Committee on Academic Policy, Programs, and Research

Jun 7, 2022 5:30 PM - 6:15 PM EDT

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BOARD OF TRUSTEES
THE CITY UNIVERSITY OF NEW YORK

COMMITTEE ON
ACADEMIC POLICY, PROGRAMS AND RESEARCH

MINUTES OF THE MEETING
APRIL 25, 2022

The meeting was called to order by Committee Vice Chair Henry Berger at 3:32 p.m.

The following people were present:

Committee Members:
Hon. Henry T. Berger, Vice Chair
Hon. Brian D. Obergfell

Faculty Member:
Prof. Martin Burke, faculty representative

Student Member:
Ms. Jamie Lerner-Bercher, student alternate

COP Liaison:
President Vincent Boudreau

Observer:
Prof. Lubie G. Alatriste, faculty alternate

Trustee Staff:
Senior Advisor to the Chancellor and Secretary of the Board Gayle M. Horwitz
General Counsel and Senior Vice Chancellor Derek Davis

University Staff:
Chancellor Félix V. Matos Rodriguez

Statement of Committee Vice Chair Berger:
"Pursuant to the New York State Legislature's recent extension of the suspension of required in person meetings under the Open Meetings Law, this meeting is being held remotely, via videoconference, with access to the *Public Session* available live on the CUNY Board of Trustees website.

A copy of the calendar (agenda) is also available online at the CUNY Board of Trustees' website. Additional items may be added during the meeting. As a reminder, please mute so we can ensure that everyone can hear."

The agenda items were considered and acted upon in the following order:

Committee Vice Chair Berger stated, "Given that all Board members are participating remotely and we cannot see everyone on the screen at the same time, I will read the resolutions and ask for members to respond only if you would like to abstain or oppose an item, otherwise your vote will be recorded as a Yes vote. If you are voting no or abstaining, please state your name and vote. Additionally, if you wish to second an item or have any questions, please state your name first for the record and let us try to avoid speaking over one another."

I. ACTION ITEMS:

A. APPROVAL OF THE MINUTES OF THE MEETING OF FEBRUARY 28, 2022. Moved by Committee Vice Chair Berger and seconded by Prof. Martin Burke, the minutes were unanimously approved as submitted.

B. POLICY CALENDAR:

1. Lehman College - Establish the Department of Exercise Sciences and Recreation, the Department of Health Promotion and Nutrition Sciences, and the Department of Health Equity, Administration and Technology, and Close of the Department of Health Sciences. Committee Vice Chair Berger asked the Committee to authorize the establishment of the Department of Exercise Sciences and Recreation, the Department of Health Promotion and Nutrition Sciences, and the Department of Health Equity, Administration and Technology, and the Closing of the Department of Health Sciences at Lehman College.

   Chancellor Félix Matos Rodriguez provided further background on the proposed action followed by additional details from Lehman College Provost and Senior VP for Academic Affairs and Student Success Peter Nwosu, and Dean of the School of Health Sciences Elgloria Harrison.

   A discussion about the proposed program followed, including departmental restructuring in terms of it being a necessary part of moving forward the projected PhD in Exercise Science, and disability studies and representation.

   Moved by Committee Vice Chair Berger and seconded by Trustee Brian Obergfell, and following discussion, the item was unanimously approved for submission to the Board.

2. Medgar Evers College - Establish an Accelerated Second-Degree Nursing Education Program Leading to the Bachelor of Science Degree in Nursing. Committee Vice Chair Berger asked the Committee to authorize the establishment of an Accelerated Second-Degree Nursing Education Program leading to the Bachelor of Science Degree in Nursing at Medgar Evers College.

   Chancellor Matos Rodriguez provided further background on the proposed action followed by additional details from Medgar Evers College President Patricia Ramsey, and Chair and Professor of the Nursing Department Shirley Daniels.

   A discussion about the proposed program followed, including existing curriculum relating to the new courses, and systematic healthcare equity.

   Moved by Committee Vice Chair Berger and seconded by Trustee Obergfell, and following discussion, the item was unanimously approved for submission to the Board.

3. Honorary Degrees.

   a. Baruch College – Award an Honorary Degree to Cecilia Elena Rouse at Commencement.

   b. Brooklyn College – Award an Honorary Degree to Lemyah Gbowee at Commencement.

   c. City College – Award an Honorary Degree to Anthony Fauci at Commencement.

   d. City College – Award an Honorary Degree to Stanley Nelson at Commencement.

e. Hostos Community College – Award an Honorary Degree to Elba Cabrera at Commencement.

f. Lehman College – Award an Honorary Degree to Natalia Mendez at Commencement.

g. Lehman College – Award an Honorary Degree to Cleo Silvers at Commencement.

h. John Jay College of Criminal Justice – Award an Honorary Degree to Ellen Ochoa at Commencement.

i. John Jay College of Criminal Justice – Award an Honorary Degree to Faith Ringgold at Commencement.

j. Macaulay Honors College - Award an Honorary Degree to Jessica Ware at Commencement.

k. Medgar Evers College - Award an Honorary Degree to Earl Monroe at Commencement.

l. Medgar Evers College - Award an Honorary Degree to Sandra Richards at Commencement.

m. Queens College - Award an Honorary Degree to Danny Burstein at Commencement.

n. Queens College - Award an Honorary Degree to Arturo Casadevall at Commencement.

o. CUNY School of Law - Award an Honorary Degree to Keeanga-Yamahtta Taylor at Commencement.

p. CUNY School of Public Health & Health Policy - Award an Honorary Degree to Vivek Murthy at Commencement.

Committee Vice Chair Berger asked the Committee to award the aforementioned candidates with an honorary degree from the various college campuses.

Moved by Committee Vice Chair Berger and seconded by Ms. Jamie Lerner-Bercher, and following discussion, items I.B.3.a. through I.B.3.p. were unanimously approved for submission to the Board.

4. The City University of New York – Approve the Actions in the CAPPR Dashboard. Committee Vice Chair Berger asked the Committee to authorize the approval of the actions in the CAPPR dashboard.

   Chancellor Matos Rodriguez provided further background on the actions in the CAPPR dashboard, noting a few highlights that include the classification of 26 new general education courses among colleges, giving students far more options to study physical science, mathematics, and the humanities, 29 program actions, and 5 new or revised undergraduate policies.

   Moved by Committee Vice Chair Berger and seconded by Prof. Burke, and following discussion, the item was unanimously approved for submission to the Board.

Committee Vice Chair Berger moved to adjourn the meeting. The motion was seconded by Trustee Obergfell and the meeting was adjourned at 3:54 p.m.

Board of Trustees of The City University of New York

RESOLUTION TO
Establish a Program in Computer Science Leading to the Bachelor of Science Degree at Baruch College of The City University of New York

June 6, 2022

WHEREAS, The high-tech industry is rapidly growing, and computer science is becoming one of the most popular professions in the United States; and

WHEREAS, The projected job market for computer scientists will continue to grow rapidly in the following decade, according to the U.S. Bureau of Labor Statistics; and

WHEREAS, Baruch College is currently the only senior college of The City University of New York ("University") without a computer science major, and several of the specialized concentrations in Baruch's proposed computer science major are not offered elsewhere in the University or in any other institution in the New York City metropolitan area; and

WHEREAS, Baruch College's Department of Mathematics recently introduced a computer science minor and already has faculty with the expertise to deliver a computer science major; and

WHEREAS, Students who participate in Baruch's proposed computer science program will be prepared to program in multiple widely used programming languages and will develop the skills to solve challenging practical and theoretical problems; and

WHEREAS, Students will acquire a technical understanding of the theoretical foundations of computer science as well as practical topics such as computer architecture and operating systems; and

WHEREAS, Students will be introduced to the most exciting and promising modern topics, such as machine learning, penetration testing, and blockchain technologies; and

WHEREAS, The proposed program in computer science would provide new opportunities for students to engage in research with faculty mentors; and

WHEREAS, There is already significant student demand for a major in computer science at Baruch and every reason to believe that the proposed major would attract many more interested students from diverse backgrounds to the college.

NOW, THEREFORE, BE IT

RESOLVED, That the proposed program in Computer Science leading to the Bachelor of Science degree at Baruch College of The City University of New York be presented to the New York State Education Department for their consideration and registration in accordance with any and all regulations of the New York State Department of Education, effective June 27, 2022, subject to financial ability.

EXPLANATION: The proposed program will serve The City University of New York's mission to prepare its diverse population of students for the future of work in a wide variety of possible professions where computer science skills are increasingly in demand by allowing them to develop the necessary skills for academic and professional advancement in this rapidly growing field.

BARUCH COLLEGE
WEISSMAN SCHOOL OF ARTS AND SCIENCES
THE CITY UNIVERSITY OF NEW YORK

Proposal to Establish a
Bachelor of Science Degree in Computer Science
Anticipated Start
Fall 2023

Approved by the
Weissman School of Arts and Sciences Curriculum Committee on
February 15th, 2022
Approved by the
Weissman School of Arts and Sciences Faculty
February 24th, 2022

College Representative: **Dr. Warren Gordon**
Chair, Department of Mathematics, Baruch College
Contact: warren.gordon@baruch.cuny.edu

Provost's Signature:
Provost's Name: Linda Essig

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CS+ Program Proposal Executive Summary

The Department of Mathematics in the Weissman School of Arts and Sciences of Baruch College proposes to establish a Bachelor of Science program in Computer Science (CS). We anticipate opening the program in the fall term of 2023. The program admits concentrations in a variety of other disciplines. Students may study computer science while focusing on bioinformatics, computational psychology, financial mathematics, linguistics, and more. For this reason, we call the program *CS+*.

The high-tech industry is rapidly growing and offers profitable and satisfying careers. Computer science is gradually becoming one of the most popular professions in the United States. It appears first in The Princeton Review's Top 10 College Majors. That list is based on research covering job prospects, alumni salaries, and popularity. According to the U.S. Bureau of Labor Statistics, the projected computer science job market will continue to grow "much faster than average" in the following decade. Training students at Baruch College to be computer scientists fits perfectly with the college's mission of being a national leader in social mobility.

Due to the growing job market and prestige of the profession, it is becoming difficult to find any 4-year college that does not offer a CS major. Baruch College is a rare exception. It is the only CUNY senior college without such a major, even when including the specialized John Jay College of Criminal Justice. In the 2021 Best National University Rankings of U.S. News, all top-100 colleges offer a CS major. A 4-year college that lacks a CS major at this point seems outdated and unprepared for the future job market.

Baruch College recently introduced a CS minor and is equipped to run a CS major. The Mathematics Department is prepared to offer such a program, with collaboration from the Paul H. Chook Department of Information Systems and Statistics (ISS). The two departments already have faculty with computer science expertise and regularly run a variety of computer science courses. The college would thus have an attractive and innovative new program at the minimal cost of two new lines. These would not be new lines, but rather replacement lines for retirements.

Students who participate in the CS+ program will be prepared to do programming in multiple widely used programming languages, and will develop the intellectual and attitudinal wherewithal to solve challenging practical and theoretical problems. That will include technical understanding of the theoretical foundations of computer science, as well as practical topics such as computer architecture and operating systems. The students will engage with the most exciting and promising modern topics, such as machine learning, penetration testing, and blockchain technologies.

Computer expertise is becoming desirable and even indispensable in a wide variety of areas. Expert programming abilities can prove extremely useful in an increasing number of

professions, such as marketing, finance, and science. For that reason, the program would encourage students to pursue a CS major in conjunction with a concentration in a different field. Several of the concentrations that CS+ offers do not currently exist in CUNY, or more generally in the NYC metropolitan area. These concentrations would generate student interest in CUNY and enhance its status as a national leader in offering innovative programs.

The program would provide new opportunities for students to engage in research with faculty mentors. Baruch professors from a variety of disciplines have indicated that they would welcome students with a computer science background to assist in their research. The concentrations would provide the additional necessary background for working in each specific discipline.

There is significant student demand for CS at Baruch College. Baruch students regularly inquire about a computer science major. Freshmen enroll in Baruch intending to study CS, only to learn afterwards that such a major is not offered. Baruch seniors regularly apply to Master's programs in CS, but do not get accepted since the college does not provide the required prerequisites. Baruch's Undergraduate Student Government recently conducted a poll that included the question "If Baruch were to offer a Computer Science major, how likely would it be for you to change your current major?" Surprisingly, 47.42% of the poll participants chose the answer "Extremely likely."

The CS+ program will have a high technical level and yet be open to students from all backgrounds, not requiring previous knowledge. Such a program would help attract strong students to Baruch and produce alumni who are experts and recognized in their fields. In that respect, the program is similar to the mathematics department's Bachelor of Science in Financial Engineering (BSFM) program. The BSFM program attracts unusually strong undergraduates to Baruch. After graduating, these students continue to impressive jobs and to top graduate programs.

While the CS+ program will be small, it would also be diverse. We will prioritize students who come from unprivileged backgrounds or belong to underrepresented minorities. Supporting a diverse student body is one of Baruch's significant strengths, and the CS+ program will be part of that strength.

CS+ Program Proposal Abstract

The proposed Bachelor of Science in Computer Science program offers several benefits to the Baruch College community. It will attract qualified students who may not have considered applying to a public college. The program will also strengthen the undergraduate offerings in mathematics and computer information systems in both the theoretical and applied realms, giving more learning options to our pure mathematics and computer information systems majors and minors. It will also prepare our graduates for positions in industry and for graduate degrees.

The minimal costs involved in implementing this program, the high demand, and the increase in visibility of the Weissman School of Arts and Sciences as a destination school for undergraduates interested in the intersection of computer science and other disciplines makes the CS+ program a perfect addition to the program offerings of Baruch College's Department of Mathematics.

1. Purpose and Goals

The Department of Mathematics in the Weissman School of Arts and Sciences of Baruch College proposes to establish a Bachelor of Science program in Computer Science. Since the program includes components of many other disciplines to which computer technology and theory are applicable, we call the program CS+. Subject to the usual approvals, we anticipate opening the program in fall 2023.

The rapid increase in the use of computers and in their sophistication have made computer science a large and well compensated profession. According to the U.S. Bureau of Labor Statistics, the projected computer science job market will continue to grow "much faster than average" in the coming decade. The high salaries in this sector make it a good conduit for social mobility. Students from unprivileged backgrounds can acquire the technical skills that will set them on the road to a better life. One objective of the CS+ program is to provide such opportunities for Baruch students.

Another purpose of the CS+ program is to prepare students for careers at the intersection of CS and other disciplines. Computer science knowledge is becoming increasingly useful in a variety of fields. Recently, a Baruch financial mathematics alumnus who works as a financial engineer told us that most of his work involves programming, and that he regularly relies on knowledge from Baruch's algorithms course. We hear similar statements from people who work in marketing, in scientific laboratories, and more. In the U.S. stock market, it is estimated that about 70%-80% of all trading is accomplished algorithmically.

A third purpose of the CS+ program is to continue to establish Baruch College as an attractive institution that provides high-level, relevant contemporary education. The CS+ program would be a rigorous

program at a high technical level. Such a program would help attract strong students to Baruch and produce alumni who are experts and recognized in their fields.

1A. Academic Goals

The computer science discipline is roughly divided into applied computer science and theoretical computer science. The applied part consists of topics such as operating systems, communication networks, and cybersecurity. The theoretical side consists of topics such as “What is the fastest possible way for a computer to solve problem X?” and “What problems could never be solved by a computer?” Both the theoretical and the practical sides require a significant amount of mathematical knowledge.

The CS+ program will provide advanced theoretical and applied knowledge of computer science. On one hand, the students gain advanced programming abilities, understanding of operating systems, familiarity with the physical components of computers, and so on. On the other hand, the students internalize the basics of computer science thinking, how to design efficient algorithms, how well-known real-world data structures and algorithms work, and other theoretical tools.

An integral part of becoming a computer scientist involves practice in problem-solving. In advanced technical high-tech jobs one regularly encounters novel problems that one did not learn how to deal with. A computer scientist needs the knowledge and intellectual flexibility to come up with original ways to efficiently handle such problems. Thus, the CS+ program would provide extensive practice and improve the student’s abilities to address completely new problems and originate correspondingly new approaches.

An additional goal of the program is to ensure that our students leave with communication skills of the quality demanded by the high-tech industry. Group projects will enhance the teamwork abilities of the students. Oral presentations will require students to present technical work in a professional manner.

1B. Objectives

A key objective of the program is to ensure that our graduates are well positioned to find employment, and to continue into graduate studies in computer science (or a related field such as computer engineering or data sciences). Graduating students will be equipped both to solve real-world problems and to attend graduate school.

One important component for achieving the above goal is the academic rigor of our program, as discussed above. This will be a demanding program at a high technical level. Another equally important strategic feature of the program will be focusing on new and popular technologies. This includes topics such as machine learning, blockchain technologies, and penetration testing. As the technological world continues to advance, this focus is likely to change in unpredictable ways.

Beyond developing their technical skills, students will improve their teamwork abilities and presentation abilities. Students will prepare and deliver presentations, while also learning tools to improve their style and coherence. Students will also work in groups on technical projects. These presentations and group projects will be an opportunity for the students to improve their communication skills, an important aspect in any employment decision.

See Section 5A for a discussion of the existing faculty’s expertise and commitment.

Upon completion of this program, students will be able:

- To write advanced computer programs in multiple programming languages, including object-oriented code.
- To design efficient algorithms for real-world problems in a variety of fields. This includes incorporating common data structures into the algorithm, modifying existing algorithms, and relying on algorithmic approaches such as divide-and-conquer and dynamic programming.
- To describe and work with the major physical components of computer systems, such processors, memory hierarchies, and I/O systems.
- To understand and interact with major components of operating systems, such as file systems, process scheduling, and basic security mechanisms.
- To discuss and explain the theory of computer science, including topics such as computational complexity and computational models.

2. Need and Justification

Computer Science is gradually becoming one of the most popular professions in the United States. It appears first in The Princeton Review's Top 10 College Majors. This list is compiled based "on research covering job prospects, alumni salaries, and popularity." In our neighboring Columbia University, CS recently edged out economics as the most popular major. Similar situations are probably taking place in many other universities. The popularity and needs of the profession have been rising even faster due to the pandemic.

The high-technology industry is rapidly growing and consists of profitable and satisfying careers. According to the U.S. Bureau of Labor Statistics, the projected computer-science job market will continue to grow "much faster than average" in the coming decade. Training to be computer scientists is an excellent way for students from underprivileged backgrounds to enter a prestigious profession. In other words, a major in computer science fits perfectly with Baruch College's mission of being a national leader in social mobility.

Establishing a computer science major is also important for maintaining Baruch's image as an attractive and innovative college. When learning that Baruch College does not offer such a major, the most common reaction is incredulity. It is becoming difficult to find a 4-year college that does not offer a CS major. Even specialized colleges such as the John Jay College of Criminal Justice offer a CS major. In the 2021 Best National University Rankings of U.S. News, all top 100 colleges offer a CS major.

Holders of the proposed Bachelor of Science degree in Computer Science are likely to be able find attractive jobs in the high-tech industry. We also expect some of our stronger students to continue to graduate degrees in computer science and related fields. Currently, while many Baruch students apply to Master's programs in computer science, they usually get rejected because they are deemed to lack sufficient academic background in the field.

Offering the CS+ program would also support the effort to make the Weissman School an attractive target school for strong undergraduate students, which in turn will help attract the best faculty and students to other programs. That is similar t0 what we have done with the BS program in Financial Mathematics, which is also housed in the mathematics department. That program has achieved a national reputation and attracts exceptional students to Baruch College.

The concentrations in other disciplines make CS+ an appealing and innovative new program, producing alumni who are experts in the intersection between computer science and other disciplines. We predict that the growing applications of and dependency on computers in many fields will make such graduates increasingly vital to companies. In addition, the experience in problem-solving alumni will present will be ubiquitously useful.

As another example, Baruch professors from throughout the college aver that CS expertise could help facilitate students' research projects. We expect many departments to offer concentrations, work opportunities, and laboratory internships to CS majors. The concentrations presented in this document are only the initial ones.

As the demand for computer science grows among students, the program would also provide opportunities to students from CUNY Community Colleges. Such students will be able to transfer to Baruch College to complete a major in computer science. Appendix 7A contains letters from CUNY's Queensborough Community College and Bronx Community College, expressing similar opinions.

2A. Baruch's Computer Information Systems program.

Baruch College already contains a successful Computer Information Systems program. The Information Systems field existing in business schools is generally focused on the intersection of business and technology. Like most IS programs, Baruch's program offers courses that vary from the purely technical (like a programming course) to those with a business focus (like an IT strategy course).

