-year durational residence requirement.

Specific Rules Applying to Minors

(1) Divorced or separated parents. To derive California resident status from a California-resident parent, you must move to California to live with that parent before your 18th birthday, remain in the state, and establish California indicia of intent from the time you reach 18. Otherwise, you will be considered out-of-state student and will have to meet all applicable UC residence requirements.

(2) Parent of minor moves from California. You may be entitled to resident classification if you are an eligible minor whose parent(s) was a resident of California who left the state within one year of the residence determination date if

(a) you remained in California after your parent(s) departed;

(b) you enrolled in a California public postsecondary institution within one year of your parent(s)' departure; and

(c) once enrolled, you maintain continuous attendance in that institution. Financial independence is not required in this case.

(3) Self-support. You may be entitled to resident classification if you are a minor and a U.S. citizen or eligible alien and can prove the following:

(a) you lived in California for the entire year immediately preceding the residence determination date;

(b) you have been self-supporting for that year; and

(c) you intend to make California your permanent home.

(4) Two-year care and control. You may be entitled to resident classification if you are a minor and a U.S. citizen or eligible alien and you have lived continuously with an adult who is not your parent for at least two years prior to enrolling at the University of California. The adult with whom you are living must have been responsible for your care and control for the entire two-year period and must satisfy all UC residence requirements.

Exemptions from Nonresident Supplemental Tuition

You may be entitled to an exemption from the nonresident supplemental tuition if one of the following applies to you:

Note: Some of the exceptions conferring residence status and exemptions are for a limited period of time. Check with the Campus Residence Deputy for more information:

(1) California State Law and UC Regents Policies:

Member of the Armed Forces (CAL. ED. CODE § 68075). Stationed in California on active duty, not for educational purposes = resident for as long as student maintains eligibility requirements.

Child or Spouse of a Member of the Armed Forces (§ 68074). Student dependent of Member of Armed Forces stationed in CA on active duty = resident for as long as maintains eligibility requirements. If parent transfers or retires, dependent shall not lose residence so long as student remains continuously enrolled at UC.

Former Member of the Armed Forces (§ 68075.5). Stationed in CA on active duty for more than one year immediately prior to discharge = exemption for length of time lives in state after discharge up to minimum time necessary to become a resident. Disqualification: a dishonorable or bad conduct discharge.

(2) Federal Law: The Higher Education Opportunity Act:

Member of the Armed Forces (HEOA–federal law). Active duty more than 30 days (which may start before and continue after RDD), with domicile or permanent duty station in CA = nonresident with exemption from nonresident supplemental tuition. Continuous enrollment is required. Member will not lose exemption even if permanent duty station changed to outside of CA. 28

Child or Spouse of a Member of the Armed Forces (HEOA). Student dependent of member of Armed Forces on active duty more than 30 days (which can start before and continue after RDD), with domicile or permanent duty station in CA = nonresident with exemption from nonresident supplemental tuition even if military member's permanent duty station changed to outside of CA.

(3) Child, spouse, or registered domestic partner of a faculty member. The spouse, registered domestic partner, or unmarried, dependent child under age 21 of a member of the University faculty, who is a member of the Academic Senate, may be eligible for an exemption from nonresident supplemental tuition. The Residence Deputy must verify membership in the Academic Senate and the child's dependent status before this exemption may be granted.

(4) Child, spouse, or registered domestic partner of a university employee. A full-time UC employee assigned to work outside the State of California in an institution or state agency and the unmarried, dependent child under the age of 21 or the spouse or registered domestic partner of such an employee may be eligible for resident classification. This provision most often applies to employees of Los Alamos National Laboratory.

(5) Child, spouse, or registered domestic partner of a deceased public law enforcement or fire suppression employee. A student who is a child, spouse or registered domestic partner of a deceased public law enforcement or fire suppression employee, who was a California resident and was killed in the course of law enforcement or fire suppression duties may be eligible for an exemption.