An IS program is not considered a reasonable substitute for a computer science program. Colleges offering a successful IS major also offer a separate computer science major. The two programs lead to different fields of employment, and students with different interests and strengths should be able to pursue either. One intuitive way of thinking about this difference: CS alumni aspire to become CTOs while IS alumni seek to become CIOs.

Baruch's ISS department will be an important collaborator with the computer science major, providing courses that are at the intersection of CS and CIS programs. The ISS department offers programming courses that are equivalent to those of the mathematics department. It also offers the following classes, which would be electives for CS majors:

- CIS 3400: Database Management Systems.
- CIS 3500: Computer Networking.
- CIS 3630: Principles of Web Design.
- CIS 4560: Ethical hacking.

The ISS department is currently in the process of creating new courses in the topics of natural language processing and big data. Once these courses are offered, and depending on their focus, they may also be used as computer science electives.

3. Student Interest/Enrollment

There is a significant interest in computer science among Baruch students. In the fall of 2020, the Baruch Undergraduate Student Government took a poll that included the question "If Baruch were to offer a Computer Science major, how likely would it be for you to change your current major?" Surprisingly, 47.42% of the poll participants chose the answer "Extremely likely". This result may be biased, since it is possible that mostly students who are interested in CS answered the question. However, it is still indicative of student sentiment. Appendix 7A contains a resolution of the Undergraduate Student Government of Baruch College, which voted in support of the current proposal, unanimously and enthusiastically.

Baruch students regularly ask the mathematics department about pursuing computer science. Online forums, such as Baruch's sub-Reddit, constantly contain questions about computer science at Baruch (and include many complaints about the lack of technical computer science courses). Baruch students often ask professors about applying to Master's programs in computer science, only to find that Baruch does not provide the standard prerequisites f0r such programs.

Our proposed program will require a background in mathematics. Students wishing to pursue this major will need to demonstrate competence in the first two semesters of calculus. That may be accomplished by scoring a 4 or better on the calculus AP BC exam, or by obtaining a combined calculus GPA of at least 3.5 out of 4.0. Students then take the basic computer science courses MTH 3300 (or the equivalent CIS 2300) and MTH 3150 with a minimum grade of B in each. See Section 4 for more information. Baruch College has many entering freshmen who already satisfy the calculus preliminaries.

While the demand is high, due to the high requirements, we anticipate an entering class with 20-25 students, with increasing enrollments each year as the program establishes its reputation. These requirements and the high technical level of the program would ensure that program alumni are offered impressive jobs in the high-tech industry.

Because of the high requirements for getting accepted to the program, we expect the rate of attrition to be minimal. Students who meet the prerequisites for the program should be able to successfully complete it. This leads to the following rough estimate:

- **Beginning of year 1 of the CS+ program.** No students accepted to the program, since students would first have to complete the prerequisites.
- **Beginning of year 2 of the CS+ program.** 20-25 students in the program.
- **Beginning of year 3 of the CS+ program.** 45-50 students in the program.
- **Beginning of year 4 of the CS+ program.** 75-80 students in the program.
- **Beginning of year 5 of the CS+ program.** 85-90 students in the program.

The program's director would also act as an adviser for the students in the program, counseling about course choices, personal issues, and so on. In addition, the CS+ majors would have access to the regular advisers in the mathematics department.

4. Curriculum

The CS+ program consist of 5 parts, totaling 120 credits:

- 43 Credits for Pathways requirements, consisting of 13 credits of Required Core (including a STEM alternative MTH 2610), 18 credits of Flexible Core, and 12 credits of the College Option;
- 9 Credits of Pre-Weissman core courses (including foreign languages);
- 26 credits in required Mathematics courses;
- 15 credits of Major/Concentration elective courses;
- 27 credits in elective courses.

Program Requirements

CS+ majors need the equivalent of two semesters of calculus which could be satisfied by one of the following 4 options. These calculus courses could be taken as part of the pathways requirement.

Option 1:

MTH 2610 Calculus I or Calculus AP Exam (AB) with a score of 4 or 5 (transfers to Baruch as MTH 2610)	4 credits
MTH 3010 Calculus II	4 credits

Option 2:

MTH 2205 Precalculus and Elements of Calculus 1B or MTH 2206 Applied Calculus or MTH 2207 Elements of Calculus I and Matrix Algebra	4 credits
MTH 3006 Elements of Calculus II	4 credits

Option 3:

Calculus AP Exam (BC) with a score of 4 or 5 (transfers to Baruch as MTH 3010)	8 credits

Option 4:

MTH 2630 Analytic Geometry and Calculus I	5 credits

Students must meet the following requirement to gain admission to the program:

- In Options 1,2, and 4, the combined calculus GPA must be at least 3.5 out of 4.0.
- MTH 3300 (or CIS 2300) and MTH 3150 with a minimum grade of B in each course.

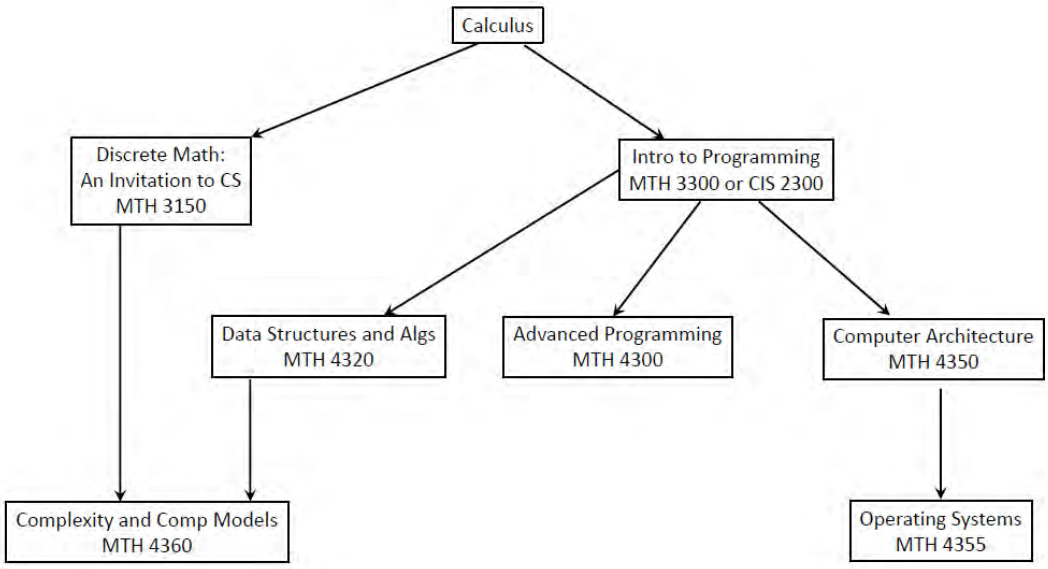
Students who fail to obtain sufficiently high grades to enter the program could use the CS courses they took to obtain a CS minor. This minor already exists at Baruch. It consists of MTH 3300 (or CIS 2300), MTH 3150, and one capstone course. Thus, after taking the prerequisites for the CS+ program, a student would need only a capstone course to compete the CS minor.

Required Courses

The following table displays the seven required core courses for the CS+ program, totaling 26 credits. This list includes existing courses as well as four new or revised courses, which are so labeled. A detailed description of the new and revised courses may be found in the Course Proposal section of the appendices.

MTH 3150	Discrete Math: An Invitation to Computer Science	4 credits
MTH 3300 or CIS 2300	An Introduction to Programming	3 credits
MTH 4300	Algorithms, Computers and Programming II	3 credits
MTH 4320	Data Structures and Algorithms (revised)	4 credits
MTH 4350	Computer Architecture (new)	4 credits
MTH 4355	Operating Systems (new)	4 credits
MTH 4360	Complexity and Computational Models (new)	4 credits

The following diagram illustrates the dependencies among the core courses.



Elective Courses

The program also includes advanced CS elective courses. CS+ majors are required to take 1-2 CS electives, depending on their concentration. A CS+ major with no concentration is required to take four CS electives.

The following table contains the initial CS electives. As the program progresses, we will add additional electives. The table includes existing courses as well as two four new courses, which are so labeled. A detailed description of the new courses may be found in the Course Proposal section of the Appendices.

MTH 4330	Introduction to Machine Learning	4 credits
CIS 3500	Computer Networking	3 credits
CIS 3400	Database management systems	3 credits
CIS 3630	Principles of Web Design	3 credits
MTH 4140	Graph theory	4 credits
CIS 4560	Ethical hacking	3 credits
MTH 4325	Programming Languages (new)	4 credits
MTH 4150	Combinatorics	4 credits
MTH 4250	Cryptography (new)	4 credits
MTH 4135	Computational Methods in Probability (Monte Carlo methods)	3 credits

Integration with and Impact upon Existing Majors

Baruch's mathematics department currently offers three majors: mathematics, actuarial science, and financial mathematics. The proposed CS+ major will have a number of courses in common with these majors, such as MTH 3300, MTH 4300, and MTH 4320. It is our expectation that when the CS+ program's enrollment sufficiently increases, we will offer separate sections of such courses, geared more specifically toward computer science. It is also expected that courses like MTH 4250 and MTH 4330 will prove attractive to the other majors. For example, MTH 4250 could be attractive to CIS majors in the Cybersecurity track from the ISS department.

Concentrations

We now list the initial concentration options for the CS+ students and include specific Baruch faculty members from the concentration discipline. As the program progresses, we plan to create additional concentrations, such as chemistry, political science, and social networking. Beyond the courses, each concentration will also involve potential faculty mentors who seek students with the CS background for research in the specific concentration.

Since different disciplines require different forms of training, there is no uniform style for all concentrations. Different concentrations require a different number of courses. For that reason, the number of required CS electives also varies between concentrations.

- **CS with a Concentration in Biology:**
  - This concentration focuses on bioinformatics. The biology faculty mentors are Dr. Zachary Calamari and Dr. Rebecca Spokony.
  - Courses in this concentration:
    - BIO 2100 – Biostatistics (3 credits).
    - Bioinformatics (4 credits) – a new course, which is currently being created by Zachary Calamari.
  - This concentration requires two CS electives.
- **CS with a Concentration in Physics:**
  - This concentration is focused on computational physics. The physics faculty mentors are Dr. Adrian Dumitru and Dr. Stefan Bathe.
  - Courses in this concentration:
    - PHY 3004 – Physics on computer with Python (4 credits). This course has no significant overlap with the CS Python course MTH 3300 (or CIS 2300).
    - PHY 4004 – Statistical physics with applications to finance (4 credits).
  - This concentration requires two CS electives.
- **CS with a Concentration in Financial Mathematics.**
  - This concentration is focused on computational finance. The mathematical finance faculty mentor is Dr. Douglas Howard.
  - Courses in this concentration:
    - MTH 4120 – Probability (4 credits).
    - MTH 4500 – Introductory Financial Mathematics (4 credits).
    - MTH 4115 – Numerical Methods for Differential Equations in Finance (4 credits). This course has linear algebra as a pre- or co-requisite. However, MTH3150 would be an alternative prerequisite.

- This concentration requires one CS elective. Students with this concentration are encouraged to take the Machine learning elective (MTH 4330).

- **CS with a Concentration in Psychology.**
  - This concentration includes computational work in one of Baruch's psychology laboratories. For that reason, it requires more courses than other concentrations. The psychology mentors are Dr. Tatiana Emmanouil and Dr. Jennifer Mangels.
  - Courses in this concentration:
    - PSY 1001 – General Psychology (3 credits). This course is part of the Pathways requirements.
    - PSY 3001 – Research Methods (4 credits).
    - One of the following four:
      - PSY 3081 – Cognitive Psychology (3 credits).
      - PSY 3082 – Mind, Brain, and Behavior (3 credits).
      - PSY 3056 – Social Psychology (3 credits).
      - PSY 3067 – Motivational Learning (3 credits).
    - Independent study at one of the relevant psychology labs.
  - This concentration requires one CS elective.
- **CS with a Concentration in Environmental Science:**
  - The environmental science faculty mentor is Dr. Stephen Gosnell.
  - Courses in this concentration:
    - ENV 1003L – Fundamentals of Ecology (3 credits). This course is part of the Pathways requirements.
    - ENV 1004 – Fundamentals of Ecology Research (3 credits). This course is part of the Pathways requirements.
    - ENV 3016 – Environmental Modeling (4 credits). This is a new course that will be offered during the 2022–2023 academic year.
    - ENV 4900 –Topics in Environmental Science (4 credits).
  - This concentration requires two CS electives. Students with this concentration are encouraged to take the Machine learning elective (MTH 4330).
- **CS with a Concentration in Applied Linguistics.**
  - This concentration focuses on Computer Assisted Language Learning (CALL). The linguistics faculty mentor is Dr. Brooke Schreiber.
  - Courses in this concentration:
    - One of the two:
      - ENG 3700 – Introduction to Linguistics and Language Learning (3 credits)
      - ENG 3750 – Structure and History of English (3 credits).
    - ENG 3960 – Topics in Languages (3 credits). This course has different types of sections. The concentration requires the CALL-based section.
  - This concentration requires two CS electives.
- **CS without a concentration.**
  - As stated above, students who choose to pursue a CS major without a concentration will take four CS elective courses.

Typical Course of Study (Full-Time Student)

A sample 120-credit course of study for a full-time student is presented below. The first two semesters fulfill the student's Required Core, and the student makes progress on the Flexible Core and Pre-Weissman Core. In Semesters two and three, the student takes the two introductory classes, MTH 3300 (or CIS 2300) and MTH 3150. By the end of semester four, the student has taken all entry requirements for admission to the major. If the student is pursuing a concentration, the student will start taking any necessary prerequisites for the courses in that concentration. In the last two years of the program, the student will take required classes of increasing difficulty, as well as elective/concentration courses. The student should be able to complete the required courses prior to the final semester and finish elective classes during the final semester.

Term: Fall 1		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 2610 - Calculus I (satisfies Math and Quantitative Reasoning)	4	4			Placement
ENG 2100 - Writing I	3	3			
Flexible Core Course	3	3			
Flexible Core Course	3	3			
Flexible Core Course	3	3			
FYS 1000 - First Year Seminar	0				
Term credit total:	16	16			

Term: Spring 1		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 3010 - Calculus II (satisfies Math and Quantitative Reasoning)	4	4			MTH 2610
MTH 3300 - Algorithms, Computers and Programming I	3	3	3		MTH 2610
ENG 2150 - Writing II	3	3			
Life and Physical Sciences	3	3			
Scientific World	3	3			
Term credit total:	16	16	3		

Term: Fall 2		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 3150 - Discrete Mathematics	4	4	4		MTH 2610
MTH 4300 - Algorithms, Computers and Programming II	3	3	3		MTH 3300
COM 1010 - Speech Communication	3	3			
Foreign Language I	3	3			
Flexible Core Course	3	3			
Term credit total:	16	16	7		

Term: Spring 2		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 4320 - Fundamental Algorithms	4	4	4		MTH 3300, MTH 3010
Major Elective	3	3	3		
Foreign Language II	3	3			
Flexible Core Course	3	3			
ENG 28x0 - Great Works of Literature I or II	3	3			
Term credit total:	16	16	7		

Term: Fall 3		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 4350 - Computer Architecture	4	4	4	Y	MTH 3300
Major Elective	4	4	3		
Liberal Arts Minor Course	3	3			
Liberal Arts Elective	3	3			
Term credit total:	14	14	7		

Term: Spring 3		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 4355 - Operating Systems	4	4	4	Y	MTH 4350
Major Elective	4	4	4		
Liberal Arts Minor Course	3	3			
Liberal Arts Elective	3	3			
Term credit total:	14	14	8		

Term: Fall 4		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
MTH 4360 - Complexity and Computational Models	4	4	4	Y	MTH 3150, MTH 4320
Major Elective	3	3	3		
Liberal Arts Minor Capstone	3	3			
Free Elective	3				
Free Elective	3				
Term credit total:	16	10	7		

Term: Spring 4		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisites
Major Elective	3	3	3		
Free Elective	3				
Free Elective	3				
Free Elective	3				
Term credit total:	12	3	3		

Program Totals:	Credits: 120	Liberal Arts & Sciences: 105	Major: 42	Elective & Other: 15

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Modalities

Individual courses may be offered in different modalities, but the majority of the courses will be in person. We surveyed CS undergraduate programs and believe that all the most successful programs are in person. Online programs tend to have a lower quality and a worse reputation.

5. Cost Assessment

5A. Faculty:

This section lists the existing mathematics faculty who are most likely to teach the CS+ courses and be involved in the program's organization. A short professional biography of each faculty member is included. For the full curriculum vitae, see Appendix D.

Evan Fink Evan Fink holds Bachelor degrees in mathematics and physics from MIT, and an MA and PhD in mathematics from Columbia University. His research interests are in low-dimensional topology. He has extensive experience teaching programming classes, including the introductory programming class MTH 3300, MTH 4135 (Computational Methods in Probability) and independent studies on Deep Learning. He would be prepared to teach MTH 3150, MTH 3300, MTH 4300, MTH 4325, and MTH 4330, among other classes for the computer science major.

Warren Gordon is the Chair of the Mathematics Department and Co-Director of the MFE Program. He has a special interest in mathematical physics, differential equations, mathematics education and the use of technology in the classroom. He holds a BE (Electrical) from CUNY's City College and earned his PhD in mathematics from New York University's Courant Institute of Mathematical Sciences.

Douglas Howard holds a BS in mathematics from MIT, an MBA in finance from Columbia, and a PhD from the Courant Institute. His research on the properties of spatially disordered systems, a class of probabilistic models motivated by certain physical phenomena, was funded by a grant from the National Science Foundation (NSF). He has been teaching MTH 4135 which focuses on Monte Carlo methods. This course would be a CS elective. Howard is also the director of the BSFM Program.

Areeba Ikram has a BS, MS, and PhD in Mathematics and a background in computer science. She is currently teaching programming at Baruch College and algorithms at NYU. In the CS+ program, she will be able to teach MTH 3300, MTH 4360, MTH 4320, MTH 4300, and MTH 4250.

Elena Kosygina received her PhD from NYU's Courant Institute. Her main research interests are in the areas of stochastic processes, interacting particle systems, and partial differential equations. She will teach MTH 3150, and can also teach the CS electives MTH 4140, MTH 4150, and MTH 4250. Recently, Kosygina has become interested in the study of networks, and she may also teach a course in this area.

Ivan Matic has a significant background in studying and teaching computer science. He currently teaches Baruch College's advanced programming course. Matic does research in computational finance and probability. His research involves the design and implementation of parallel algorithms. Matic will be able to teach most of the courses in the CS major and to offer research projects to the students.

Guy Moshkovitz has a BSc in mathematics and computer science, an MSc in computer science, and a PhD in mathematics from Tel Aviv University. He was a postdoctoral researcher at Harvard University,

and at the Computer Science/Discrete Mathematics group in the Institute for Advanced Study in Princeton. His research lies at the intersection of combinatorics, algebra, and theoretical computer science. He can teach the CS courses MTH 4150, MTH 4140, and MTH 4360. He also mentors students in research projects that encompass discrete mathematics and theoretical computer science.

Andrew Obus has an AB in Mathematics from Harvard College, and a PhD in Mathematics from the University of Pennsylvania. His research is in Algebraic Geometry, Number Theory, and Galois Theory. He is prepared to teach MTH 3150 thanks to his experience in teaching courses introducing proofs at both Baruch College and Columbia University, and he is prepared to teach MTH 4250 thanks to his background in number theory.

Jarrod Pickens has a BS in Physics, a BS in Mathematics, an MA in Mathematics, and a PhD in Mathematics with a concentration in Physics. He has been teaching courses in C++ and Python, data science, cryptography, and financial mathematics, among others in the Mathematics Department. He has also taught courses in financial information technology and blockchain technologies in Baruch's Zicklin school. He has designed many simulated trading cases to teach the trading seminar in the MFE program and has coached many winning teams in algorithmic trading competitions.

Rados Radoicic earned his BS (in Mathematics with Computer Science) and his PhD (in mathematics) at MIT. His main research interests are in the areas of discrete and computational geometry, Ramsey theory, extremal combinatorics/graph theory, as well as in applications of probabilistic techniques to mathematical finance. His research was funded by the NSF. He has been teaching MTH 4140 and MTH 4150 and can also teach MTH 3150, MTH 4250, MTH 4320, and MTH 4360. He would enjoy mentoring research projects of CS majors.

Tim Ridenour holds a BA degree in mathematics with a minor in physics from Cornell University, and an MA and PhD in mathematics from the University of California, Riverside. His research interests are in Lie Algebras and representation theory. He helped create and teaches a class in R programming for actuarial science majors. He is prepared to teach Math 3150, Math 3300, and Math 4140, among other classes in the CS major.

Ryan Ronan has a BE in Electrical Engineering from The Cooper Union and a Ph.D. in Mathematics from The Graduate Center, CUNY. He has experience programming in MATLAB, Python, assembly language, and C. He would teach MTH 3300, MTH 3150, and MTH 4140.

Adam Sheffer has a BSc, an MSc, and a PhD in computer science. He worked in cybersecurity for several years and has been regularly teaching computer science courses since his graduate studies, at Tel-Aviv University in Israel, at the California Institute of Technology (Caltech), and at Baruch College. Sheffer created the current algorithms course at Baruch. He regularly teaches the programming course MTH 3300 and the algorithms course MTH 4320. He is equipped to teach all the mandatory core classes of the CS+ program. Sheffer regularly mentors research projects of mathematics students and would do the same with CS majors.

Pablo Soberón received his PhD in mathematics from University College London. His research focuses on combinatorics, geometry, and topology. His work is closely related to computational geometry, a sub-field of computer science. He has also mentored undergraduate students in research in this area. He will teach MTH 3150, MTH 4140, MTH 4150 among other courses of the CS major.

Giulio Trigila has an MSc in theoretical physics from Sapienza University of Rome, and an MSc and PhD in applied mathematics from the Courant Institute. He is an active researcher in machine learning,

numerical analysis, and statistics. He has created and taught the course “big data for finance” for the Master’s in Financial Engineering at Baruch and will be able to teach MTH 3150, MTH 3300, MTH 4330, MTH 4140, and MTH 4325 for the proposed major. Trigila regularly mentors research projects of MFE students and would do the same with CS majors.

The above list includes only faculty from the mathematics department. Some of the CS electives are courses from the ISS department. Those courses are taught by ISS faculty. See Section 2A for more information.

New Faculty.

While the faculty of the mathematics department is qualified to teach all the computer science courses, offering these new courses will create a need for two new full-time faculty members. These would not be new lines but rather replacement hires for retiring faculty members. Beyond teaching computer science courses, the new hires will also supervise additional CS activities, such as undergraduate research projects and following current CS trends.

Since this is a small program and many of its courses are already running, no additional adjunct teaching would be required. We aim to have no adjunct faculty teaching as part of the program. (Adjunct lecturers do sometimes teach the Calculus courses that are prerequisites for the program. They may also teach some of the related courses outside of the mathematics department.)

A full-time faculty member would act as the CS+ program director. The role of the director would be to handle acceptance to the program, advise CS majors, handle bureaucratic issues, and make sure that the program is up to date with the rapidly developing CS world. For doing this time demanding work, the program director would receive 2 credits per semester RT.

5B. Facilities and Equipment

There is no need for additional facilities or for any new equipment. The existing facilities include the computer labs that the program would rely on. The program’s programming courses already exist and are running. The additional courses would not require computer laboratories. We may ask for funding for laptops that would be lent to CS majors. However, this funding is not part of the current proposal, and would be requested separately.

5C. Library and Instructional Materials

The department houses the Ercolano Library. Along with the Baruch College library, no additional library resources are needed. The department has access to various on-line sources that would also be available to the program. Whenever possible, the program will prioritize resources that are available online free of charge. For example, we currently rely on the programming book “Think Python” which is available online free.

5D. Budget Tables

The following includes budget tables with five-year revenue projections for the program, following the senior college (undergraduate) worksheet. For additional tables, see Appendix 7.

New resources:

Expenditures	Year 1 AY2022-23	Year 2 AY2023-24	Year 3 AY2024-25	Year 4 AY2025-26	Year 5 AY2026-27
Full Time Faculty	$ -	$ -	$ -	$ -	$ -
Part Time Faculty	$ -	$ -	$ -	$ -	$ -
Full Time Staff	$ -	$ -	$ -	$ -	$ -
Part Time Staff	$8,079.50	$8,241.09	$8,405.91	$8,574.03	$8,745.51
Library (Includes Staffing)	$ -	$ -	$ -	$ -	$ -
Equipment	$ -	$ -	$ -	$ -	$ -
Laboratories	$ -	$ -	$ -	$ -	$ -
Supplies & Expenses (Other than Personal Services)	$ -	$ -	$ -	$ -	$ -
Capital Expenditures	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -
Total all	$8,079.50	$8,241.09	$8,405.91	$8,574.03	$8,745.51

Projected revenues:

Revenues	1st Year AY2022-23	2nd Year AY2023-24	3rd Year AY2024-25	4th Year AY2025-26	5th Year AY2026-27
Tuition Revenue					
01. From Existing Sources	$0	$70,686	$158,619	$257,396	$315,053
02. From New Sources	$0	$70,686	$165,829	$257,396	$322,554
03. Total	$0	$141,372	$324,449	$514,792	$637,607
Other Revenue					
07. From Existing Sources	$0	$0	$0	$0	$0
08. From New Sources	$0	$0	$0	$0	$0
09. Total	$0	$0	$0	$0	$0
10. From Existing Sources	$0	$70,686	$158,619	$257,396	$315,053
11. From New Sources	$0	$70,686	$165,829	$257,396	$322,554
TOTAL	$0	$141,372	$324,449	$514,792	$637,607

6. Evaluation

6A. Internal Evaluation and Outcomes

During the program's first five years of operation, the office of the Dean of the Weissman School of Arts and Science will closely track the functioning and the performance of the program. Throughout the program, emphasis will be placed on studying practical skills required for the high-tech industry and building a solid understanding of the theory of computer science. We therefore believe that the two most relevant measures of the success of the program will be the ability of our graduates to obtain

(1) professional positions in the high-tech industry, and
(2) acceptance into graduate schools in computer science and related fields.

Other criteria are:

- the number of applications received and the percent of accepted applications,
- the average SAT scores (as available) for the students admitted to the program,
- the number of students enrolled in the program who come from schools not usually represented at the college,
- the average GPA maintained by the students,
- the length of time required by students to complete the program,
- The diversity of the program participants.

The CS+ program director would be in charge of collecting and presenting this information.

The assessment process of the program.

The CS+ program will be assessed according to the five program goals that are presented at the end of Section 1B. Each of these five goals are covered by one or more of the core courses of the program. Instructors of the relevant courses will assess the extent to which these goals are achieved by considering the performance of the students in exams, programming projects, or other tasks.

We now repeat the five goals from Section 1B, and state the courses that address each goal:

- To write advanced computer programs in multiple programming languages, including object-oriented code.
    - MTH3300 and CIS2300 teach the Python programming language.
    - MTH4300 teaches object-oriented programming with C++.
    - MTH4350 teaches programming with Assembly.
- To design efficient algorithms for real-world problems in a variety of fields. This includes incorporating common data structures into the algorithm, modifying existing algorithms, and relying on algorithmic approaches such as divide-and-conquer and dynamic programming.
    - MTH4320 teaches data structures and algorithmic design.
    - MTH4300 teaches the more applied side of algorithms and data structures.
- To describe and work with the major physical components of computer systems, such processors, memory hierarchies, and I/O systems.
    - MTH4350 teaches computer architecture, covering the major physical components of computer systems.
- To understand and interact with major components of operating systems, such as file systems, process scheduling, and basic security mechanisms.
    - MTH4355 teaches operating systems and covers their major components.
- To discuss and explain the theory of computer science, including topics such as computational complexity and computational models.
    - MTH 4360 teaches the theory of computer science, focusing on computational complexity and computational models.

6B. External Evaluation

Appendix 7A contains letters from three senior and established computer scientists outside of CUNY. For example, the first letter is from Pankaj Agarwal, a Distinguished Computer Science Professor at Duke University. Agarwal had been the chair of the Computer Science Department of Duke University for 6 years. He also has significant experience in projects that are at the intersection of computer science and other disciplines.

All three evaluators have read this proposal and are commenting on it in their letters.

7. Appendix

7A. Letters

This appendix consists of the following documents:

- A letter from Pankaj Agarwal, a Distinguished Computer Science Professor at Duke University. Agarwal had been the chair of the Computer Science Department of Duke University for 6 years. He also has significant experience in projects that are at the intersection of computer science and other disciplines.
- A letter from Scott Aaronson, the David J. Bruton Centennial Professor of Computer Science at The University of Texas at Austin. Before that, Aaronson was a tenured professor of computer science at MIT. Aaronson is a world leader in quantum computing. He was awarded the 2020 ACM Prize in Computing "for groundbreaking contributions to quantum computing."
- A letter from Boris Aronov, a computer science professor at NYU and a Sloan Fellow.
- A resolution of the Undergraduate Student Government of Baruch College, signed by all senators.
- A letter from Haishen Yao, chair of the Department of Mathematics and Computer Science of Queensborough Community College.
- A letter from Anthony Weaver, chair of the Department of Mathematics and Computer Science of Bronx Community College.

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To Whom It May Concern:

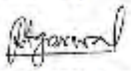
I am writing this note to strongly support the creation of a Bachelor of Science (BS) Program in Computer Science at Baruch College, City University of New York, to be administered by the Department of Mathematics.

Considering the critical role computing is playing in all aspects of society and virtually all academic disciplines, there is a huge demand for computer science graduates in industry, government agencies, and academia. As such, computer science has become the most popular major in many top universities, including at my own institution. Ideally, a prestigious institution like Baruch College should have a Department of Computer Science, but not offering a Computer Science major in the 21st century is unthinkable. I strongly urge the leadership of Baruch College and CUNY to establish such a program as soon as possible, in order for Baruch College to maintain its prestige and to offer exciting opportunities to its student population that such a program will bring.

I immensely enjoyed reading the proposal. It lays out a compelling rationale for a major in Computer Science, it offers a cohesive vision of the program, and it leverages the existing strengths of Baruch College. The proposed program is bold, ambitious, and outward looking. The proposal lays out clear goals of the proposed program, and it articulates how the proposed plan fits with the existing related programs at Baruch College. The proposed curriculum not only addresses the current needs but it is flexible enough to meet the challenges of the future. The idea of CS+ and building bridges to other disciplines is exciting and realizes the vision of computer science being about problem solving (and not about programming) and important to almost all academic disciplines. As Chair of Computer Science at Duke, I had also pushed the very same vision and found it resonating well with our alumni as well as industry partners.

In summary, the proposed BS program in Computer Science will serve Baruch College's student population well, and such a program is past overdue. I hope the top leadership realizes the urgency of offering such a program and provides the necessary resources and support to bring the proposed idea to reality. Should anyone have further questions, please do not hesitate to contact me.

Sincerely



Pankaj K. Agarwal
RJR Nabisco Professor of Computer Science
Professor of Mathematics

COLLEGE OF NATURAL SCIENCES
THE UNIVERSITY OF TEXAS AT AUSTIN
Department of Computer Science • 2317 Speedway, Stop D9500 • Austin, Texas 78712-1757 • 512 471-7316

January 9, 2022

To whom it may concern:

This letter is to support the proposal for CUNY Baruch College to start a Bachelors of Science in Computer Science, in the **strongest *imaginable* terms**. I'm not privy to the internal deliberations at CUNY that have caused Baruch to be one of the only colleges of its caliber in America, and indeed on earth, *not* to offer a computer science major in the twenty-first century. Nevertheless, I can say the following:

- I've looked over the detailed proposal for a CS major that was sent to me by Adam Sheffer and Guy Moshkovitz at CUNY Baruch. Everything in the proposal looked great to me.

- Sixty years ago, perhaps one needed special justification to offer a major in computer science. Today, though, and for decades, one has needed special justification *not* to offer one. Googling it just now—Google, incidentally, was born out of a CS department—I learned that CS is currently the 11th most popular major in America, ahead of English, economics, math, physics, and chemistry. This is primarily so, of course, because of the increasing share of our economy and indeed entire civilization that depends on information processing, and the excellent job prospects for CS majors. In addition to that, however, CS is by now well-established as a deep *intellectual* subject, one with rich connections to cognitive science (AI and deep learning), economics (online auctions), physics (quantum computation), biology (bioinformatics), and math (theoretical computer science) among many other fields.

I was surprised to learn that CUNY Baruch doesn't already have a CS major. But, that being the case, it strikes me that starting one, along the lines of the excellent proposal that's been prepared, would be one of the best, most far-sighted gifts that the College could possibly give itself. Please don't hesitate to contact me if there's anything I can add.

Sincerely yours,

Scott Aaronson

Dr. Scott Aaronson
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boris.aronov@nyu.edu

January 12, 2022

To Whom It May Concern,

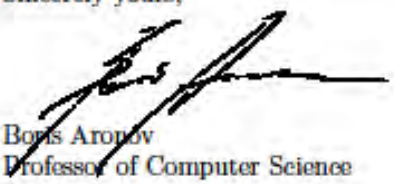
I am glad to have the opportunity to write this letter to support the idea of creating a **Bachelor of Science** (BS) program in **Computer Science** (CS) at **Baruch College**, City University of New York.

When I was asked to express my candid opinion about the concept of creating a BS/CS program at Baruch College, I was in shock. I could not believe that a respectable educational institution with a mix of arts, science, and business expertise would be missing a *computer science* program!

I have examined the materials in the BS/CS Program Proposal. It presents a solid plan for a computer science program covering the fundamentals and offering respectable electives. Some thought clearly went into the design of the program and integrating it into existing offerings, courses, and resources, such as mathematics and information science. I also like the idea that the students will be encouraged to effectively get a CS+X degree, for various different relevant disciplines X.

To summarize, I am somewhat shocked that a computer science program does not already exist and would very much hope one is established as soon as possible.

Sincerely yours,



Boris Aronov
Professor of Computer Science

PS. This letter expresses *my personal opinion* on the matter, and in no way should be construed as representing the institution I am affiliated with: the Department of Computer Science and Engineering in the Tandon School of Engineering at the New York University. This letter was not in any way endorsed, whetted, or approved by my institution. Once again, this is my personal professional opinion *only*.

BARUCH COLLEGE
UNDERGRADUATE STUDENT GOVERNMENT
FALL TERM TWO THOUSAND TWENTY ONE

RESOLUTION NO. Res-000-002

AUTHORED BY:
Osvaldo Garcia - Vice President of Academic Affairs
Akshal Shah - Vice Chair of Academic Affairs

A RESOLUTION TO: IMPLEMENT A COMPUTER SCIENCE MAJOR AT BARUCH COLLEGE

THE UNDERGRADUATE STUDENT GOVERNMENT OF BARUCH COLLEGE ENACTS:

WHEREAS, The United States has the largest tech market in the world, being worth over $1.7 trillion in 2020; AND

WHEREAS, The employment in the computer and information technology industry is projected to grow 13% from 2020 to 2030 according to the U.S Bureau of Labor Statistics; AND

WHEREAS, Baruch College has placed #1 in social mobility for the sixth consecutive year across the United States according to CollegeNet's social mobility index; AND

WHEREAS, Implementing a Computer Science major would prepare students for the fast-growing tech industry and align with Baruch college's value of economic mobility for a diverse student population; AND

WHEREAS, Computer Science is increasing in popularity across the United States, appearing in The Princeton Review's Top 10 College Majors as the top college major; AND

WHEREAS, All top-100 colleges offer a Computer Science major at their institutions according to 2021 Best National University Rankings of U.S News; AND

WHEREAS, Baruch College is the only CUNY senior college without a Computer Science major and is not equipping its students with the skills necessary for the new technological society; AND

WHEREAS, According to USG's 2020 Computer Science survey results, over 80% of students, a strong majority, said that a Computer Science degree "would better serve them in the current professional work environment" compared to a Computer Information Systems degree; AND

THEREFORE, BE IT RESOLVED, that the Undergraduate Student Government at Baruch College urges the Baruch administration to implement a Computer Science major, to further expand the options and opportunities available to students which align with its mission of providing social mobility to a diverse population of undergraduate students.

BARUCH COLLEGE
UNDERGRADUATE STUDENT GOVERNMENT
FALL TERM TWO THOUSAND TWENTY ONE

PASSED IN SENATE MEETING: December 14th, 2021

VOTE TOTALS:
YES: 19
NO: 0
ABSTAIN: 0

Tyler Yang

Abdullah Mahdi

Laiba Hussain

Anya Ballantyne

Snigdha Sarker

QUEENSBOROUGH COMMUNITY COLLEGE CUNY

DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

01/02/2022

To Whom it May Concern,

With this letter, I would like to convey my enthusiastic support for the proposal of a BS in Computer Science at Baruch College.

With the rise in the number of students who decide to pursue a degree in computer science, such a program would provide our students with an important opportunity for obtaining a BS in computer science. These students will be able to transfer to Baruch college to complete their studies there.

The program that is proposed by Baruch College also offers the study of computer science with concentrations in other fields, such as bioinformatics, computational psychology, and financial mathematics. Such concentration will widen the variety of opportunities that are available to students at our college.

Please feel free to contact me for any additional questions.

Haishen Yao, Ph.D
Professor and Chairperson
Department of Mathematics and Computer Science
Queensborough Community College
City University of New York

718-631-6361
FAX 718-631-6290
Science, Room 215
222 05 56th Avenue
Bayside, NY 11364-1497

ONE COMMUNITY. INFINITE POSSIBILITIES.

BRONX COMMUNITY COLLEGE

Department of Mathematics
and Computer Science
Carl Polowczyk Hall, Room 315
P: 718.289.5411
F: 718.289.6056

Bronx Community College
of The City University of New York
2155 University Avenue
Bronx, New York 10453

January 3, 2022

To Whom it May Concern:

As Chair of the Department of Mathematics and Computer Science at Bronx Community College, I would like to express my strong support for the proposal of a BS in Computer Science at Baruch College.

Here in the Bronx, we have a strong and growing A.S. Degree in Computer Science, which would articulate well with a possible BS in Computer Science at Baruch.

The proposed program at Baruch College offers concentrations in other fields, such as bioinformatics, computational psychology, and financial mathematics. These concentrations will substantially broaden the variety of opportunities available to our students.

If I can be of any further assistance, please feel free to contact me.

Best,

Prof. Anthony Weaver
Chair
Department of Mathematics and Computer Science
Bronx Community College, CUNY

anthony.weaver@bcc.cuny.edu

This appendix consists of the following documents:

- New course proposal: Introduction to Cryptography
- New course proposal: Programming Languages
- New course proposal: Computer Architecture
- New course proposal: Operating Systems
- New course proposal: Complexity and computational models
- Course revision proposal: Fundamental Algorithms

CURRICULUM FORM A

NEW COURSE PROPOSAL

WEISSMAN SCHOOL OF ARTS & SCIENCES

DEPARTMENT: Mathematics **DATE: 03/25/2021**

COURSE NUMBER: 4250

COURSE TITLE: Introduction to Cryptography

CREDITS: 4 **HOURS PER WEEK: 4**

BULLETIN DESCRIPTION:

In this course one becomes familiar with modern-day cryptography, including the algorithms and theory that lie behind them. Topics include stream and block ciphers, modular arithmetic, prime numbers and factorization, finite fields, private and public keys, discrete logarithm problem, collisions, attacks, cryptographic hash functions, Chinese remainder theorem, Pohlig-Hellman algorithm, factorization algorithms, primality testing, Diffie-Hellman key exchange, El Gamal public key cryptosystem, RSA public key cryptosystem, digital signatures, message integrity, authenticated encryption.

FREQUENCY OF OFFERING: Once per year

PROJECTED ENROLLMENT: 20-30

PREREQUISITES: MTH 3150 or MTH 4000 or MTH 4010 and MTH 3300

COREQUISITE(S):

OTHER DEPARTMENT(S) CONSULTED:

OTHER SCHOOL(S) CONSULTED: (ZSB _____ SPA _____)

CROSS-LISTED IN _____ DEPARTMENT(S) (If applicable):

F-REPLACEMENT FOR THE CROSS-LISTED COURSE? ____ Y ____ N

LEARNING GOALS OF COURSE:

By the end of this course, students will be able to:

- Apply the roles of cryptographical methods in modern computing
- Use algebra and number theory to provide a basis for the cryptographic systems we encounter
- Implement (in Python or other programming language) various cryptosystems and digital signature schemes and recognize their strengths and weaknesses

RATIONALE:

The study of sending and receiving secret messages has an extensive history and plays a critical role in modern computing. Students should be introduced to the mathematics behind these cryptographic systems and become familiar with their uses, their strengths, and their weaknesses. Students will learn how to implement these systems in a programming language like Python.

Justification for four hours and four credits: This class in computer science is really three classes running simultaneously: It must cover the theoretical (i.e. mathematical) foundations of the applications to

computer science; the computer science itself; and the practical, hands-on implementation in computer systems of the scientific formalism. It is those distinct and inseparable components of the computer science courses that not only justify, but necessitate, four credits.