(6) Dependent child of a California resident. A student who has not been an adult resident for more than one year and is the natural or adopted dependent child of a California resident who has been a resident for more than one year immediately prior to residence determination date may be entitled to an exemption from nonresident tuition for up to one year or until the student has lived in California the minimum time necessary to become a resident. Please be aware that when this exemption expires, the student must have fulfilled all applicable UC residence requirements to maintain resident status. The student must also maintain continuous attendance in a California public postsecondary institution.

(7) Graduate of a California school operated by the Federal Bureau of Indian Affairs (B.I.A.). A student who is a graduate of a California school operated by the B.I.A. (e.g., Sherman Indian High School) may be eligible for a resident classification.

(8) Employee of California public school district. A student holding a valid credential authorizing service in California public schools and employed by a school district in a full-time certificate position may be exempt from nonresident tuition.

(9) Student athlete in training at U.S. Olympic Training Center, Chula Vista. An amateur student athlete in training at the U.S. Olympic Training Center in Chula Vista may be eligible for resident status until he or she has resided in California the minimum time necessary to become a resident.

(10) Graduate of California high school. A student who attended high school in California for three or more years (9th grade included) and graduated from a California high school (or attained the equivalent) may be exempt from nonresident tuition. You are not eligible for this exemption if you are a nonimmigrant alien.

(11) Congressional Medal of Honor recipient. An undergraduate student under age 27 who is the recipient of the Congressional Medal of Honor or a child of a recipient who at the time of his or her death was a California resident may be eligible for an exemption.

(12) Dependent or Wards of the state through California's Child Welfare System. A student who resides in California and is 19 years of age or under at the time of enrollment, and who is currently a dependent or ward of the state through California's child welfare system, or was served by California's child welfare system and is no longer being served either due

to emancipation or aging out of the system, shall be entitled to a resident classification as long as he or she remains continuously enrolled.

(13) T or U visa holders. Students who possess a T or U nonimmigrant visa and otherwise would meet the requirements of Section 68130.5 (AB 540) shall be exempt from paying nonresident tuition at the University until they are eligible to establish a resident classification.

Temporary Absences

If you are a nonresident student who is in the process of establishing a residence for tuition purposes and you return to your former home during noninstructional periods, your presence in the state will be presumed to be solely for educational purposes and only convincing evidence to the contrary will rebut this presumption. Students who are in the state solely for educational purposes will not be classified as residents for tuition purposes regardless of the length of their stay.

If you are a student who has been classified as a resident for tuition purposes and you leave the state temporarily, your absence could result in the loss of your California residence. The burden will be on you (or on your parents if you are under age 24) to verify that you did nothing inconsistent with your claim of a continuing California residence during your absence. Steps that you (and/or your parents) should take to retain a California residence include:

- Maintain a residence in California.
- Continue to use a California permanent address on all records—educational, employment, military, etc.
- Continue to satisfy California tax obligations. If you are claiming California residence, you are liable for payment of income taxes on your total income from the date that you establish your residence in the state, including income earned in another state or country.
- Retain your California voter's registration and vote by absentee ballot.
- Maintain a California driver's license and vehicle registration. If it is necessary to change your driver's license or vehicle registration, you must change them back within the time prescribed by law.
- Return to California for leaves and vacations.
- Maintain active bank accounts in California.
- Store belongings in California.

If a student (or the student's parent(s)) relinquishes California residence after moving from the state, 366 days of physical presence coupled with one year of demonstrated intent must be re-established.

Petitioning for Change of Classification

You must petition in person at the Office of the Registrar for a change of classification from nonresident to resident status. Petitions must be initiated during the filing period for the term for which you intend to be classified as a resident. Late petitions will not be accepted.

Time Limitation on Providing Documentation

If additional documentation is required for residence classification but is not readily accessible, you will have until the third week of instruction of the applicable term to provide it. Failure to meet this deadline will result in your file being closed and your status remaining as a nonresident.