1.	**APPROVED BY DEPARTMENT**	**DATE: May 6th, 2021**
2.	**APPROVED BY WSAS CURRICULUM COMMITTEE:**	**DATE: Sep 17th 2021**
3.	**APPROVED BY WSAS FACULTY**	**DATE: Sep 30th 2021**

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Course Material.

The course relies on the book *An Introduction to Mathematical Cryptography* by J.Hoffstein, J. Pipher, J. Silverman (2nd Edition, Springer 2014),

Course Requirements and Policies

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

The Department of Mathematics and the course instructor fully support Baruch College's policy on academic honesty, which states in part:

> "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Academic sanctions in this class will range from an F on the assignment to an F in this course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. Additional information and definitions can be found at www.baruch.cuny.edu/academic/academic_honesty.html

and the Student Guide to Academic Integrity
www.baruch.cuny.edu/facultyhandbook/documents/StudentGuideOct06.pdf

Conduct:

Cell phones should be turned off during class and MUST be turned off and put away during all examinations.

Laptops should be used only for taking or reading lecture notes.

Statement for Students with Disabilities:

Students with disabilities may be eligible for reasonable accommodations to enable them to participate fully in courses at Baruch College. Any student needing accommodation is requested to speak directly to the Office of Services for Students with Disabilities (VC 2-271; 646-312-4590) and to the instructor as early as possible in the semester (preferably during the first week of class). All discussions will remain confidential.

Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Two in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (2): 48% total (24% each)
- Homework: 18% total;
- Final: 34%

Course letter grades will be assigned based on the overall percentage as described at
http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample course schedule:

Week	Topics
Week 1	Modular arithmetic, prime numbers, unique factorization, finite fields
Week 2	Stream and block ciphers
Week 3	Attacks and collisions, cryptographic hash functions
Week 4	Message integrity, authenticated encryption
Week 5	**EXAM #1**
Week 6	Public key cryptography, discrete logarithm problem
Week 7	Diffie Helman key exchange, El Gamal public key cryptosystem
Week 8	Chinese remainder theorem, Pohlig Helman algorithm
Week 9	RSA public key cryptosystem
Week 10	Primality testing, factorization
Week 11	**EXAM #2**
Week 12	Digital signatures
Week 13	Overview of Elliptic Curve Cryptography or other additional topics
Week 14	Overview of Post Quantum Cryptography or other additional topics
FINAL EXAM	**FINAL EXAM**

CURRICULUM FORM A
NEW COURSE PROPOSAL
WEISSMAN SCHOOL OF ARTS & SCIENCES

DEPARTMENT: Mathematics **DATE: 03/25/2021**

COURSE NUMBER: 4325

COURSE TITLE: Programming Languages

CREDITS: 4 **HOURS PER WEEK: 4**

BULLETIN DESCRIPTION:

This course discusses features of programming languages, focusing on issues that are important for language design. Topics include syntax, parsing, and context-free grammars; scope and bindings; semantic analysis; evaluation of expressions and control flow; type systems; functions; object-oriented, functional, and scripting languages; memory management.

FREQUENCY OF OFFERING: Once a Year

PROJECTED ENROLLMENT: 20-30

PREREQUISITES: MTH 3150 and MTH 4300

COREQUISITE(S):

OTHER DEPARTMENT(S) CONSULTED:

OTHER SCHOOL(S) CONSULTED: (ZSB _____ SPA _____)

CROSS-LISTED IN _____ DEPARTMENT(S) (If applicable):

F-REPLACEMENT FOR THE CROSS-LISTED COURSE? ____ Y ____ N

LEARNING GOALS OF COURSE:

By the end of this course, students will be able to:

- recognize the hallmarks of various programming paradigms, and write programs in languages supporting these paradigms;
- evaluate the relative advantages and disadvantages of different languages for projects;
- identify common language features, and use these features effectively.

RATIONALE:

A study of the ideas behind programming-language design allows the learner to use language features more effectively, pick up new languages quickly, and create new tools or even new programming languages. This is essential to success in software development, as it is unlikely that every project that an individual encounters will be created using the same language.

Justification for four hours and four credits: This class in computer science is really three classes running simultaneously: It must cover the theoretical (i.e. mathematical) foundations of the applications to computer science; the computer science itself; and the practical, hands-on implementation in computer systems of the scientific formalism. It is those distinct and inseparable components of the computer science courses that not only justify, but necessitate, four credits.

1. **APPROVED BY DEPARTMENT** **DATE: May 6th, 2021**
2. **APPROVED BY WSAS CURRICULUM COMMITTEE:** **DATE: Sep 17th 2021**

3. APPROVED BY WSAS FACULTY **DATE: Sep 30th 2021**

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Course Material.

The course relies on the book*: M. Scott, Programming Language Pragmatics, 4th Edition, by Morgan Kaufmann, 2015.*

Course Requirements and Policies

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

The Department of Mathematics and the course instructor fully support Baruch College's policy on academic honesty, which states in part:

> "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Academic sanctions in this class will range from an F on the assignment to an F in this course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. Additional information and definitions can be found at www.baruch.cuny.edu/academic/academic_honesty.html and the Student Guide to Academic Integrity www.baruch.cuny.edu/facultyhandbook/documents/StudentGuideOct06.pdf

Conduct:

Cell phones should be turned off during class and MUST be turned off and put away during all examinations.

Laptops should be used only for taking or reading lecture notes.

Statement for Students with Disabilities:

Students with disabilities may be eligible for reasonable accommodations to enable them to participate fully in courses at Baruch College. Any student needing accommodation is requested to speak directly to the Office of Services for Students with Disabilities (VC 2-271; 646-312-4590) and to the instructor as early as possible in the semester (preferably during the first week of class). All discussions will remain confidential.

Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Two in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (2): 48% total (24% each)
- Homework: 18% total;
- Final: 34%

Course letter grades will be assigned based on the overall percentage as described at http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample course schedule:

Week	**Topics**
Week 1	Introduction
Week 2	Language Syntax, Parsing, Context-Free Grammars
Week 3	Names, Scope and Binding
Week 4	Semantic Analysis
Week 5	Midterm 1
Week 6	Evaluation and Control Flow
Week 7	Evaluation and Control Flow
Week 8	Type Systems
Week 9	Functions and Environments
Week 10	Midterm 2
Week 11	Objects
Week 12	Memory Management and Garbage Collection

Week 13	Functional Languages and Scripting Languages
Week 14	Review
Final exam	**Final exam**

CURRICULUM FORM A

NEW COURSE PROPOSAL

WEISSMAN SCHOOL OF ARTS & SCIENCES

DEPARTMENT: Mathematics **DATE: 03/25/2021**

COURSE NUMBER: 4350

COURSE TITLE: Computer Architecture

CREDITS: 4 **HOURS PER WEEK: 4**

BULLETIN DESCRIPTION:

In this course, one becomes familiar with main components of modern computer systems and learns to design efficient systems. Topics include Boolean circuits, the ALU, RISC, Instruction Set Architecture, arithmetic for computers, pipelining, the memory hierarchy, caching, address translation, memory protection, virtual memory, I/O, interrupts, branch prediction, dynamic scheduling, Tomasulo's algorithm, parallel computing, vector processors, multicores.

FREQUENCY OF OFFERING: Once or twice per year

PROJECTED ENROLLMENT: 20-30

PREREQUISITES: MTH 3300

COREQUISITE(S):

OTHER DEPARTMENT(S) CONSULTED:

OTHER SCHOOL(S) CONSULTED: (ZSB _____ SPA _____)

CROSS-LISTED IN _____ DEPARTMENT(S) (If applicable):

F-REPLACEMENT FOR THE CROSS-LISTED COURSE? ____ Y ____ N

LEARNING GOALS OF COURSE: By the end of this course, students will be able to:

- describe the major components of a computer system.
- write basic assembly language programs to demonstrate an ability to manipulate data using CPU registers and memory.
- discuss memory hierarchy, interrupts, and I/O systems and their impact on CPU performance.
- discuss the major features of the RISC architecture.
- distinguish between modern computer architecture enhancements and compare different processors.
- Apply the basics of parallel computing, including specific cases such multiprocessors.

RATIONALE: Understanding the structure of modern computer systems is a key requirement for a computer scientist. It is a foundation necessary for studying more advanced topics, such as operating systems. It is also required to clearly understand current and future technological developments. Techniques for making a computer work efficiently are at the interplay beyond the theory of computer science and its practice.

Justification for four hours and four credits: This class in computer science is really three classes running simultaneously: It must cover the theoretical (i.e. mathematical) foundations of the applications to computer science; the computer science itself; and the practical, hands-on implementation in computer systems of the scientific formalism. It is those distinct and inseparable components of the computer science courses that not only justify, but necessitate, four credits.

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1. **APPROVED BY DEPARTMENT** **DATE: May 6th, 2021**
2. **APPROVED BY WSAS CURRICULUM COMMITTEE:** **DATE: Sep 17th 2021**
3. **APPROVED BY WSAS FACULTY** **DATE: Sep 30th 2021**

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Course Material.

The course relies on the book *Computer Organization and Design: The Hardware/Software Interface* by David A. Patterson and John L. Hennessy, 5th Edition.

Course Requirements and Policies

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

The Department of Mathematics and the course instructor fully support Baruch College's policy on academic honesty, which states in part:

> "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Academic sanctions in this class will range from an F on the assignment to an F in this course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. Additional information and definitions can be found at www.baruch.cuny.edu/academic/academic_honesty.html and the Student Guide to Academic Integrity www.baruch.cuny.edu/facultyhandbook/documents/StudentGuideOct06.pdf

Conduct:

Cell phones should be turned off during class and MUST be turned off and put away during all examinations.

Laptops should be used only for taking or reading lecture notes.

Statement for Students with Disabilities:

Students with disabilities may be eligible for reasonable accommodations to enable them to participate fully in courses at Baruch College. Any student needing accommodation is requested to speak directly to the Office of Services for Students with Disabilities (VC 2-271; 646-312-4590) and to the instructor as early as possible in the semester (preferably during the first week of class). All discussions will remain confidential.

Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Two in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (2): 48% total (24% each)
- Homework: 18% total;
- Final: 34%

Course letter grades will be assigned based on the overall percentage as described at http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample course schedule:

Week	**Topics**
Week 1	Introduction, Verilog
Week 2	ISAs, RISCV
Week 3	Arithmetic for Computers
Week 4	Pipelining
Week 5	**EXAM #1**
Week 6	The memory hierarchy and caching
Week 7	The memory hierarchy and caching continued
Week 8	Virtual memory
Week 9	Branch prediction

Week 10	**EXAM #2**
Week 11	Dynamic scheduling
Week 12	Parallelism
Week 13	Parallelism continued (Multiprocessors, Vector)
Week 14	**REVIEW**
FINAL EXAM	**FINAL EXAM**

CURRICULUM FORM A

NEW COURSE PROPOSAL

WEISSMAN SCHOOL OF ARTS & SCIENCES

DEPARTMENT: Mathematics **DATE: 03/25/2021**

COURSE NUMBER: 4355

COURSE TITLE: Operating Systems

CREDITS: 4 **HOURS PER WEEK: 4**

BULLETIN DESCRIPTION:

In this course, one becomes familiar with the main components of operating systems, how to administer these components, and how to write code that interacts with them. Topics include processes; kernels; interrupts; system calls; interprocess communication; shared memory; message passing and ports; context switching; concurrency; threads; synchronization; mutual exclusion; mutex locks, semaphores, and monitors; CPU scheduling; multi-processor scheduling and load balancing; memory management; loading and linking; caching; paging; swapping; virtual memory; mass storage; I/O systems; file system; naming; directories; mounting; distributed file systems; networking; security and protection.

FREQUENCY OF OFFERING: Once or twice per year.

PROJECTED ENROLLMENT: 20-30

PREREQUISITES: MTH 4350

COREQUISITE(S):

OTHER DEPARTMENT(S) CONSULTED:

OTHER SCHOOL(S) CONSULTED: (ZSB _____ SPA _____)

CROSS-LISTED IN _____ DEPARTMENT(S) (If applicable):

F-REPLACEMENT FOR THE CROSS-LISTED COURSE? ____ Y ____ N

LEARNING GOALS OF COURSE: By the end of this course, students will be able to:

- Use operating systems to minimize the processes, memory, storage, communication, and computing resources of machines;
- Administer computing systems using advanced tools;
- Build modules and insert them into kernels of open source operating systems

RATIONALE:

A good understanding of operating systems is required for writing advanced programs, being a system administrator, working in cybersecurity, and many other advanced technological tasks. This course covers the foundations of past, current, and future tools and frameworks. A solid understanding of these foundations is necessary for a successful and safe career in software development and computer administration.

Justification for four hours and four credits: This class in computer science is really three classes running simultaneously: It must cover the theoretical (i.e. mathematical) foundations of the applications to computer science; the computer science itself; and the practical, hands-on implementation in computer systems of the scientific formalism. It is those distinct and inseparable components of the computer science courses that not only justify, but necessitate, four credits.

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4. APPROVED BY DEPARTMENT **DATE: May 6th, 2021**
5. APPROVED BY WSAS CURRICULUM COMMITTEE: **DATE: Sep 17th 2021**
6. **APPROVED BY WSAS FACULTY** **DATE: Sep 30th 2021**

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Course Material.

The course relies on the books

- Required: R.H. Arpaci-Dusseau and A.C. Arpaci-Dusseau: *Operating Systems: Three Easy Pieces*, open source book available at https://pages.cs.wisc.edu/~remzi/OSTEP/
- Suggested: A. Silberschatz, G. Gagne, P. Galvin, *Operating System Concepts* (10th Edition, Wiley, 2018)

Course Requirements and Policies

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

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Conduct:

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Statement for Students with Disabilities:

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Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Two in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (2): 48% total (24% each)
- Homework: 18% total;
- Final: 34%

Course letter grades will be assigned based on the overall percentage as described at http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample course schedule:

Week	**Topics**
Week 1	Virtualization, programs, and processes
Week 2	Process control, system calls, and context switching
Week 3	Scheduling
Week 4	Address spaces and paging
Week 5	**EXAM #1**
Week 6	Threads, critical sections, and atomic operations
Week 7	Mutual exclusion and locks
Week 8	Mutex locks, semaphores, and monitors
Week 9	**EXAM #2**
Week 10	Disks, file systems, naming, and directories
Week 11	RAID and journaling
Week 12	Data integrity and protection
Week 13	Security
Week 14	**REVIEW**

FINAL EXAM	**FINAL EXAM**

CURRICULUM FORM A
NEW COURSE PROPOSAL
WEISSMAN SCHOOL OF ARTS & SCIENCES

DEPARTMENT: Mathematics **DATE: 03/25/2021**

COURSE NUMBER: 4360

COURSE TITLE: Complexity and computational models

CREDITS: 4 **HOURS PER WEEK: 4**

BULLETIN DESCRIPTION:

Two fundamental questions arising in any problem are: Can this problem be solved using a given abstract machine? How much time and space are required to solve it? The theory of computational complexity provides tools for analyzing the minimal amount of computational resources that are needed for the algorithmic solution of a problem. In this course we will discuss a variety of types of computational problems (decision, search, counting and optimization) by introducing an array of complexity classes to capture problem types. We will use the notions of reduction and completeness to establish relationships between seemingly unrelated problems, classes, and resources.

FREQUENCY OF OFFERING: Once or twice per year

PROJECTED ENROLLMENT: 25-30

PREREQUISITES: MTH 3150 anzd MTH 4320

COREQUISITE(S):

OTHER DEPARTMENT(S) CONSULTED:

OTHER SCHOOL(S) CONSULTED: (ZSB _____ SPA _____)

CROSS-LISTED IN _____ DEPARTMENT(S) (If applicable):

F-REPLACEMENT FOR THE CROSS-LISTED COURSE? ____ Y ____ N

LEARNING GOALS OF COURSE:

By the end of this course, students will be able to:

- Apply their knowledge of Turing Machines and the simple mechanisms needed for all computation.
- Distinguish between recursive and recursively enumerable languages.
- Identify the characteristics of problems for which no computational solution exists.
- Identify and distinguish the concepts of P vs. NP vs. NP-complete.

RATIONALE:

The ability to determine whether a given problem can be solved by a computer, and the resources that are needed to solve such problem, are at the base of any computer science application. Complexity theory helps computer scientists relate and group problems together into complexity classes. Sometimes knowing that a given problem can be solved results in finding a way to solve other problems in its complexity class. It is important for computer science students to develop an intuitive sense of which problems can be solved in finite time and space and which cannot be.

Justification for four hours and four credits: This class in computer science is really three classes running simultaneously: It must cover the theoretical (i.e. mathematical) foundations of the applications to computer science; the computer science itself; and the practical, hands-on implementation in computer systems of the scientific formalism. It is those distinct and inseparable components of the computer science courses that not only justify, but necessitate, four credits.

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1. **APPROVED BY DEPARTMENT** **DATE: May 6th, 2021**
2. **APPROVED BY WSAS CURRICULUM COMMITTEE:** **DATE: Sep 17th 2021**
3. **APPROVED BY WSAS FACULTY** **DATE: Sep 30th 2021**

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Course Material.

The course relies on the book Sipser, Michael. *Introduction to the Theory of Computation*. Course Technology, 2005.

Course Requirements and Policies.

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

The Department of Mathematics and the course instructor fully support Baruch College's policy on academic honesty, which states in part:

"Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Academic sanctions in this class will range from an F on the assignment to an F in this course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. Additional information and definitions can be found at www.baruch.cuny.edu/academic/academic_honesty.html and the Student Guide to Academic Integrity www.baruch.cuny.edu/facultyhandbook/documents/StudentGuideOct06.pdf

Conduct:

Cell phones should be turned off during class and MUST be turned off and put away during all examinations.

Laptops should be used only for taking or reading lecture notes.

Statement for Students with Disabilities:

Students with disabilities may be eligible for reasonable accommodations to enable them to participate fully in courses at Baruch College. Any student needing accommodation is requested to speak directly to the Office of Services for Students with Disabilities (VC 2-271; 646-312-4590) and to the instructor as early as possible in the semester (preferably during the first week of class). All discussions will remain confidential.

Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Two in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (2): 48% total (24% each)
- Homework: 18% total;
- Final: 34%

Course letter grades will be assigned based on the overall percentage as described at http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample course schedule:

Week	**Topics**
Week 1	Introduction to Computational Models
Week 2	Finite automata
Week 3	Context free languages
Week 4	Computability theory
Week 5	**EXAM**
Week 6	Turing machine models and the halting problem
Week 7	Polynomial time and its justification, including example algorithms
Week 8	Decidability
Week 9	Reducibility
Week 10	**EXAM**
Week 11	Complexity theory
Week 12	P, NP, and NP-completeness;
Week 13	NP complete problems
Week 14	Review
Final exam	**Final exam**

CURRICULUM FORM B

PROPOSED CHANGE IN UNDERGRADUATE COURSE

DEPARTMENT: Mathematics **DATE:** November 11, 2021

PRESENT COURSE NUMBER: 4320 **CLASS HOURS:** 4 **CREDITS:** 4

PRESENT COURSE TITLE: Fundamental Algorithms

PRESENT BULLETIN DESCRIPTION: In this course, one learns how to design efficient algorithms and becomes familiar with common real-world algorithms. Examples include algorithms for data compression, error correcting codes, common graph algorithms such as shortest paths and network flow, and more. The course also includes algorithm techniques such as divide-and-conquer, greedy algorithms, and dynamic programming.

CROSS-LISTED IN _____DEPARTMENT(S)

PRESENT PREREQUISITE(S): *MTH 3007 or MTH 3010 or MTH 3030 with a grade of C+ or higher, AND MTH 3300 or CIS 3100 or CIS 3120 or CIS 4100 with a grade of C+ or higher*

PRESENT COREQUISITE(S):

FREQUENCY OF OFFERING: one section every year

TYPICAL ENROLLMENT: 30-40 students per section

PROPOSED CHANGE (INDICATE BELOW):

IN COURSE NUMBER: None **IN HOURS:** None **IN CREDITS:** None

IN TITLE: *Data Structures and Algorithms*

NEW BULLETIN DESCRIPTION: In this course, one learns how to design efficient algorithms and becomes familiar with common real-world algorithms. Examples include algorithms for sorting,

data compression, finding a shortest path, and more. The course includes algorithm techniques such as divide-and-conquer, greedy algorithms, and dynamic programming. The course also goes over common data structures that algorithms rely on.

CROSS-LISTED IN _____DEPARTMENT(S)

IN PREREQUISITE(S): *MTH 3006 or MTH 2610 with a grade of C+ or higher, AND MTH 3300 or CIS 2300 or with a grade of C+ or higher*

IN COREQUISITE(S): No change

LEARNING GOALS OF COURSE: Upon completion of this course, students will be able to:

- Analyze the running time of an algorithm to determine its efficiency by applying the worst-case asymptotic running time model.
- Design efficient algorithms for a variety of problems, and prove they are efficient by incorporating common data structure and algorithmic approaches, such as divide-and-conquer and greedy algorithms.
- Identify data structures and algorithms that are relevant when designing a complex computer program.
- Recognize and apply common real-world data structures and algorithms including searching and sorting, common graph algorithms, data compression, and others.
- Reduce real-world problems to mathematical problems and use mathematical tools to solve these resulting problems.
- Explain common data structure and algorithmic-related concepts such as O-notation, optimization problems, dynamic programming, undecidable problems, and data compression.

RATIONALE FOR CHANGE: The course is revised to fit the computer science major that is currently being created. Previously, the course focused on being able to design efficient algorithms, analyze the efficiency of an algorithm, and being familiar with common real-world algorithms. A computer science major also needs to be able to analyze and implement common data structures that algorithms rely on. Thus, a few of the most advanced algorithmic topics were removed, while the basics of data structures were added.

Some of the removed topics appear in other new computer science courses. For example, the removed RSA algorithm appears in the new cryptography class MTH4250. The course prerequisites were slightly changed to make the course available to all computer science minors.

APPROVED BY DEPARTMENT: **DATE:** TBD

APPROVED BY WSAS CURRICULUM COMMITTEE: **DATE:** TBD

APPROVED BY WSAS FACULTY: **DATE:** TBD

Course Materials

Instructor's notes published on Blackboard. Since no book covers all of the relevant topics, detailed lecture notes will be made available to students.

Two useful optional resources are

Cormen, Leiserson, Rivest, and Stein, *Introduction to Algorithms, 3rd Edition*, The MIT Press, 2009, ISBN 978-0-262-03384-8 (hardcover) or ISBN 978-0-262-55305-8

Algorithms, Etc. - Lecture notes by Jeff Erickson. Available free at http://jeffe.cs.illinois.edu/teaching/algorithms/

Course Requirements and Policies

Attendance:

Attendance and class participation are crucial for learning the material for this course. All students are expected to be ON TIME. If you have four unexcused absences, each additional absence will lead to a reduction of your final grade.

Students who stop attending classes and do not take the final would receive a grade of WU for the course (for more information, see the Undergraduate Bulletin).

Students who miss class are responsible for all material and assignments covered during missed lecture(s). If you miss a lecture, you are expected to read the lecture notes.

Academic Honesty:

The Department of Mathematics and the course instructor fully support Baruch College's policy on academic honesty, which states in part:

> "Academic dishonesty is unacceptable and will not be tolerated. Cheating, forgery, plagiarism, and collusion in dishonest acts undermine the college's educational mission and the students' personal and intellectual growth. Baruch students are expected to bear individual responsibility for their work, to learn the rules and definitions that underlie the practice of academic integrity, and to uphold its ideals. Ignorance of the rules is not an acceptable excuse for disobeying them. Any student who attempts to compromise or devalue the academic process will be sanctioned."

Academic sanctions in this class will range from an F on the assignment to an F in this course. A report of suspected academic dishonesty will be sent to the Office of the Dean of Students. Additional information and definitions can be found at www.baruch.cuny.edu/academic/academic_honesty.html and the Student Guide to Academic Integrity www.baruch.cuny.edu/facultyhandbook/documents/StudentGuideOct06.pdf

Conduct:

Cell phones should be turned off during class and MUST be turned off and put away during all examinations.

Laptops should be used only for taking or reading lecture notes.

Statement for Students with Disabilities:

Students with disabilities may be eligible for reasonable accommodations to enable them to participate fully in courses at Baruch College. Any student needing accommodation is requested to speak directly to the Office of Services for Students with Disabilities (VC 2-271; 646-312-4590) and to the instructor as early as possible in the semester (preferably during the first week of class). All discussions will remain confidential.

Evaluation:

Homework will be assigned to be turned in and graded regularly throughout the semester.

Three in-class exams will be given during the semester. A cumulative final exam will be given at the time and date of the final exam scheduled for this course. There are no make-up examinations.

Per department policy, any student who receives a grade below 50% on the final exam will receive a failing grade for the course.

Students with excessive absences who do not take the final exam will receive a grade of WU for the course.

Course Grade Components:

The final grade will be computed according to the following distribution:

- In class exams (3): 20% each;
- Homework: 10% total;
- Final: 30%

Course letter grades will be assigned based on the overall percentage as described at http://www.baruch.cuny.edu/undergraduate-advisement-and-orientation/grades-and-gpa.html

Sample Course Schedule:

Lect. #	Topics
1	Introduction and running times
2	Binary search
3	Sorting: Insertion sort
4	Sorting: merge sort
5	Introduction to graphs
6	The BFS Algorithm
7	BFS applications
8	Stacks and Queues
9	**Test 1 – in class**
10	Linked lists
11	Heaps and heapsort
12	Priority queue
13	Trees
14	Spanning tree algorithms
15	Binary search trees
16	Hash tables
17	**Test 2 – in class**
18	Dijkstra's algorithm
19	The Bellman-Ford algorithm
20	Maximum matching
21	The stable marriage algorithm
22	Greedy algorithms
23	Data Compression: Huffman codes
24	Dynamic programming
25	Network flow – introduction
26	**Test 3 – in class**
27	Network flow – algorithms
28	Network flow – applications
	Final Exam

7C. All Budget Tables

This appendix consists of the following budget tables:

- New Resources.
- Projected Revenue Related to the Proposed Program.
- Direct Operating Expenses.
- The Five-Year Revenue Projections for Program.
- Projected Enrollment.

New resources:

Expenditures	Year 1 AY2022-23	Year 2 AY2023-24	Year 3 AY2024-25	Year 4 AY2025-26	Year 5 AY2026-27
Full Time Faculty	$ -	$ -	$ -	$ -	$ -
Part Time Faculty	$ -	$ -	$ -	$ -	$ -
Full Time Staff	$ -	$ -	$ -	$ -	$ -
Part Time Staff	$8,079.50	$8,241.09	$8,405.91	$8,574.03	$8,745.51
Library (Includes Staffing)	$ -	$ -	$ -	$ -	$ -
Equipment	$ -	$ -	$ -	$ -	$ -
Laboratories	$ -	$ -	$ -	$ -	$ -
Supplies & Expenses (Other than Personal Services)	$ -	$ -	$ -	$ -	$ -
Capital Expenditures	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -
Total all	$8,079.50	$8,241.09	$8,405.91	$8,574.03	$8,745.51

Projected revenues:

Revenues	1st Year AY2022-23	2nd Year AY2023-24	3rd Year AY2024-25	4th Year AY2025-26	5th Year AY2026-27
Tuition Revenue					
01. From Existing Sources	$0	$70,686	$158,619	$257,396	$315,053
02. From New Sources	$0	$70,686	$165,829	$257,396	$322,554
03. Total	$0	$141,372	$324,449	$514,792	$637,607
Other Revenue					
07. From Existing Sources	$0	$0	$0	$0	$0
08. From New Sources	$0	$0	$0	$0	$0
09. Total	$0	$0	$0	$0	$0
10. From Existing Sources	$0	$70,686	$158,619	$257,396	$315,053
11. From New Sources	$0	$70,686	$165,829	$257,396	$322,554
TOTAL	$0	$141,372	$324,449	$514,792	$637,607

DIRECT OPERATING EXPENSES	Year 1	Year 2	Year 3	Year 4	Year 5
Current Full Time Faculty Overload (include Summer)					

New Full Time Faculty Base Salary (list separetely)*	0	0	0	0	0
New Full Time Faculty Overload (include Summer)					
New Faculty Re-assigned Time (list seperately)					
Full Time Employee Fringe Benefits (41.6%)	0	0	0	0	0
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Part Time Faculty Actual Salaries					
Part Time Faculty Actual Fringe Benefits (24.3%)	0	0	0	0	0
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Full Time Staff Base Salary					
Full Time Staff Fringe Benefits (41.6%)	0	0	0	0	0
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
PART-TIME STAFF (do not include library staff in this section)					
Part Time Staff Base Salary (list separately)					
Faculty Replacement Costs (replacement of full-time faculty - e.g. on release time - with part-time faculty)	6500	6630	6763	6898	7036
Graduate Assistants					
Student Hourly					
Part Time Employee Fringe Benefits (24.3%)	1580	1611	1643	1676	1710
Total	**$8,080**	**$8,241**	**$8,406**	**$8,574**	**$8,746**
LIBRARY					
Library Resources					
Library Staff Full Time (List Separately)					
Full Time Staff Fringe Benefits (41.6%)	**0**	**0**	**0**	**0**	**0**
Library Staff Part Time (List Separately)					
Part Time Employee Fringe Benefits (24.3%)	**0**	**0**	**0**	**0**	**0**
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
EQUIPMENT					
Computer Hardware					

Office Furniture					
Other (Specify)					
Total	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
LABORATORIES					
Laboratory Equipment					
Other (list separately)					
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
SUPPLIES AND EXPENSES (OTPS)					
Consultants and Honoraria					
Office Supplies					
Instructional Supplies					
Faculty Development					
Travel and Conferences					
Membership Fees					
Advertising and Promotion					
Accreditation					
Computer Software					
Computer License Fees					
Computer Repair and Maintenance					
Equipment Repair and Maintenance					
New Total Supplies and OTPS Expenses	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
CAPITAL EXPENDITURES					
Facility Renovations					
Classroom Equipment					
Other (list separately)					
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Other (list separately)					
TOTAL	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**

The Five-Year Revenue Projections for Program:

EXISTING FULL-TIME STUDENTS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition & Fees:					
# of EXISTING FULL-TIME, In-State Students	0	10	22	35	42
Tuition Income	$6,930	$7,069	$7,210	$7,354	$7,501
Total Tuition	$0	$70,686	$158,619	$257,396	$315,053
Student Fees					

Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$0**	**$70,686**	**$158,619**	**$257,396**	**$315,053**
Tuition & Fees:					
# of EXISTING FULL-TIME, Out-of-State Students	0	0	0	0	0
Annual Avg # of Credits per FT student (24-30)					
Tuition Income	$620	$632	$645	$658	$671
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING FULL-TIME TUITION REVENUE	**$0**	**$70,686**	**$158,619**	**$257,396**	**$315,053**

EXISTING PART-TIME STUDENTS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition & Fees:					
# of EXISTING PART-TIME, In-State Students	0	0	0	0	0
Total Enrolled Credits	15	15	15	15	15
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$305	$311	$317	$324	$330
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
Tuition & Fees:					
# of EXISTING PART-TIME Out of State Students	0	0	0	0	0
Total Enrolled Credits					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$620	$632	$645	$658	$671
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING PART TIME REVENUE	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING REVENUE	**$0**	**$70,686**	**$158,619**	**$257,396**	**$315,053**
NEW FULL-TIME STUDENTS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**

Tuition & Fees:					
# of NEW FULL-TIME, In-State Students	0	10	23	35	43
Tuition Income (Calculates 2% increase per year after Fall 2022)	$6,930	$7,069	$7,210	$7,354	$7,501
Total Tuition	$0	$70,686	$165,829	$257,396	$322,554
Student Fees					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$0**	**$70,686**	**$165,829**	**$257,396**	**$322,554**
Tuition & Fees:					
# of NEW FULL-TIME, Out-of -State Students	0	0	0	0	0
Annual Avg # of Credits per FT student (24-30)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$620	$632	$645	$658	$671
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL NEW FULL-TIME TUITION REVENUE	**$0**	**$70,686**	**$165,829**	**$257,396**	**$322,554**

NEW PART-TIME STUDENTS	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition & Fees:					
# of NEW PART-TIME, In-State Students	0	0	0	0	0
Total Enrolled Credits					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$305	$311	$317	$324	$330
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
Tuition & Fees:					
# of NEW PART-TIME, Out-of-State Students	0	0	0	0	0
Total Enrolled Credits					
Tuition Income (Specify Rate per credit) calculates 2% increase per year	$620	$632	$645	$658	$671
Total Tuition	$0	$0	$0	$0	$0
Student Fees					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**

TOTAL NEW PART-TIME REVENUE	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL NEW REVENUE	**$0**	**$70,686**	**$165,829**	**$257,396**	**$322,554**

Projected Enrollment:

Projected Enrollment	Year One	Year Two	Year Three	Year Four	Year Five
Existing Full-time Students					
In-State	-	10	22	35	42
Out-of-State					
Existing Full-time Total	**-**	**10**	**22**	**35**	**42**
Existing Part-time Students					
In-State	-				
Out-of-State					
Existing Part-time Total	**-**	**-**	**-**	**-**	**-**
New Full-time Students					
In-State		10	23	35	43

Out-of-State					
NEW Full-time Total	**-**	**10**	**23**	**35**	**43**
New Part-time Students In-State Out-of-State					
New Part-time Total	**-**	**-**	**-**	**-**	**-**

7D. Existing Faculty Curriculum Vitae

This appendix contains the Curriculum vitae of the following Baruch fulltime faculty:

- Evan Fink
- Warren Gordon
- Douglas Howard
- Areeba Ikram
- Elena Kosygina
- Ivan Matic
- Guy Moshkovitz
- Andrew Obus
- Jarrod Pickens
- Rados Radoicic
- Tim Ridenour
- Ryan Ronan

- Adam Sheffer
- Pablo Soberón
- Giulio Trigila

Evan Fink

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	Columbia University	Mathematics	2010
MA	Columbia University	Mathematics	2006
MPhil	Columbia University	Mathematics	2010
SB, equivalent to BS	Massachusetts Institute of Technology	Mathematics	2004
SB, equivalent to BS	Massachusetts Institute of Technology	Physics	2004

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Lecturer	Mathematics	August 28, 2013 - Present
University of Georgia	Instructor	Mathematics	August 15, 2011 - May 15, 2013
University of Georgia	Visiting Assistant Professor	Mathematics	August 15, 2010 - May 15, 2011

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Lecturer	August 28, 2013 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:
   (1) Articles:
   (2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

9. WORK IN PROGRESS:
   A. Papers submitted to journals for consideration.
   B. Other completed papers
   C. Research in progress.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:
   A. Service to the Department

Committee on Math Placement, Committee Chair, approximately 20 hours spent for the year, Appointed, Pro Bono, We have decided on tentative placement criteria for the Spring 2020 term, when the Accuplacer placement device will no longer be available to CUNY. (September 1, 2018 - Present).
Deciding on mathematics placement criteria for incoming students.

Peer Observation Committee, Committee Member, approximately 12 hours spent for the year, Appointed, Pro Bono. (September 1, 2017 - Present).
Observe lectures of other department members, to evaluate performance and suggest improvements

Computer Science Committee, Committee Member, approximately 3 hours spent for the year, Appointed, Pro Bono, Made decisions about languages that would be used in MTH 3300, 4300, 4135, and 4115. (May 1, 2017 - Present).
Deciding the content of the math department's computer science-related courses (Programming, Algorithms, and Numerical Methods)

Calculus Committee, Committee Member, approximately 1 hours spent for the year, Appointed. (May 5, 2015 - Present).

Reviewing syllabus and materials for the various Calculus classes (2610 and above) offered by the Math department

Base Curriculum, Committee Member, approximately 1 hours spent for the year, Appointed, Approved new edition of textbook, new platform for Calculus classes. (August 28, 2013 - Present).
Choosing/approving textbooks and software platforms

Final Exam, Committee Chair, approximately 20 hours spent for the year, Appointed, Making sure that uniform final exams for large classes are produced and properly administered. (August 28, 2013 - Present).
I was responsible for final exam room assignments, head proctoring for one exam period, writing a final. Starting in Spring 2015, I oversaw all uniform departmental final exams, administered to over 2000 students.

Committee on Math Placement, Committee Member, approximately 10 hours spent for the year, Appointed, Pro Bono, Created a grid scheme now being used to place incoming students into math classes. (September 30, 2016 - November 1, 2016).
Incoming student take a mathematics placement exam that was recently changed. This committee tried to calibrate scores on this exam with appropriate placement into math classes.

B. Service to the School

Improving Learning Outcomes In Courses With Structured Knowledge Through Adaptive Learning Technologies, Committee Member, approximately 20 hours spent for the year, Compensated, This CUNY Strategic Investment Initiative project investigated whether providing College Algebra students with an active learning module would positively affect learning outcomes. (September 1, 2015 - May 31, 2016).
Creating, printing and distributing assessment materials for research

C. Service to the College

Financial Aid Committee, Committee Member, approximately 2 hours spent for the year, Elected, Pro Bono, Made such recommendations. (March 27, 2019).
Make recommendations to President Wallerstein regarding allocation of Financial Aid derived from Bernard Baruch Endowment Fund.

D. Service to the Graduate Center

E. Service to the University

13. <u>OFFICES HELD IN PROFESSIONAL SOCIETIES:</u>

Mathematical Association of America, MAA, National. (March 30, 2015 - Present).
The Mathematical Association of America is the largest professional society that focuses on mathematics accessible at the undergraduate level.

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:
    A. Courses Taught

MTH 3150 - 52990, Discrete Mathematics: An Invitation to Computer Science, 19, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).
MTH 3006 - 29905, Elements of Calculus II, 11, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).
MTH 4120 - 30269, Introduction to Probability, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).
MTH 4119 - 30242, Multivariate Probability Distributions, 3, 1 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).
MTH 3300 - 7289, Algorithms, Computers and Programming I, 27, 3 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2021).
MTH 3300 - 17544, Algorithms, Computers and Programming I, 30, 3 credit hours, Upper Division, Undergraduate, On-Line, (Spring 2021).
MTH 4010 - 17811, Mathematical Analysis I, 21, 3 credit hours, Upper Division, Undergraduate, On-Line, (Spring 2021).
MTH 3300 - 34366, Algorithms, Computers and Programming I, 35, 3 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).
MTH 3300 - 34368, Algorithms, Computers and Programming I, 35, 3 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).
MTH 4120 - 58133, Introduction to Probability, 32, 4 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).
MTH 4119 - 58134, Multivariate Probability Distributions, 2, 1 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).
MTH 3300 - 1275, Algorithms, Computers and Programming I, 28, 3 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2020).
MTH 3010 - 1272, Calculus II, 25, 4 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2020).
MTH 3300 - 25422, Algorithms, Computers and Programming I, 30, 3 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).
MTH 3300 - 25423, Algorithms, Computers and Programming I, 33, 3 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).
MTH 3050 - 25419, Calculus III and Vector Calculus, 24, 4 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).

MTH 3300 - 40902, Algorithms, Computers and Programming I, 30, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2019).

MTH 2207 - 40809, Applied Calculus and Matrix Applications, 38, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2019).

MTH 4100 - 41916, Linear Algebra and Matrix Methods, 39, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2019).

MTH 2207 - 4698, Applied Calculus and Matrix Applications, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, (Summer 2019).

MTH 3010 - 4706, Elementary Calculus II, 31, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2019).

MTH 3300 - 39940, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2019).

MTH 3300 - 39943, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2019).

MTH 2205 - 39878, Applied Calculus, 31, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2019).

MTH 3300 - 54991, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 3300 - 54993, Algorithms, Computers and Programming I, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 2207 - 55103, Applied Calculus and Matrix Applications, 23, 5 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2018).

MTH 4100 - 55010, Linear Algebra and Matrix Methods, 40, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 3300 - 11400, Algorithms, Computers and Programming I, 27, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2018).

MTH 3010 - 8087, Elementary Calculus II, 31, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2018).

MTH 3300 - 48545, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2018).

MTH 2205 - 48504, Applied Calculus, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2018).

MTH 4135 - 48577, Computational Methods in Probability, 20, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2018).
New Teaching Material: Lecture slides

MTH 3300 - 28668, Algorithms, Computers and Programming I, 4 credit hours, Upper Division, Undergraduate, Classroom, new format for existing course, (Fall 2017).
Pedagogical Innovations: The course, previously taught in C++, will now be taught in Python.
New Teaching Material: Interactive classroom notes, created using Jupyter.

MTH 3300 - 28669, Algorithms, Computers and Programming I, 4 credit hours, Upper Division, Undergraduate, Classroom, new format for existing course, (Fall 2017).
Pedagogical Innovations: The course, previously taught in C++, will now be taught in Python.
New Teaching Material: Interactive classroom notes, created using Jupyter.

MTH 2207 - 28637, Applied Calculus and Matrix Applications, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2017).

MTH 4100 - 28276, Linear Algebra and Matrix Methods, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2017).