Incorrect Classification

If you are incorrectly classified as a resident, your classification will be corrected and you

will be required to pay all nonresident tuition not paid. If you concealed information or furnished false information and were classified incorrectly as a result, you are also subject to university discipline. Resident students who become nonresidents must immediately notify the campus residence deputy.

Inquiries and Appeals

All inquiries regarding residence requirements, determination, and/or recognized exceptions should be directed to the Residence Deputy, Office of the Registrar, 190 Hahn Student Services Building, University of California, Santa Cruz, 1156 High Street, Santa Cruz, CA 95064-1077, reg_fees@ucsc.edu, or to the Residence Specialist, University of California Office of the General Counsel, 1111 Franklin Street, 8th Floor, Oakland, CA 94607-5200.

Please be advised: This is only a summary of the UC Residence Regulations and is not a complete explanation of the law regarding residence classification. Changes may be made to the residence requirements between the publication date of this statement and the relevant residence determination date. Any student, following a final decision on residence classification by the residence deputy, may appeal in writing to the residence specialist within 30 days of notification of the residence deputy's final decision.

No other University of California personnel are authorized to provide information regarding residence requirements.

Privacy Notice

All of the information requested on the Statement of Legal Residence form is required [by the authority of Standing Order 110.2 (a)-(d) of the Regents of the University of California] for determining whether or not you are a legal resident for tuition purposes. You have the right to inspect university records containing the residence information requested on this form. The records are maintained by the Office of the Registrar, 190 Hahn Student Services Building, University of California, Santa Cruz, 1156 High Street, Santa Cruz, CA 95064-1077.

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Appendix B: UC Santa Cruz Police Department

UC Santa Cruz Police Department officers are duly sworn peace officers under section 830.2(b) of the California Penal Code. The officers are armed and possess the same authority and responsibility, by law, as those in municipal police departments. Officers patrol the campus 24 hours a day, 365 days a year, on foot, bicycle, motorcycle, or by car. They enforce the law, arrest violators, investigate and suppress crime, investigate traffic and bicycle accidents, and provide a full range of services to the community.

It is important that all crimes occurring on campus be immediately reported to the Police Department to ensure that appropriate action can be taken. Emergencies requiring police, fire, or medical aid can be reported in person or by dialing 911 from any campus, cell phone or landline phone. Emergencies can also be reported by using one of the "Blue Light" emergency phones or elevator phones located throughout the campus.

Non-emergency calls for assistance can be made by phoning the UC Santa Cruz Police Department at (831) 459-2231.

The UC Santa Cruz Police Department is also responsible for the campus Lost-and-Found service. To inquire about a lost item, or to drop off a found item, please visit the Police Department, which is located near the main entrance to campus.

The Parking Enforcement Office (for paying parking citations and requesting special parking consideration) is in the same location. Citation payments may be made online at https://www.paymycite.com/, 24 hours a day, or in person during business hours.

For more information about the UC Santa Cruz Police Department, please visit police.ucsc.edu.

Jeanne Clery Disclosure of Campus Security and Campus Crime Statistics

Act

Choosing a postsecondary institution is a major decision for students and their families. Along with academic, financial and geographic considerations, the issue of campus safety is a vital concern. In 1990, Congress enacted the Crime Awareness and Campus Security Act of 1990, which amended the Higher Education Act of 1965 (HEA). This act required all postsecondary institutions participating in HEA's Title IV student financial assistance programs to disclose campus crime statistics and security information. The act was amended in 1992, 1998, and 2000. The 1998 amendments renamed the law the Jeanne Clery Disclosure of Campus Security Policy and Campus Crime Statistics Act in memory of a student who was slain in her dorm room in 1986. It is generally referred to as the Clery Act.

More information about the Clery Act can be found at: clerycenter.org.

Notice of Availability: Annual Campus Security and Fire Safety Report

On October 1 of each year, an e-mail notification is sent to all enrolled students, academic and staff personnel that provides the web site to access this report. This report includes statistics for the previous three years concerning reported crimes that occurred on campus; in certain off-campus buildings or property owned or controlled by UC Santa Cruz; and on public property within, or immediately adjacent to and accessible from, the campus.