MTH 2207 - 6500, Applied Calculus and Matrix Applications, 34, 4 credit hours, Lower Division, Undergraduate, Classroom, (Summer 2017).

MTH 3010 - 6507, Elementary Calculus II, 25, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2017).

MTH 3300 - 29200, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2017).

MTH 3300 - 29201, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2017).

MTH 5020 - 38952, Theory of Functions of a Complex Variable, 8, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2017).
New Teaching Material: Produced lecture slides

MTH 3300 - 36336, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2016).

MTH 2207 - 58926, Applied Calculus and Matrix Applications, 20, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2016).

MTH 2205 - 36379, Applied Calculus II, 38, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2016).

MTH 3010 - 36327, Calculus II, 25, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2016).

MTH 2207 - 6274, Applied Calculus and Matrix Applications, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, (Summer 2016).

MTH 3010 - 6277, Calculus II, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2016).

MTH 4010 - 57114, Advanced Calculus I, 36, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2016).
Pedagogical Innovations: Held weekly informal problem sessions, so that the students and I could casually discuss the construction of a valid proof, and the evaluation of ideas and arguments
New Teaching Material: Prepared lecture slides

MTH 3010 - 43695, Calculus II, 34, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2016).

MTH 4100 - 43367, Linear Algebra and Matrix Methods, 38, 3 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2016).
New Teaching Material: Produced lecture slides

MTH 3300 - 11225, Algorithms, Computers and Programming I, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2015).
New Teaching Material: Produced lecture slides

MTH 3300 - 11226, Algorithms, Computers and Programming I, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2015).
New Teaching Material: Produced lecture slides

MTH 2207 - 11172, Applied Calculus and Matrix Methods, 20, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2015).

MTH 2207 - 11178, Applied Calculus and Matrix Methods, 34, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2015).

MTH 2207 - 6212, Applied Calculus and Matrix Methods, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Summer 2015).

MTH 3010 - 6218, Calculus II, 27, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2015).

MTH 3300 - 56181, Algorithms, Computers and Programming I, 29, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2015).

New Teaching Material: Incorporation of examples from Actuarial Science into assignments, catering to our large base of Actuarial Science majors

MTH 2205 - 55403, Applied Calculus II, 37, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2015).

Pedagogical Innovations: Use of Piazza platform -- electronic messaging board allowing for student discussions, anonymous messaging, math formatting

MTH 2205 - 55426, Applied Calculus II, 37, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2015).

Pedagogical Innovations: Use of Piazza platform -- electronic messaging board allowing for student discussions, anonymous messaging, math formatting

MTH 2205 - 70457, Applied Calculus II, 37, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).

MTH 2205 - 70464, Applied Calculus II, 36, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).

MTH 4100 - 78998, Linear Algebra and Matrix Methods, 38, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2014).

MTH 2140 - 55821, Mathematics and Quantitative Reasoning, 26, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2014).

Enhancements to Student Learning: Visit with Alexander String Quartet

MTH 3020 - 01, Intermediate Calculus, 21, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2014).

MTH 3300 - 03, Algorithms, Computers, and Programming I, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2014).

MTH 2003 - 06, Precalculus and Elements of Calculus, 33, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2014).

MTH 2003 - 14, Precalculus and Elements of Calculus, 33, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2014).

MTH 2610 - 07, Calculus I, 20, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).

MTH 2140 - 03, Mathematics and Quantitative Reasoning, 28, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).

MTH 2003 - 01, Precalculus and Elements of Calculus, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).

MTH 2003 - 16, Precalculus and Elements of Calculus, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).

MTH 3010 - 02, Calculus II, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2013).

B. New courses/programs developed

MTH 4135 - 48577, Computational Methods in Probability, 20, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2018).
MTH 5020 - 38952, Theory of Functions of a Complex Variable, 8, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2017).
MTH 4010 - 57114, Advanced Calculus I, 36, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2016).
MTH 2207 - 6212, Applied Calculus and Matrix Methods, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Summer 2015).
MTH 2205 - 70457, Applied Calculus II, 37, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).
MTH 2205 - 70464, Applied Calculus II, 36, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).
MTH 4100 - 78998, Linear Algebra and Matrix Methods, 38, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2014).
MTH 3020 - 01, Intermediate Calculus, 21, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2014).
MTH 3300 - 03, Algorithms, Computers, and Programming I, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2014).
MTH 2610 - 07, Calculus I, 20, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).
MTH 2140 - 03, Mathematics and Quantitative Reasoning, 28, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).
MTH 2003 - 01, Precalculus and Elements of Calculus, 35, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).
MTH 2003 - 16, Precalculus and Elements of Calculus, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2013).
MTH 3010 - 02, Calculus II, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2013).

Warren Gordon

1. EDUCATION

Degre	Institution	Field	Dates
Ph.D.	New York University (Courant Institute)	Mathematics	1979
M.S.	New York University (Courant Institute)	Mathematics	1970
B.E.	City College – CUNY	Electrical Engineering	1968

2. FULL-TIME ACADEMIC EXPERIENCE

Institute	Rank	Field	Dates
Baruch College	Professor	Mathematics	1/05-present
Baruch College	Associate Professor/Chair	Mathematics	1/85-present
Baruch College	Associate Professor	Mathematics	1/83-12/84
Baruch College	Assistant Professor	Mathematics	1/79-12/82
Baruch College	Lecturer	Mathematics	9/70-12/79

3. NON-ACADEMIC EXPERIENCE

Institution	Title	Field	Dates
New York City Transit Authority	Jr. Elec. Engineer	Engineering	1968-69 (Summers)

4. NON-ACADEMIC EXPERIENCE: None

5. EMPLOYMENT RECORD AT BARUCH

Rank	Dates
Professor/Chair/ Co-Director MFE Program	2/14- present
Professor/Chair	1/05-present
Associate Professor/Chair	1/85-12/05
Associate Professor	1/83-12/04
Assistant Professor	1/79-12/82
Lecturer	9/70-12/79

6. PUBLICATIONS IN FIELD OF EXPERTISE

A. Books:

Gordon, W, Wang, W., and Allen Materowski, A., "Applied Calculus for Business, Economics and Finance, Second Edition" 2015, Pearson Publishing Company, pp. 1-601.

Gordon, W, Wang, W., and Allen Materowski, A., "Applied Calculus," Second Edition, 2015, Pearson Publishing Company, pp1 – 682.

Gordon, W, Wang, W., and Allen Materowski, A., "Applied Calculus," 2006, Pearson

Gordon, W., An Elementary Introduction to Probability, 2009

Gordon, W and Wang, W., "Precalculus and Elements of Calculus," 2005, Pearson Publishing Company, pp. 1– 450.

Gordon, W, and Shane, H., "Matrices and Systems of Linear Equations," Fourth Edition, 2005, Pearson Publishing Company, pp 1 –60.

Gordon, W., "Succeeding in Applied Calculus: Algebra Essentials," 2002, Brooks Cole Publishing Company, pp 1–223.

Gordon, W., "Calculus Preliminaries," 2001, Thompson Learning, pp. 1 – 293.

Gordon, W., and Shane, H., "Topics in Applied Mathematics," 1983, Burgess Publishing Company, pp 1 – 106.

B. Papers in Professional Journals:

(1) Articles

Allen-Materowski, A., Gordon, W., Wang, W., Multivariable Economic Applications in Applied Calculus, MathAMATYC Educator, Vol 1, No. 3, May 2010, pp. 66–68.

Gordon, W., T*he Calculus of Elasticity*, AMATYC Review, Volume 27, Number 2, Spring 2006, pp.53 – 55.

Gordon, W., Variation on Completion of the Square, Journal of he National Council of Teachers of Mathematics, Vol. 99, No. 2, September 2005, p. 85.

Gordon, W., *Not so Mysterious,* Journal of the National Council of Teachers of Mathematics, Vol. 98, No. 3, October 2004, pp.150 – 151.

Gordon, W., *On the Integration of Technology into the Calculus I Curriculum*, AMATYC Review, Vol. 25, No. 2, Spring 2004, pp. 52 – 59.

Gordon, W., *A Uniform Asymptotic Analysis of Dispersive Wave Motion Across a Space Time Shadow Boundary*, Wave Motion, pp. 349 – 369, 1982.

Gordon, W, and Wohlgelernter, D., *A Modified Approach to the Method of Partial Fractions*, AMATYC-Vol. 3, No. 2, pp. 37– 42, Spring 1982

Gordon, and Wohlgelernter, D., *More on Slope, Mathematics Teacher*, Journal of the National Council of Teachers of Mathematics, 73, p.570, 1980.

Donahey, R. and Gordon, W., *An Investment Approach to Geometric Series*, College Mathematics Journal, 11, pp. 120 – 121, 1980.

Gordon, W., On the Distance from a Point to a Line, College Mathematics Journal, 10, pp. 348 – 349, 1979.

Gordon, W., Shane, H., On the Rule of 72, College Mathematics Journal 10, pp. 117 – 118, 1979.

(2) Proceedings:

Gordon, W., Increasing the Pass Pate in Precalculus; A Preliminary Report, Sixth Annual Hawaii Conference on Statistics, Mathematics and related Fields, Jan. 17, 2007, pp.407-410.

(3) Chapters in Books: None
(4) Government Reports or Monographs: None
(5) Book Reviews: None

7. OTHER PUBLICATIONS:

Gordon, W., Shane, H., Elements of Counting and Probability Theory, Baruch College Notes, for MTH 8001, 1998.

Gordon, W., A Brief Introduction to Difference Equations, Baruch College Notes for MTH 4110, 1996.

Gordon, W., Exploring Calculus with Maple, Baruch College Notes for MTH 2610, 1995

8. PRESENTED PAPERS, LECTURES, AND CONFERENCES

Invited Participant at the Pearson Applied Math Forum, Chicago, IL, October 26-October 28, 2011

Increasing the Pass Pate in Precalculus; A Preliminary Report, Sixth Annual Hawaii Conference on Statistics, Mathematics and related Fields, Jan. 17 - 19, 2007.

International Conference on Technology in Collegiate Mathematics, New Orleans, Louisiana, October 28-October 31, 2004.

17th Annual Department Chairs Colloquium, Board on Mathematical Sciences- National Research Council, Washington, D.C., November 8-9, 2002.

International Conference on Technology in Collegiate Mathematics, Orlando Florida, October 31-November 3, 2002.

Managing and Growing Your Department, Board on Mathematical Sciences- National Research Council, Washington, D.C., November 9-10, 2001.

Building Relationships Beyond the Boundary of the Department, Board on Mathematical Sciences- National Research Council, Washington, D.C., November 10-11, 2000.

Building a Community of Chairs, Board on Mathematical Sciences- National Research Council, Washington, D.C., November 12-13, 1999.

Leading, Innovating and Succeeding, Board on Mathematical Sciences- National Research Council, Arlington, Washington, D.C., November 13-14, 1998.

Being More Resourceful and Winning More Resources, Board on Mathematical Sciences- National Research Council, Bethesda, Maryland, November 7-8, 1997.

Preserving Strengths while Meeting Challenges, Board on Mathematical Sciences- National Research Council, Washington, D.C., October 11-12, 1996.

Managing While Science and Education Evolve, Board on Mathematical Sciences- National Research Council, Arlington, Virginia, October 20-21, 1995.

Shaping a New Contract with the University and Society, Board on Mathematical Sciences- National Research Council, Arlington, Virginia, October 28-29, 1994.

The Role of the Mathematical Sciences in the University and In Society, Board on Mathematical Sciences- National Research Council, Arlington, Virginia, October 29-30, 1993.

Chairing the Changing Mathematics Sciences Departments of the 1990s, Board on Mathematical Sciences- National Research Council, Arlington, Virginia, October 16-17, 1992.

Encouraging Talent into The Mathematical Sciences Pipeline, Board on Mathematical Sciences- National Research Council, Arlington, Virginia, October 18-19, 1991.

9. WORK IN PROGRESS

A. Papers submitted to journals for consideration: None.

B. Other completed papers: None.

C. Research in Progress:

The Effectiveness of Uniform Grading on the Grade Distribution in Calculus.

The Klein-Gordon Equation with Exponential Damping Impact Data

10. PROFESSIONAL PRIZES, HONORS AND SCHOLARSHIPS:

None

11. GRANTS-IN AID

2003-2004, $15,000 from the Chancellor's Office for Mathematics Bridge Courses

2002-2003, $15,000 from the Chancellor's Office for Mathematics Bridge Courses

2001-2002, $20,000 from the Chancellor's Office for Mathematics Bridge Courses

2000-2001, $30,000 from the Chancellor's Office for Mathematics Bridge Courses

12. INSTITUTIONAL SERVICE

A. Service to the Department

Chair (1985 - present)

Department Executive Committee (1979 - present)

Deputy Chair and Director of Preparatory Mathematics (1979-85)

Department Curriculum Committee – (70s and 80's)

Department Final Exam Committee – (70s and 80s)

Department Calculus Committee – (70s and 80s)

Department Finite Mathematics Committee – (70s and 80s)

Department Precalculus Committee – (70s and 80s)

Department Actuarial Science Committee – (70s and 80s)

Chair of M.S. in Applied Financial Mathematics Proposal Committee (1999-2001) M.S. Program

Organized the uniform examination procedure for Applied Calculus – (2002-2003)

B. Service to the school

Chair of Dean's Task Force on Faculty Evaluation Procedures (2003)

Dean's Advisory Committee of External Reviews – (2003)

WSAS Dean Search Committee (2001-02, Myrna Chase was appointed)

SLAS Dean Search Committee (1995- Lexa Logue was appointed))

Dean Steven's Task Force on Remediation – (late 70s and early 80s)

Baruch College Campus High School Committee (1998-9)

Advisory Committee for SACC (1998-9)

Chair of Advisory Committee which created SACC – date

Advisory Committee for Curricular Advisement (1999)

SLAS Remediation Study Group (1981)

Chair, SLAS Executive Committee (1993-94)

SLAS Program Review Committee (1995)

Board of Education Re-licensing Program – (late 80s and early 90s)

Chair, School P&B Committee – (2006 – 2010)

Designed courses for College Now Program – (2003 - 2004)

Search Committee for Director of Academic Services (David Potash was appointed)

Search Committee for President (Matthew Goldstein was appointed)

Designed the Mathematics Immersion and Intersession Programs – (80s-90s)

Baruch's Open House (1979)

C. Service to the College

College P&B – (2006 – 2010)

Member of Faculty Senate (1981-83)

Prefreshman Advisement – (70s, 80s and 90s)

Baruch Scholar Interviewer (1982)

Freshman Orientation (1970s)

Faculty Advisor to House Plan Association (1972-74)

Weekend College Committee (1986)

Project BETA (1991)

Committee on the Freshman Year (1991)

Baruch Multicultural Workshops (1993)

SEES Task Force (1993)

Baruch AMP Director (1994-5)

Commencement Marshall (1993-present)

Exemplary and Innovative Pilot Programs on Retention (1986-87)

Committee on students transferring to Baruch from Community Colleges (April, 2005)

D. Service to the Graduate Center

Co-Advisor for a graduate student. – Fall 2003

E. Service to the City University

Vice Chancellor's Task Force on Articulation (1986)

Chair, CUNY Mathematics Discipline Committee (2010 – present)

Member of CUNY Mathematics Discipline Council (1994–present)

Member, UFS Committee of Academic Affairs (2014 – present)

Vice Chancellor's Task Force on Remediation (2015 – present)

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

None

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE

Member of the Mathematical Association of America

Reviewer for the College Mathematical Journal

15. TEACHING ACTIVITIES AT BARUCH

A. Courses Taught

MTH 2000 - Precalculus
MTH 2003 – Precalculus

MTH 2100 - Finite Mathematics

MTH 2205 – Applied Calculus

MTH 2206 - Applied Calculus

MTH 2207 - Applied Calculus and Matrix Algebra

MTH 2610 - Calculus I

MTH 3010 - Calculus II

MTH 3020 - Calculus III

MTH 3120 – Elementary Probability

MTH 3120 - Probability

MTH 4100 - Linear Algebra

MTH 4110 - Differential Equations

MTH 4120 - Mathematical Probability

MTH 152/3 - Mathematics of Finance

MTH 2300 - Discrete Mathematics

MTH 2001 - Precalculus

MTH 1030 - College Algebra

CSTM 0100 - Preparatory Mathematics I

CSTM 0120 - Intermediate Algebra

MTH 51 - Elementary Algebra

MTH 53 - Intermediate Algebra

B. New courses/programs developed:

B.S, in Financial Mathematics

M.S. in Applied Mathematics for Finance

Chaired the Committee and wrote the proposal for the formation of SAAC

Remedial Programs at Baruch

Continuing Education Mathematics Program

College Algebra,

Precalculus

Applied Calculus

Calculus

Discrete Mathematics

Differential Equations

Linear Algebra

Douglas Howard

1. EDUCATION:

Degree	Institution	Field	Dates
PhD	Courant Institute of Mathematical Sciences	Mathematics	1995

MBA	Columbia University	Finance	1982
BS	Massachusetts Institute of Technology	Mathematics	1977

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Associate Professor	Mathematics	2002 - Present
Baruch College	Assistant Professor	Mathematics	1998 - 2001
Polytechnic University	Assistant Professor	Mathematics	1996 - 1998
Polytechnic University	Instructor	Mathematics	1995 - 1996

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Courant Institute	Instructor	Mathematics	1994

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates
Salomon Brothers Inc. Fixed Income Research	Vice President	1985 - 1990

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Associate Professor	2002 - Present
Assistant Professor	1998 - 2001

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

Howard, C. Douglas (2017). *Elements of Stochastic Processes: A Computational Approach*. New York, NY: FE Press.

B. Papers in Professional Journals:

(1) Articles:

Howard, C. Douglas (2018). It's Puzzling. *College Mathematics Journal, 49:4*.

Kalotay, A., & Howard, C. Douglas (2014). The Tax Option in Municipal Bonds. *The Journal of Portfolio Management, 40(2)*, 94-102.

Howard, C. Douglas, & Newman, C. M. (2003). The Percolation Transition for the Zero-Temperature Stochastic Ising Model on the Hexagonal Lattice. *Journal of Statistical Physics, 111*, 57-72.

Howard, C. Douglas (2001). Differentiability and Monotonicity of Expected Passage Time in Euclidean First-Passage Percolation. *Journal of Applied Probability, 38*, 815-827.

Howard, C. Douglas, & Newman, C. M. (2001). Geodesics and Spanning Trees for Euclidean Models of First-Passage Percolation. *Annals of Probability, 29*, 577-623.

Howard, C. Douglas (2000). Lower Bounds for Point-to-Point Wandering Exponents in Euclidean First-Passage Percolation. *Journal of Applied Probability, 37*, 1061-1073.

Howard, C. Douglas (2000). Obtaining Distributional Information from Valuation Lattices. *Applied Mathematical Finance, 7*, 101-114.

Howard, C. Douglas (2000). Zero-Temperature Ising Spin Dynamics on the Homogeneous Tree of Degree Three. *Journal of Applied Probability, 37*, 736-747.

Howard, C. Douglas (1998). Good Paths Don't Double Back. *The American Mathematical Monthly, 105*, 354-357.

Howard, C. Douglas (1997). Distinguishing Certain Random Sceneries on Z via Random Walks. *Statistics and Probability Letters, 34*, 123-132.

Howard, C. Douglas, & Newman, C. M. (1997). Euclidean Models of First-Passage Percolation. *Probability Theory and Related Fields, 108*, 153-170.

Howard, C. Douglas (1996). Detecting Defects in Periodic Scenery by Random Walks on Z. *Random Structures and Algorithms, 8*, 59-74.

Howard, C. Douglas (1996). Orthogonality of Measures Induced by Random Walks with Scenery. *Combinatorics, Probability, & Computing, 5*, 247-256.

(2) Proceedings:

Howard, C. Douglas, Newman, C. M., (M. Bramson and R. Durrett, eds.), Birkhauser, 107-119, "From Greedy lattice Animals to Euclidean Models of First-Passage Percolation, Perplexing Problems in Probability: Papers in Honor of Harry Kesten", published in proceedings. (1999).

C. Chapters in Books:

Howard, C. Douglas (2004). Models of First-Passage Percolation, Probability on Discrete Structures. In H. Kesten (Ed.), *Encyclopaedia Math. Sc* (pp. 125-174). Springer-Verlag.

Howard, C. Douglas (2002). In F. J. Fabozzi (Ed.), *Valuing Path-Dependent Securities, Interest Rate, Term structure, and valuation Modeling* (pp. 421-442). John Wiley and Sons.

Howard, C. Douglas (1999). Valuing Path-Dependent Securities: Some Numerical Examples. In D. F. Babbel & F. J. Fabozzi (Eds.), *Investment Management for Insurers* (pp. 269-286). Frank J. Fabozzi Associates.

Howard, C. Douglas (1996). Numerical Pitfalls of Latticed-Based Duration and Convexity Calculations, Advances. In F. J. Fabozzi (Ed.), *Fixed-Income Valuation Modeling and Risk Management* (pp. 327-336). Frank J. Fabozzi Associates.

Howard, C. Douglas (1996). Valuing Path-Dependent Securities: Some Numerical Examples, Advances. In F. J. Fabozzi (Ed.), *Fixed-Income Valuation Modeling and Risk Management* (pp. 49-68). Frank J. Fabozzi Associates.

Howard, C. Douglas, & Kalotay, A. J. (1988). Embedded Call Options and Refunding Efficiency, Advances. In F. J. Fabozzi (Ed.), *Futures and Options Research* (vol. 3, pp. 97-117). JAI press Inc.

Howard, C. Douglas, & Kalotay, A. J. (1987). *Long-Term Debt and equity Markets and Instruments, Handbook of Financial Markets and Institutions*. (vol. 5, pp. 1-5.37). John Wiley and Sons.

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Howard, C. Douglas, Conference on Particle Systems, Iowa Sate University, "Euclidean First-Passage Percolation". (April 2001).

Howard, C. Douglas, John Hopkins University, "Euclidean First-Passage Percolation". (November 13, 2000).

Howard, C. Douglas, CUNY Graduate Center, "Zero-Temperature Ising Spin Dynamics". (November 16, 1999).

Howard, C. Douglas, CUNY Graduate Center, "Euclidean First-Passage Percolation". (October 26, 1998).

Howard, C. Douglas, NYU's Courant Institute, "Euclidean First-Passage Percolation". (October 2, 1998).

Howard, C. Douglas, Newman, C. M., A Conference in Probability at Cornell in Honor of Harry Kesten. (July 1998).

Howard, C. Douglas, Institute for Advanced Study / Park City Mathematics Institute Research Program. (July 1996).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

B. Other completed papers.

C. Research in progress.

Radoicic, Rados, Howard, C. Douglas, "On a Continuous Version of the Gamow-Stern Elevator Problem", Writing Results, Scholarly.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Eugene Lang Junior Faculty Research Fellowship , $3000. (2001).
Project title: Disordered Systems
2000-2001

Dean's Dissertation Fellowship, New York University. (1995).
1994-1995

General Motors Fellowship, Columbia University. (1982).
1980-1982

Phi Beta Kappa, Massachusetts Institute of Technology. (1977).

11. GRANTS-IN-AID:

Howard, C. Douglas, Grant, "RUI: First-passage Percolation and Other Disordered Systems, Grant #0203943", National Science Foundation, Division of Mathematical Sciences(Probability), $82,269.00. (start: June 1, 2002, end: May 31, 2005).

Howard, C. Douglas, Grant, "Studies in First-Passage Percolation and random walks with Scenery, Grant #9815226", National Science Foundation, Division of Mathematical Sciences(Probability), $77,394.00. (start: September 1, 1998, end: August 31, 2001).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Student Advisory duty as assigned.

BS in Financial Mathematics, Coordinator, Appointed. (2016 - Present).

Actuarial Committee. (September 1999 - Present).

Committee on the M.S. in Applied Mathematics for Finance. (September 1998 - Present).

Executive Committee, Elected, Pro Bono. (January 31, 2017 - 2018).

Advisor to Majors. (September 2002 - May 2008).

Executive Committee. (September 2000 - March 2003).

Final Exam Committee. (September 1998 - September 2001).

Graduate Committee. (September 1999 - March 2000).

B. Service to the School

2002 Weissamn New York City high school essay competition, Judge. (2002).

Globus Committee. (2001 - 2002).

2001 Weissamn New York City high school essay competition, Judge. (2001).

C. Service to the College

Faculty Senate of Baruch College Committee on Planning and Finance. (September 1998 - September 1999).

D. Service to the Graduate Center

E. Service to the University

Referee. (September 1999).
CUNY Research Foundation grant proposal

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

American Mathematical Society, Mathematical Association of America, Member.

Annals of Probability, Annals of Applied Probability, Probability Theory and related Fields, Journal of Applied Probability, Random Structures and Algoritms, Electronic Journal of Probability, National Science Foundation, Refereee.

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 3040, Actuarial Science Theory and Problem Seminar.
MTH 9871, Advanced Computational Methods in Finance, new course preparation.
MTH 9871, Advanced Computational Methods in Finance.
With colleagues, developed M.S. program in Applied MAthematics for Finance, Applied MAthematics for Finance, new course preparation.
MTH 2010, Elementary Calculus.
MTH 9873, Interest Rate Models and Interest Rate Derivatives.
MTH 9873, Interest Rate Models and Interest Rate Derivatives, new course preparation.
FIN U832, Interest Rate Term Structure Modeling, new course preparation.
FIN U832, Interest Rate Term Structure Modeling (Graduate Center).
MTH 4120, Introduction to Probability.
MTH 4100, Linear Algebra.
MTH 4130, Mathematics of Statistics.
MTH 4135, Methods of Monte Carlo Simulation, new course preparation.

MTH 4135, Methods of Monte Carlo Simulation.
MTH 9831, Real Analysis and Probability (M.S. program).
MS 9831, Real Analysis and Probability (M.S. program), new course preparation.
MTH 4451, Risk Theory.
PHYS 45165, Stochastic Processes and Disordered Systems, new course preparation.
PHYS 45165, Stochastic Processes and Disordered Systems (Graduate Center).
MS 9862, Stochastic Processes in Finance.
MS 9862, Stochastic Processes in Finance (MS program), new course preparation.
Data Analysis and Simulation for Financial Engineers, (Spring 2017).
MTH 4125, Intrtoduction to Stochastic Processes, (Fall 2016).

B. New courses/programs developed

MTH 9871, Advanced Computational Methods in Finance, new course preparation.
With colleagues, developed M.S. program in Applied MAthematics for Finance, Applied MAthematics for Finance, new course preparation.
MTH 9873, Interest Rate Models and Interest Rate Derivatives, new course preparation.
FIN U832, Interest Rate Term Structure Modeling, new course preparation.
MTH 4135, Methods of Monte Carlo Simulation, new course preparation.
MS 9831, Real Analysis and Probability (M.S. program), new course preparation.
PHYS 45165, Stochastic Processes and Disordered Systems, new course preparation.
MS 9862, Stochastic Processes in Finance (MS program), new course preparation.

Areeba Ikram

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University of Nebraska - Lincoln	Mathematics	2018
MS	University of Nebraska - Lincoln	Mathematics	2014
BS	University of Texas - Austin	Mathematics	2012

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Lecturer Doctoral Schedule	Mathematics	August 2020 - Present
Colorado School of Mines	Postdoctoral Teaching Fellow	Mathematics	August 2018 - August 2020

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
New York University Courant	Adjunct Assistant Professor	Computer Science	May 2021 - August 2021

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Lecturer Doctoral Schedule	August 2020 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:
   A. Books:

B. Papers in Professional Journals:
   (1) Articles:

   (2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

9. WORK IN PROGRESS:
   A. Papers submitted to journals for consideration.

   B. Other completed papers.

   C. Research in progress.

      Ikram, Areeba, Blyschak, Danyil, Jones, Christina, Ahrendt, Kevin, "Coupled Solutions to a Discrete Nabla Caputo Fractional Boundary Value Problem", Writing Results, Scholarly.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:
   A. Service to the Department

      Final Exam Committee, Committee Member. (2020 - 2021).

   B. Service to the School

   C. Service to the College

D. Service to the Graduate Center

E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 3300 - KMWA, Algorithms/Comp Programming, (Fall 2021).
MTH 3300 - SMWA, Algorithms/Comp Programming, (Fall 2021).
MTH 4100 - DMWA, Linear Alg & Matrix Methods, 3 credit hours, (Fall 2021).
MTH 3300 - SMWA, Algorithms/Computer Programming, (Spring 2021).
MTH 3050 - JMWA, Calculus III and Vector Calculus, (Spring 2021).
MTH 2205 - KMWC, Precalculus & Elements of Calculus, (Spring 2021).
MTH 3035 - 2HWA, Vector Calculus, (Spring 2021).
MTH 2610 - HMWA, Calculus I, 35, (Fall 2020).
MTH 2610 - KMWC, Calculus I, 38, (Fall 2020).
MTH 3010 - JMWA, Calculus II, 32, (Fall 2020).

B. New courses/programs developed

Elena Kosygina

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	New York University	Mathematics	1999
Candidate of Science	Moscow State University	Physics and Mathematics	1995
Diploma (with distinction)	Moscow State University	Mathematics	1989

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Full Professor	Mathematics	August 27, 2013 - Present
CUNY Graduate Center	Doctoral Faculty	Mathematics	September 1, 2005 - Present
Baruch College	Associate Professor	Mathematics	January 1, 2008 - August 27, 2013
Baruch College	Assistant Professor	Mathematics	September 1, 2002 - December 31, 2007
Northwestern University	R. Boas Assistant Professor	Mathematics	September 1, 1999 - August 31, 2002

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
New York University, Shanghai	Visiting Professor	Mathematics	February 1, 2020 - March 31, 2020
Fields Institute, Toronto	Fields Research Fellow	Mathematics	November 22, 2019 - December 22, 2019
Sapienza – Università di Roma	Visiting Professor	Mathematics	October 1, 2019 - October 31, 2019

Centre International de Rencontres Mathématiques	Program Participant	Mathematics	May 23, 2017 - June 9, 2017
Mathematisches Forschungsinstitut Oberwolfach	Researcher, Program "Research in Pairs"	Mathematics	February 22, 2015 - March 20, 2015
Institut Mittag-Leffler, The Royal Swedish Academy of Sciences	Program Participant	Mathematics	October 1, 2014 - December 12, 2014
Fields Institute, Toronto	Program Participant	Mathematics	January 2, 2011 - January 29, 2011
Universität Tübingen	Guest Professor	Mathematics	April 27, 2009 - May 22, 2009
Institute for Advanced Study	Member	Mathematics	January 12, 2009 - April 12, 2009
Institut Henri Poincaré	Program Participant	Mathematics	September 3, 2008 - December 18, 2008
École Polytechnique Fédérale de Lausanne	Guest Researcher	Mathematics	June 23, 2008 - July 9, 2008
New York University	Research Assistant	Mathematics	September 1, 1994 - May 31, 1999
New York University	Teaching Assistant	Mathematics	September 1, 1994 - May 31, 1999
Moscow State University	Instructor	Mathematics	September 1, 1990 - June 30, 1991

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Full Professor	August 27, 2013 - Present
Associate Professor	January 1, 2008 - August 27, 2013
Assistant Professor	September 1, 2002 - December 31, 2007

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Kosygina, E., Mountford, T., & Peterson, J. (2021). Convergence of random walks with Markovian cookie stacks to Brownian motion perturbed at extrema. *Probability Theory and Related Fields*, 87 pp.. https://link.springer.com/article/10.1007%2Fs00440-021-01055-3

Kosygina, E., Yilmaz, A., & Zeitouni, O. (2020). Homogenization of a class of one-dimensional non-convex viscous Hamilton-Jacobi equations with random potential. *Communications in Partial Differential Equations, 45*(1), 32-56.

Davini, A., & Kosygina, E. (2017). Homogenization of viscous and non-viscous HJ equations: a remark and an application. *Calculus of Variations and Partial Differential Equations, 56*(4, Art. 95), 21 pp..

Kosygina, E., & Zerner, M. P. W. (2017). A zero-one law for recurrence and transience of frog processes. *Probability Theory and Related Fields, 168*(1-2), 317 - 346.

Kosygina, E., & Peterson, J. (2017). Excited random walks with Markovian cookie stacks. *Annales de l'Institut Henri Poincare, 53*(3), 1458 - 1497.

Kosygina, E., & Peterson, J. (2016). Functional limit laws for recurrent excited random walks with periodic cookie stacks. *Electronic Journal of Probability, 21*(paper no. 70), 24 pp.. http://projecteuclid.org/euclid.ejp/1480688087

Dolgopyat, D., & Kosygina, E. (2015). Excursions and occupation times of excited random walks. *ALEA, Latin American Journal of Probability and Mathematical Statistics, 12*(1), 427-450.

Kosygina, E., & Zerner, M. P. W. (2014). Excursions of excited random walks on integers. *Electronic Journal of Probability, 18*(25), 1-25.

Kosygina, E. (2013). Crossing speeds of random walks among "sparse" or "spiky" Bernoulli potentials on integers. *Journal of Statistical Physics, 152*(2), 213-236.

Kosygina, E., & Zerner, M. P. W. (2013). Excited random walks: results, methods, open problems. *Bulletin of the Institute of Mathematics, Academia Sinica. New Series, 8*(1), 1-53.

Kosygina, E., & Mountford, T. (2012). Crossing velocities for an annealed random walk in a random potential. *Stochastic Processes and their Applications, 122*(1), 277-304.

Dolgopyat, D., & Kosygina, E. (2012). Scaling limits of recurrent excited random walks on integers. *Electronic Communications in Probability, 17*(35), 1-14.

Kosygina, E., & Mountford, T. (2011). Limit laws of transient excited random walks on integers. *Annales de l'Institute Henri Poincare, 47*(2), 575-600.

Kosygina, E., Mountford, T. S., & Zerner, M. P.W. (2011). Lyapunov exponents of Green's functions for random potentials tending to zero. *Probability Theory and Related Fields, 150*(1-2), 43-59.

Kosygina, E., & Varadhan, S.R.S. (2008). Homogenization of Hamilton-Jacobi-Bellman equations with respect to time-space shifts in stationary ergodic medium. *Communications on Pure and Applied Mathematics, 61*(6), 816-847.

Kosygina, E., & Zerner, M. P. W. (2008). Positively and negatively excited random walks on integers, with branching processes. *Electronic Journal of Probability, 13*(64), 1952-1979.

Kosygina, E. (2006). Brownian flow on a finite interval with jump boundary conditions. *Discrete and Continuous Dynamical Systems, Series B, 6*(4), 867-880.

Kosygina, E., Rezakhanlou, F., & Varadhan, S.R.S. (2006). Stochastic homogenization of Hamilton-Jacobi-Bellman Equations. *Communications on Pure and Applied Mathematics, 59*(10), 1489-1521.

Kosygina, E. (2001). On the Cauchy problem for the generalized porous medium equation. *Communications in Partial Differential Equations, 26*(5-6), 841-858.

Kosygina, E. (2001). The behavior of the specific entropy in the hydrodynamic scaling limit. *The Annals of Probability, 29*(3), 1086-1110.

Kosygina, E. (2001). The behavior of the specific entropy in the hydrodynamic scaling limit for Ginzburg-Landau model. *Markov Processes and Related Fields, 7*(3), 383-417.

Kosygina, E. (1995). Exact anisotropic solutions of a multidimensional equation of non-stationary flow in a porous medium. *Computational Mathematics and Mathematical Physics, 35*(2), 191-205.

Kosygina, E. (1995). On the propagation of perturbations in two-dimensional porous media. *Moscow University Mathematics Bulletin, 50*(3), 32-35.

Kosygina, E. (1990). The Cauchy problem in classes of growing functions for an equation with diffusion that slows with increasing density (Russian). *Matematicheskie Zametki, 48*(5), 146-148.

Kosygina, E. (1989). Conditions for the solvability in the large of the first boundary value problem for some semi-linear parabolic equations. *Moscow University Mathematics Bulletin, 44*(4), 74-77.

(2) Proceedings:

Kosygina, E., Proceedings of the 14th and 15th Conferences of Young Scientists, dedicated to the 90th birthday of A. N. Kolmogorov, 71-75 (book), Moscow State University, "New exact solutions of the multidimensional nonlinear diffusion Equation (Russian)", published in proceedings. (1994).

Kosygina, E., Proceedings of the joint meetings of I.G. Petrovsky seminar and the Moscow Mathematical Society, Uspekhi Matematicheskih Nauk, 49 (4) 98-99; translation in Russian Mathematical Surveys, 49(4), 98-99, "On the solvability of the Cauchy problem in the classes of growing functions for some non-linear degenerate parabolic equations (Russian)", published in proceedings. (1994).

C. Chapters in Books:

Kosygina, E. (2007). *Homogenization of Stochastic Hamilton-Jacobi Equations: Brief Review of Methods and Applications*. (pp. 189-204). Stochastic Analysis and Partial Differential Equations, Series of Comtemporary Mathematics, Vol. 429, American Mathematical Society.

D. Government Reports or Monographs:

E. Book Reviews:

Kosygina, E. (2009). *Invited review of the monograph: Stroock, D. W.,"Partial Differential Equations for Probabilists", Cambridge University Press, New York, 2008, xv+215*. [Review of the Book *Monograph* by D. W. Stroock]. Journal of American Statistical Association, 104 (492), pp. 1722-1723.

7. <u>OTHER PUBLICATIONS:</u>

Kosygina, E. (1999). *The behavior of the relative entropy in the hydrodynamic scaling limit, Ph. D. Thesis*. (pp. 1-113). Courant Institute of Mathematical Sciences, New York University.

Kosygina, E. (1995). *Cauchy problem in classes of growing functions for equations of fast diffusion type (Russian)*. (pp. 1-89). Dissertation for Candidate degree in Physics and Mathematics, Moscow State University.

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Kosygina, E. (Presenter & Author), Mountford, T. (Author Only), Peterson, J. (Author Only), Probability and the City Seminar, "From generalized Ray-Knight theorems to functional CLTs for some models of self-interacting random walks on Z". (April 2, 2021).

Kosygina, E., CUNY GC MathFest, CUNY Graduate Center, New York, NY, "Excited Random Walks, or bribing with cookies". (November 13, 2020).

Kosygina, E., Davini, A., Workshop: Stochastic Analysis Related to Hamilton-Jacobi PDEs, Institute for Pure & Applied Mathematics, Los Angeles, CA, "Stochastic homogenization of a class of nonconvex viscous HJ equations in one space dimension PDF", Workshop, International, Invited. (May 19, 2020).

Kosygina, E., Analysis Seminar, Sapienza University of Rome, Rome, Italy, "Stochastic homogenization of viscous Hamilton-Jacobi equations with non-convex Hamiltonians: examples and open questions". (October 14, 2019).

Kosygina, E., CUNY GC MathFest, CUNY Graduate Center, New York, NY, "Excited Random Walks, or bribing with cookies". (November 2, 2018).

Kosygina, E., BMCC Mathematics Colloquium, BMCC, CUNY, New York, NY, "Excited Random Walks, or bribing with cookies". (October 23, 2018).

Kosygina, E., Random walks in correlated and dynamical environments, A&M University, College Station, TX, "On characterizing the behavior of self-interacting random walks on Z from the local times", Workshop, International, Invited. (August 15, 2018).

Kosygina, E., Matic, I., Northwestern Summer School in Probability, Northwestern University, Evanston, IL, "Mini-course: Large Deviations through Examples". (July 2018).

Kosygina, E., AMS Sectional Meeting, AMS, Northeastern University, Boston, MA, "Homogenization of a class of one-dimensional non-convex viscous Hamilton-Jacobi equations with random potential". (April 21, 2018).

Kosygina, E., Classical and quantum motion in disordered environment, Queen Mary University of London, London, UK, "Homogenization of viscous Hamilton-Jacobi equations with non-convex Hamiltonian: examples and open questions", Conference, International. (December 22, 2017).

Kosygina, E., 39-th Conference on Stochastic Processes and their Applications, Bernoulli Mathematical Society, Moscow, Russia, "Excited random walks in Markovian cookie environments on Z", Conference, International, Invited. (July 27, 2017).

Kosygina, E., Random Walks in Random Environments, Centre International de Rencontres Mathematiques, Luminy, Marseille, France, "Homogenization of non-convex viscous HJ equations", Workshop, International, Invited. (May 26, 2017).

Kosygina, E., Cornell Probability Seminar, Cornell University, Ithaca, "Excited random walks in markovian cookie environments on Z", Invited. (October 24, 2016).

Kosygina, E., Probability Seminar, University of Wisconsin, Madison, "Homogenization of viscous Hamilton-Jacobi equations: a remark and an application", Invited. (September 23, 2016).

Kosygina, E., Conference in Honor of the 75-th birthday of S.R.S. Varadhan, Weierstrass Institute for Applied Analysis and Stochastics, Berlin, Germany, "Homogenization of viscous Hamilton-Jacobi equations: a remark and an application", Invited. (August 18, 2016).