The report also includes information on fire protection systems, fire prevention policies, as well as institutional policies concerning other safety and security matters. Community members, students, academic and staff personnel, and guests are encouraged to immediately report all crimes and public safety related incidents to the UC Santa Cruz Police Department.

You can obtain a copy of this report by contacting the UC Santa Cruz Police Department, 1156 High Street, Santa Cruz, CA 95064, (831) 459-2231, or by accessing the following web site: www.ucsc.edu/about/crime-stats/.

The UC Santa Cruz Police Department submits the annual crime and fire statistics published in this report to the Department of Education. The statistical information gathered by the Department of Education is available to the public through the Department of Education web site: www.ed.gov.

Consequences for Non-Compliance with the Clery Act

Possible consequences for an institution's non-compliance with the Clery Act include:

- A suspension or limiting of the institutions Title IV funding
- The Department of Education may issue a civil fine up to $35,000 per violation
- The institution may suffer reputational loss due to negative media attention
- Failure to comply with the Clery Act can be used in various litigation matters

Clery Compliance Committee

In order to assist the university administration with achieving annual compliance with the Clery Act, UC Santa Cruz has appointed members of the campus community to the Campus Clery Act Compliance Committee. The overall charge of the Campus Clery Act Compliance Committee is to plan and facilitate activities that will directly support the campus in achieving compliance.

In part, coordination and documentation for compliance is managed through the UC Santa Cruz Police Department. The committee consists of members from the follow departments at UC Santa Cruz:

- Police Department
- General Counsel
- Executive Vice-Chancellor and Provost Office
- CHES (Colleges Housing and Educational Services)
- Student Judicial Affairs

Dean of Students

Fire Department

Women's Center

Student Health Center

Risk Management

Environmental Health and Safety

Human Resources

Admissions

ITS (Information and Technology Services)

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Appendix C: Drug-Free Schools and Communities Act

In compliance with the federal Drug-Free Schools and Communities Act, UCSC annually notifies students, faculty, and staff of policies, procedures, and potential consequences related to unlawful possession, use, or distribution of drugs and alcohol on campus. This notice is distributed to students through the colleges and the Graduate Studies Division, and to faculty and staff via e-mail. The university also conducts a biannual review of programs related to drugs and alcohol to determine effectiveness, implement changes, and ensure that disciplinary sanctions are consistently enforced. This review is conducted by the Office of the Vice Chancellor for Student Affairs, (831) 459-2474.

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Appendix D: Smoking on Campus Policy

To protect the rights of the nonsmoking campus community to breathe smoke-free air, UCSC previously adopted a policy that bans smoking in areas occupied by the nonsmoking population. The current policy applies to residential and nonresidential university buildings and vehicles and to all individuals on the campus. Smoking is prohibited inside the residence halls (including student rooms) as well as residence hall lounges, inside individual apartments, community rooms, bathrooms, lounges, cafés, and dining halls. Additionally, smoking is, prohibited in all indoor public spaces at UC Santa Cruz—both academic and residential. The no-smoking policy includes exterior stairways, decks, and balconies. Smoking outside is permitted only in designated areas, 25 feet away from all buildings and air intakes. Tobacco products are not be sold on campus through vending machines or campus establishments. UCSC supports and assists efforts to stop smoking by providing literature and referrals to community cessation programs. Students may obtain information about the programs from the Cowell Student Health Center (831) 459-2211. NOTE: The University of California has committed to becoming entirely tobacco-free at all campus locations systemwide, no later than January 1, 2014. UCSC will be implementing a revised policy reflecting this change prior to the January 1, 2014, implementation. Use of all forms of tobacco, including smokeless tobacco products and unregulated nicotine products (e.g., "e-cigarettes") will be strictly prohibited in all indoor and outdoor spaces including parking lots. Tobacco users will be supported in accessing a variety of free and low-cost tobacco-cessation services. For more detailed information about the current smoking policy see the web: ehs.ucsc.edu (under Environmental Health and Safety [EH&S] Administration, Policies).

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Appendix E: Policies and Regulations

The Student Policies and Regulations Handbook, the Code of Student Conduct, and related appendixes may be accessed online. The Student Policies and Regulations Handbook is also available in alternate formats such as enlarged print, braille, audiocassette, or electronic disc from Student Judicial Affairs. Topics include:

- Policy on Nondiscrimination
- Policy on Speech and Advocacy
- Policy on Use of University Properties
- Policy on Campus Emergencies
- Registered Campus Organizations
- University Obligations and Student Rights
- Policy on Student Governments
- Policy on Campus-Based Student Fees
- Code of Student Conduct
- Policy on Student Grievance Procedures
- Policy on Student Participation in Governance
- Policies Applying to the Disclosure of Information from Student Records
- Guidelines Applying to Nondiscrimination on the Basis of Disability
- University of California Authorized Student Governments
- Use of the University's Name
- Nondiscrimination Policy Statement for University of California Publications Regarding Student-Related Matters
- UCSC Alcohol and Drug Policy
- University of California Policy on Hazing
- Policy on Sexual Harrassment for Undergraduates
- UCSC Academic Dishonesty Policy
- UCSC Policy on Sexual Orientation Harassment/Discrimination
- UCSC Guidelines for Speakers and Public Events for Students and Campus Organizations
- UCSC Computer Guidelines: Policies for Use of UCSC Computing Facilities
- UCSC Smoking Policy
- UCSC Public Nudity and Sexually Offensive Conduct Policy
- UCSC Hate/Bias Incident Policy
- UCSC Procedures for Ensuring Adequate Interim Protection from Retaliation or Intimidation for Complainant(s), Witness(es), and other Individuals
- UCSC Policy on Academic Integrity for Graduate Students

For further information, stop by 245 Hahn Student Services Building or call (831) 459-1738.

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Appendix F: Graduate Student-Faculty Adviser Relationship Guidelines

The University of California, Santa Cruz, expects professional, fair, and frequent communication between graduate students and their advisers. Open communication and mutual respect should be the foundation of the relationship between a graduate student and faculty adviser. The graduate adviser and the graduate student should discuss their student-adviser relationship early, and clearly communicate mutual and agreeable expectations from the beginning. Regular interactions, especially face-to-face meetings, are essential in ensuring that expectations and goals are met.

In an optimal learning environment, the faculty adviser should provide timely and constructive feedback on performance and expectations; timely and sufficient warning of inadequate performance; appropriate recognition of a student's intellectual contributions; and academic and professional advice on all stages of the graduate career. The graduate student should be an active participant in seeking advice and getting feedback on progress, keeping the faculty adviser informed of plans, progress, and obstacles, and contributing during regular progress assessments. The faculty adviser and the student each have the duty and responsibility to initiate meetings as necessary to foster and protect the success of the relationship.

Professionalism and fairness should guide the graduate student–faculty adviser relationship. Graduate students and faculty should avoid relationships that conflict with their particular roles and responsibilities. Faculty advisers and graduate students are bound by policies that prohibit discrimination and harassment. Graduate students may be entitled to accommodations under the Americans with Disabilities Act. (See Appendix E: Policies and Regulations and Nondiscrimination and Affirmative Action Policies.) When concerns and conflicts arise, they should be raised and attended to professionally, honestly, and promptly. Retaliation and discrimination against students for raising concerns are prohibited.

If something happens that upsets the faculty adviser–graduate student relationship and cannot be resolved either by direct or indirect discussion, a graduate student can seek assistance from a trusted faculty member, the dean of graduate studies, the graduate director, the department chair, the ombudsman, and/or counseling and psychological services. Graduate students may request confidentiality. Many departments have developed processes to address a range of potential concerns. For information about grievance and appeal procedures, see Appendix E: Policies and Regulations and Nondiscrimination and Affirmative Action Policies. For a description of additional informal and formal grievance and appeal processes available to UCSC graduate students, please refer to the Graduate Student Handbook.

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Appendix G: Student Judicial Affairs

Student Judicial Affairs is responsible for the adjudication of all nonacademic student and student organization misconduct for UCSC. In this capacity, Student Judicial Affairs administers the Code of Student Conduct in accordance with Section 100.00 of the Student Policies and Regulations Handbook. Allegations of misconduct may be brought by students, faculty, staff, police, visitors to the campus, and members of our local community. Allegations should be made in writing and delivered to Student Judicial Affairs.

Upon receipt of an allegation, Student Judicial Affairs will review the merits of the allegation and then conduct an investigation to determine if a violation has occurred. If no violation can be proven, the matter will be dropped. If a violation is proven, then an appropriate sanction will be recommended to the student or student organization for their review and acceptance. If the recommendation is unacceptable, the student or student organization may request a formal hearing or file a written appeal. If you have a question about a possible violation, university policy, or your rights in the discipline process, please feel free to contact the office for a phone consultation or to schedule an appointment.

Student Judicial Affairs serves as the Americans with Disabilities Act (ADA) compliance resolution office for grievances of alleged discrimination based on disability or handicap. In addition, Student Judicial Affairs is the resource office for grievances of alleged discrimination based on race, color, national origin, or sexual orientation, and for incidents of hate/bias.

The Office of Student Judicial Affairs is located in 245 Hahn Student Services Building and can be reached by phone at (831) 459-1738, by fax at 459-3188, or via e-mail at SJA@ucsc.edu; or on the Web.

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Student-Related Matters

The University of California, in accordance with applicable federal and state law and university policy, does not discriminate on the basis of race, color, national origin, religion, sex, gender identity, pregnancy, physical or mental disability, medical condition (cancer related or genetic characteristics), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services. The University also prohibits sexual harassment. This nondiscrimination policy covers admission, access, and treatment in University programs and activities. University policy also prohibits retaliation for bringing a complaint of discrimination or participating a complaint process or investigation pursuant to this policy.

Inquiries regarding the University's student-related nondiscrimination policies may be directed to Student Judicial Affairs, (831) 459-1738, or e-mail sja@ucsc.edu.

Inquiries regarding the University's affirmative action, equal employment opportunity, and nondiscrimination policies as they relate to student employment may be directed to the Office for Diversity, Equity, and Inclusion, (831) 459-3676 or e-mail cbene@ucsc.edu.

Inquiries regarding UCSC's Policy on Sexual Assault, the UC Policy on Sexual Harassment and Procedures for Reports of Sexual Assault(s) and Sexual Harassment and/or violations of Title IX may be directed to Title IX Coordinator/Sexual Harassment Officer Tracey Tsugawa, (831) 459- 2462, or e-mail ttsugawa@ucsc.edu.

Student inquiries regarding disability or disability accommodations may be addressed to the Director, Disability Resource Center, (831) 459-2089; or e-mail drc@ucsc.edu.

Students with disabilities who are unable to resolve accommodation or discrimination concerns may contact the campus ADA Compliance Officer by phone, (831) 459-4380, or e-mail ashish@ucsc.edu.

Employment-Related Matters

It is the policy of the University not to engage in discrimination against or harassment of any person employed or seeking employment with the University of California on the basis of race, color, national origin, religion, sex, gender identity, pregnancy,1 physical or mental disability, medical condition (cancer-related or genetic characteristics), genetic information (including family medical history), ancestry, marital status, age, sexual orientation, citizenship, or service in the uniformed services (as defined by the Uniformed Services Employment and Reemployment Rights Act of 1994).2 This policy applies to all employment practices, including recruitment, selection, promotion, transfer, merit increase, salary, training and development, demotion, and separation. This policy is

intended to be consistent with the provisions of applicable state and federal laws and University policies.

University policy also prohibits retaliation against any employee or person seeking employment for bringing a complaint of discrimination or harassment pursuant to this policy. This policy also prohibits retaliation against a person who assists someone with a complaint of discrimination or harassment, or participates in any manner in an investigation or resolution of a complaint of discrimination or harassment. Retaliation includes threats, intimidation, reprisals, and/or adverse actions related to employment.

In addition, it is the policy of the University to undertake affirmative action, consistent with its obligations as a Federal contractor, for minorities and women, for persons with disabilities, and for covered veterans.3 The University commits itself to apply every good faith effort to achieve prompt and full utilization of minorities and women in all segments of its workforce where deficiencies exist. These efforts conform to all current legal and regulatory requirements, and are consistent with University standards of quality and excellence.

Inquiries regarding the university's affirmative action, equal employment opportunity, and nondiscrimination policies for academic, staff and student employment may be directed to the Office for Diversity, Equity, and Inclusion, (831) 459-3676, or e-mail cbene@ucsc.edu.

NOTES:

1 Pregnancy includes pregnancy, childbirth, and medical conditions related to pregnancy or childbirth.

2 Service in the uniformed services includes membership, application for membership, performance of service, application for service, or obligation for service in the uniformed services.

3 Covered veterans includes veterans with disabilities, recently separated veterans, Vietnam era veterans, veterans who served on active duty in the U.S. Military, Ground, Naval or Air Service during a war or in a campaign or expedition for which a campaign badge has been authorized, or Armed Forces service medal veterans.

Sexual Harassment/Title IX

The university cherishes the free and open exchange of ideas and expansion of knowledge. To maintain this freedom and openness requires objectivity, mutual trust, and confidence; it requires the absence of coercion, intimidation, or exploitation. The principal responsibility for maintaining these conditions must rest upon those members of the university community who exercise the greatest authority and leadership: faculty, managers, and supervisors.

The university has therefore instituted a number of measures designed to protect its community from sexual and other forms of harassment. Students, faculty, and staff who want information, advice, to file a complaint, and/or copies of the UCSC Policy on Sexual Assault, the UC Policy on Sexual Harassment, and Procedures for Reports of Sexual Assault(s) and Sexual Harassment should contact Tracey Tsugawa, Title IX/Sexual Harassment Officer, 105 Clark Kerr Hall, (831) 459-2462 or via e-mail at ttsugawa@ucsc.edu. For detailed information about the services of the Title IX/Sexual Harassment Office, visit the web site at www2.ucsc.edu/title9-sh/. The Title IX/SHO is also available to investigate other violations of Title IX.

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Archive of Previous Years' General Catalogs

Archive

For easy access to individual sections and programs, the catalog is organized by bookmarks that are accessible within expandable/collapsible menus in the Navigation Pane within the pdf. Click on the Bookmarks icon to expand the Bookmarks menu. Program statements are located within the Programs and Courses section. Courses or faculty listings for departments are located within each department's program statement bookmark. To access courses and faculty listings, click on the plus sign (+) next to the program statement bookmark. If you have opened a pdf within your Internet browser, use bookmarks to navigate between sections, not the back button on your browser.

From 2004–2010, the UCSC General Catalog was printed biennially. Programs and courses were updated annually in off years, with an online-only version of the catalog produced in the nonprint years. The printed-year catalogs are provided here in pdf form as they appeared in print form; the off-year online-only catalog updates are also presented, compiled in pdf form as they appeared online. Beginning with the archived 2012–13 General Catalog, the catalog will be provided in html and pdf formats as they appeared in the university's Web Content Management System (WCMS) web presence.

2013–14

- The UCSC General Catalog 2013–14 (pdf)
- The UCSC General Catalog 2013–14 (html)

2012–13

- The UCSC General Catalog 2012–13 (pdf)

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- The UCSC General Catalog 2011–12 (pdf)

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- The UCSC General Catalog 2006–08 (pdf)

2005–06

- 2005–06 Online Updates (pdf)

2004–06

- The UCSC General Catalog 2004-06 (pdf)

2003-04

- The UCSC General Catalog 2003-04 (pdf)

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