Kosygina, E., Workshop on Random Interacting Systems, University of Bath, Bath, UK, "Zero-one laws for recurrence and transience of frog processes", published elsewhere, Invited. (June 19, 2016).

Kosygina, E., Workshop on percolation, spin glasses and random media, Northwestern University, Evanston, "Zero-one laws for recurrence and transience of frog processes", published elsewhere, Invited. (May 28, 2016).

Kosygina, E., Courant Probability and Mathematical Physics Seminar, New York University, New York, "Excited random walks in markovian cookie environments on Z". (April 15, 2016).

Kosygina, E., New Zealand Probability Workshop, University of Aukland, Paihia, New Zealand, "Excited random walks in markovian cookie environments on Z", Invited. (January 6, 2016).

Kosygina, E., Probability seminar, Tuebingen Unversity, Tuebingen, Germany, "Excited random walks in markovian cookie environments on Z". (July 20, 2015).

Kosygina, E., Stochastic Analysis and Related Topics, Purdue University, West Lafayette, "Excited random walks in markovian cookie environments on Z". (May 20, 2015).

Kosygina, E., CUNY Probability seminar, CUNY Graduate Center, New York, "Excited random walks in random cookie environments". (May 12, 2015).

Kosygina, E., Probability and Mathematical Physics seminar, University of Arizona, Tucson, "Excited random walks in markovian cookie environments on Z". (April 15, 2015).

Kosygina, E., AWM Research Symposium, Association for Women in Mathematics (AWM), University of Maryand, College Park, "Excited random walks in random cookie environments". (April 11, 2015).

Kosygina, E., Random Motion in Random Media, Technical University Eindhoven and Eurandom, Eindhoven, Netherlands, "Remarks on a homogenization problem for stochastic HJB equations with a non-convex Hamiltonian", Workshop. (March 30, 2015).

Kosygina, E., Control, Dynamics, and PDE, University of Rome, La Sapienza, Rome, Italy, "On the connection between large deviations of diffusions in random environments and homogenization of some stochastic Hamilton-Jacobi-Bellman equations", Seminar. (March 27, 2015).

Kosygina, E., Probability Seminar (La Sapienza University, Rome), La Sapienza University, Rome, Italy, "Excited Random Walks in Random Cookie Environments on Z", Seminar. (March 25, 2015).

Kosygina, E., Homogenization and Random Phenomenon, Institute Mittag-Leffler, Djursholm, Sweden, "On the connection between large deviations of diffusions in random environments and homogenization of some stochastic Hamilton-Jacobi-Bellman equations". (October 30, 2014).

Kosygina, E., Mathematical Finance, Probability, and PDE seminar, Rutgers University, New Brunswick, NJ, "Excited random walks, or the "cookie" phenomenon", Invited. (September 2014).

Kosygina, E., Women in Probability, Munich, Germany, "Excursions of excited random walks on integers.", Workshop, Invited. (June 14, 2014).

Kosygina, E., Mathematics Department Research Seminar, Baruch College, "Excited random walks, or the "cookie phenomenon"". (May 2014).

Kosygina, E., AMS Sectional Meeting, Baltimore, MD, "Excited random walks, or the "cookie" phenomenon", Conference, Invited, ekosygina/present/AMSOpenProb-1.pdf. (March 30, 2014).

Kosygina, E., Duke Probability Seminar, Duke University, Durham, "Excited random walks". (February 2013).

Kosygina, E., Probability and Mathematical Physics Seminar, Courant Institute of Mathematical Sciences, NYU, New York, NY, "Crossing speeds of random walks among "sparse" and "spiky" Bernoulli potentials on integers". (February 2013).

Kosygina, E., Random Networks & Environments Workshop, Boğaziçi University, Istanbul, Turkey, "On the speed of one-dimensional random walk conditioned to hit a remote location among Bernoulli potentials", Invited. (July 2012).

Kosygina, E., Oberseminar Stochastik, Universität Tübingen, Tübingen, Germany, "On the speed of one-dimensional random walk conditioned to hit a remote location among Bernoulli potentials". (June 2012).

Kosygina, E., Random Walks and Random Media Workshop, Mathematical Sciences Research Institute, Berkeley, "Excited random walks on the d-dimensional integer lattice", Invited. (May 2012).

Kosygina, E., 33-d Midwest Probability Colloquium, Northwestern University, Evanston, "Crossing velocities for annealed random walks in a random potential", Invited. (October 2011).

Kosygina, E., 40 Years and Counting: AWM's Celebration of Women in Mathematics, Brown University, Providence, "Limit laws of excited random walks on integers", Conference, Invited. (September 2011).

Kosygina, E., A Conference in Honor of the 70th Birthday of S.R.S. Varadhan, National Taiwan University, Taipei, Taiwan, "Scaling limits of excited random walks on integers", Invited. (July 2011).

Kosygina, E., Random Environments Conference, Cornell University, Ithaca, "Crossing velocities for annealed random walks in random potentials", Invited. (May 2011).

Kosygina, E., Analysis and Probability Seminar, University of Connecticut, Storrs, "Scaling limits of excited random walks on integers". (April 2011).

Kosygina, E., Probability Seminar, University of Toronto and Fields Institute, Toronto, "Crossing velocities for annealed random walks in random potentials". (January 2011).

Kosygina, E., CUNY Probability Seminar, CUNY Graduate Center, New York, "Crossing velocities for annealed random walks in random potentials". (December 2010).

Kosygina, E., Probability Seminar, University of Utah, Salt Lake City, "Crossing velocities for annealed random walks in random potentials". (December 2010).

Kosygina, E., 73-d Annual Meeting of the Institute of Mathematical Statistics, Institute of Mathematical Statistics, Chalmers University of Technology, Gothenburg, Sweden, "Limit laws of transient excited random walks on integers", Invited. (August 2010).

Kosygina, E., Mathematics Colloquium, Iowa State University, Ames, "Excited random walks on integers". (May 2010).

Kosygina, E., Workshop on Deterministic and Stochastic Front Propagation, Banff International Research Station for Mathematical Innovation and Discovery, Banff, Canada, "On random walks in a random potential conditioned to hit a remote location", Invited. (March 2010).

Kosygina, E., Probability Seminar, University of Utah, Salt Lake City, "Limit laws of excited random walks on integers". (November 2009).

Kosygina, E., Probability Seminar, University of Maryland, College Park, "Limit laws of excited random walks on integers". (November 2009).

Kosygina, E., CUNY Probability Seminar, CUNY Graduate Center, New York, "Limit laws of excited random walks on integers". (October 2009).

Kosygina, E., Probability Seminar, University of Minnesota, Minneapolis, "Limit laws of excited random walks on integers". (October 2009).

Kosygina, E., 33rd Conference on Stochastic Processes and their Applications, Bernoulli Society for Mathematical Statistics and Probability; Institute of Mathematical Statistics, Technische Universitat Berlin, "Limit laws of excited random walks on integers", Invited. (July 2009).

Kosygina, E., Mathematical Physics Seminar, Institute for Advanced Study, Princeton, "On Lyapunov exponents of Green's function for diffusions and random walks in a random potential". (February 2009).

Kosygina, E., Institute Henri Poincare, Paris, "Positively and negatively excited random walks on integers". (December 2008).

Kosygina, E., Workshop on Random Walks, Particle Systems, and Random Media, Pontificia Universidad Catolica de Chile, Santiago, Chile, "Positively and negatively excited random walks on integers". (January 2008).

Kosygina, E., 32-nd conference Stochastic Processes and Applications, Bernoulli Society for Mathematical Statistics and Probability; Institute of Mathematical Statistics, Urbana-Champaign, "Homogenization of Hamilton-Jacobi-Bellman Equations with respect to time-space shifts in a stationary ergodic medium", Invited. (August 2007).

Kosygina, E., CUNY Probability Seminar, City University of New York, New York, "Recent results about Multi-Excited Random Walks". (May 2007).

Kosygina, E., Probability Seminar, University of Toronto, Toronto, "Homogenization of Hamilton-Jacobi-Bellman Equations with respect to time-space shifts in a stationary ergodic medium". (March 2007).

Kosygina, E., Reaction-diffusion and Free Boundary Problems workshop, Banff International Research Station, Banff, Canada, "Homogenization of Hamilton-Jacobi-Bellman Equations with respect to time-space shifts in a stationary ergodic medium", International, Invited. (March 2006).

Kosygina, E., Probability Seminar, University of Delaware, Newark, DE, "Homogenization of Stochastic Hamilton-Jacobi-Bellman Equations". (February 2006).

Kosygina, E., Department of Mathematics Colloquium, University of Tuebingen, Tübingen, Germany, "Stochastic Homogenization of Hamilton-Jacobi Equations". (January 2006).

Kosygina, E., International Conference "Large Scale Behavior of Interacting Particle Systems", Renyi Institute, Budapest, Hungary, "Homogenizarion of stochastic Hamilton-Jacobi equations with a time dependent Hamiltonian", Invited. (August 2005).

Kosygina, E., Congress on Homogenization in Random Media, Centre International de Rencontres Mathematiques, Marseille, France, "Stochastic homogenization of Hamilton-Jacobi equation with a vanishing viscous term", Invited. (July 2005).

Kosygina, E., Courant Institute Probability and Mathematical Physics Seminar, New York Universtiy, New York, "Homogenization of stochastic Hamilton-Jacobi equation with a vanishing viscous term". (March 2005).

Kosygina, E., CUNY Probability Seminar, Graduate Center of the City University of New York, New York, "Homogenization of stochastic Hamilton-Jacobi equation with a vanishing viscous term". (February 2005).

Kosygina, E., Computational and Applied Mathematical Program/Non-linear PDE's seminar, University of Chicago, Chicago, "Homogenization of stochastic Hamilton-Jacobi-Bellman equations". (January 2004).

Kosygina, E., International Conference "Percolation, Particle Systems, and Random Media", Pontificia Universidad Catolica de Chile, Santiago, Chile, "Homogenzation of stochastic Hamilton-Jacobi equations". (January 2004).

Kosygina, E., Caltech Analysis Seminar, California Insitute of Technology, Pasadena, "On the homogenization of stochastic Hamilton-Jacobi equations with a vanishing viscosity term". (December 2003).

Kosygina, E., Dynamical Systems Seminar, University of Maryland, College Park, "Homogenization of stochiastic Hamilton-Jacobi equations". (November 2003).

Kosygina, E., Workshop on connections between dynamical systems and PDEs, American Institute of Mathematics, Palo Alto, "Homogenization of stochastic Hamilton-Jacobi equations with a vanishing viscosity term". (July 2003).

Kosygina, E., Columbia University Probabilty Semiar, Columbia University, New York, "The long term behavior of the Brownian flow with jumps". (February 2003).

Kosygina, E., CUNY Probability Seminar, CUNY Graduate Center, New York, "The long term behavior of the Brownian flow with jumps". (November 2002).

Kosygina, E., Sectional Meeting of the American Mathematical Society, University of Wisconsin, Madison, "Remarks on homogenization of Hamilton-Jacobi equations", Invited. (October 2002).

Kosygina, E., Internship in Probability Program, University of Wisconisn, Madison, "The behavior of the relative entropy in the hydrodynamic scaling limit". (July 2002).

Kosygina, E., Probability Seminar, Northwestern University, Evanston, "Homogenization of stochastic Hamilton-Jacobi equations". (May 2002).

Kosygina, E., Probability Seminar, University of Wisconsin, Madison, "Homogenization of stochastic Hamilton-Jacobi equations". (April 2002).

Kosygina, E., Mathematics Colloquium, University of Missouri, Rolla, "The long term behavior of the Brownian motion with jumps". (November 2001).

Kosygina, E., Probability Seminar, Northwestern University, Evanston, "The long term behavior of the Brownian motion with jumps". (May 2001).

Kosygina, E., UIUC Probability Semiar, University of Illonois at Urbana-Champaign, Urbana-Champaign, "The behavior of the relative entropy in the hydrodynamic scaling limit for the simple exclusion process". (September 2000).

Kosygina, E., Probability Seminar, Northwestern University, Evanston, "The behavior of the relative entropy in the hydrodynamic scaling limit for the simple exclusion process". (January 2000).

Kosygina, E., Mathematics Colloquium, Northwestern University, Evanston, "The behavior of the relative entropy in the hydrodynamic scaling limit". (February 1999).

Kosygina, E., Southeastern Probability Days, Georgia Institute of Technology, Atlanta, "The behavior of the relative entropy in the hydrodynamic scaling limit for Ginzburg-Landau model". (April 1998).

Kosygina, E., Joint Meetings of I.G. Petrovsky Seminar and the Moscow Mathematical Society, Moscow State University, Moscow, Russia, "On the solvability of the Cauchy problem in classes of growing functions for some degenerate parabolic equations". (January 1994).

Kosygina, E., Conference of young scientists, Moscow State University, Moscow, Russia, "New exact solutions of the multidimensional nonlinear diffusion equation". (April 1993).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Davini, A., & Kosygina, E. Stochastic homogenization of a class of nonconvex viscous HJ equations in one space dimension. *Journal of Differential Equations*, 30 pages.

B. Other completed papers.

C. Research in progress.

Kosygina, Elena, Thomas Mountford, Jonathon Peterson, "Functional limit theorems for self-interacting random walks in recurrent regime", On-Going, Scholarly.

Konstantin Khanin, Kosygina, Elena, "Hamilton-Jacobi equations with stochastic forcing", Planning, Scholarly.

Andrea Davini, Kosygina, Elena, Atilla Yilmaz, "Homogenization of viscous Hamilton-Jacobi equations with non-convex Hamiltonians in random media", On-Going, Scholarly.

Matic, Ivan, Kosygina, Elena, "Large time behavior for Hamilton Jacobi equations", On-Going, Scholarly.
We study the behavior of minimizers in variational formulas for problems related to Hamilton-Jacobi and Hamilton-Jacobi-Bellman equations.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Simons Fellowship in Mathematics, 2014-2015, Simons Foundation, Scholarship/Research, National. (2014).
https://www.simonsfoundation.org/funding/funding-opportunities/mathematics-physical-sciences/simons-fellow-program/simons-fellows-in-mathematics-program-description/

Scholar Incentive Leave Award, August 28, 2014 - August 27, 2015, Baruch College. (March 2014).

Faculty Scholarship and Creative Achievement Award, Baruch College, Scholarship/Research, University. (March 2012).

Fellowship Leave Award, September 2008 - August 2009, Baruch College. (2008).

Faculty Scholarship and Creative Achievement Award, Baruch College. (March 2008).

Faculty Scholarship and Creative Achievement Award, Baruch College. (March 2007).

The Phi Delta Theta distinguished faculty member of Northwestern University for 2000-2001 School Year (teaching award). (2001).

Sandra Bleinstein Prize for notable achievement by a woman in applied mathematics or computer science, Courant Institute of Mathematical Sciences, NYU. (1997).

Teaching and Research Assistantship, Courant Institute, New York University, 1994-1998. (1994).

V.I. Lenin Scholarship, Moscow State University, 1988-1989. (1988).

I.G. Petrovsky Scholarship, 1987-1988, Moscow State University. (1987).

11. GRANTS-IN-AID:

Kosygina, E. (Principal), Grant, "Interacting random walks and diffusions", Collaboration Grant for Mathematicians, Simons Foundation, Private, $42,000.00, Funded. (start: September 1, 2017, end: August 31, 2022).

Kosygina, E. (Principal), Grant, "Random walks and diffusions in random environments", Collaboration Grant for Mathematicians, Simons Foundation, Private, $35,000.00, Funded. (start: July 1, 2011, end: June 30, 2016).

Kosygina, E. (Principal), Sponsored Research, "Stochastic processes in random environments", Simons Fellowship in Mathematics, Simons Foundation, Private, $92,644.00, Funded. (start: August 28, 2014, end: August 27, 2015).

Kosygina, E., Sponsored Research, "Research in Pairs", Matematisches Forschungsinstitut Oberwolfach, Funded. (start: February 22, 2015, end: March 21, 2015).

Kosygina, E., Sponsored Research, "Program participant, Homogenization and Random Phenomenon", Institute Mittag-leffler, Djursholm, Sweden, Funded. (start: October 1, 2014, end: December 12, 2014).

Kosygina, E. (Principal), "Positively and negatively excited random walks on integers and strips", PSC-CUNY Award # 64603-00-42; Research Foundation of the City University of New York, $4,890.00, Funded. (start: July 1, 2011, end: June 30, 2012).

Kosygina, E. (Principal), "Lyapunov exponents for random walks and diffusions in a random potential", PSC-CUNY Award # 63393-00-41; Research Foundation of the City University of New York, $840.00, Funded. (start: July 1, 2010, end: June 30, 2011).

Kosygina, E., "Interacting Particle Systems, Statistical Mechanics, and ProbabilityTheory", National Science Foundation; Award DMS-0825081 (G. Ben-arous, S .R. S. Varadhan); Partial support to attend the program at the Institute Henri Poincare, Paris, $4,000.00. (start: October 2009, end: December 2009).

Kosygina, E., National Science Foundation, Award DMS-0855857 (L. Saloff-Coste); Award to attend the 33rd Conference on Stochastic Processes and Their Applications, $800.00. (end: July 2009).

Kosygina, E. (Principal), "Lyapounov exponents for a Brownian motion in a stationary ergodic random medium", PSC-CUNY Award # 61319-00-39; Research Foundation of the City University of New York, $3,525.00. (start: July 1, 2008, end: June 30, 2009).

Kosygina, E., National Science Foundation, Award DMS-0635607 (Institute for Advanced Study); Partial support for a semester at the Institute for Advanced Study (Spring 2009), $8,000.00. (start: January 12, 2009, end: April 12, 2009).

Kosygina, E. (Principal), "Multi-exited random walks on integers", PSC-CUNY Award # 69580-00-38; Research Foundation of the City University of New York, $4,017.00. (start: July 1, 2007, end: June 30, 2008).

Kosygina, E. (Principal), "Applications of stochastic homogenization techniques to some growth models", PSC-CUNY Award #68315-00-37; Research Foundation of the City University of New York, $2,992.00. (start: July 1, 2006, end: June 30, 2008).

Kosygina, E. (Principal), "On the convergence of viscosity solutions of stochastic Hamilton-Jacobi equations to a non-random limit", PSC-CUNY Award # 67332-00-36; Research Foundation of the City University of New York, $3,311.00. (start: July 1, 2005, end: June 30, 2006).

Kosygina, E. (Principal), "On the convergence of solutions of stochastic Hamilton-Jacobi equations to a non-random limit", Eugene M. Lang Junior Faculty Research Fellowship 2005-2006, $3,500.00. (start: June 1, 2005, end: June 30, 2006).

Kosygina, E. (Principal), "On the convergence of viscosity solutions of stochastic Hamilton-Jacobi equations to a non-random limit", PSC-CUNY Award #66512-00-35; Research Foundation of the City University of New York, $4,923.00. (start: July 1, 2004, end: June 30, 2005).

Kosygina, E. (Principal), "Homogenization of Stochastic Hamilton-Jacobi Equations", PSC-CUNY Award #60079-33-34; Research Foundation of the City University of New York, $2,600.00. (start: May 1, 2003, end: June 30, 2004).

Kosygina, E., "Travel Grant", National Science Foundation, Division of Mathematical Sciences, $1,000.00. (start: 2003, end: 2003).

Kosygina, E., "Mentoring Travel Grant for Women", Association for Women in Mathematics and National Science Foundation, $2,000.00. (start: 2001, end: 2001).

Kosygina, E., "NFS Travel Grant", National Science Foundation, Division of Mathematical Sciences, $1,000.00. (start: 2000, end: 2000).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

BSFM (Bachelor of Science in Financial Mathematics). (2016 - Present).

Curriculum Committee. (2015 - Present).

Honors Committee. (2010 - Present).

Math Advisers, Advisor to Mathematics/Actuarial Science Majors/Minors. (March 2007 - Present).

Executive Committee. (May 2006 - Present).

Calculus Committee. (September 2005 - Present).

Masters in Finance Committee. (September 2004 - Present).

Liberal Arts Math Committee. (September 2006 - May 2008).

Actuarial Science Committee. (September 2003 - May 2008).

Department Secretary. (September 2003 - May 2006).

Final Examinations Committee. (September 2002 - May 2004).

B. Service to the School

Weissman Graduate Affairs Committee, Committee Member, Elected. (2011 - 2012).

C. Service to the College

Library Committee. (September 2004 - May 2005).

D. Service to the Graduate Center

Mathematics Department Graduate Faculty Member. (May 2005 - Present).
Teaching graduate courses in probability; independent research courses; preliminary and oral exams; Ph.D. thesis defences

Executive committee, Elected. (May 2015 - September 2021).

Mathematics Department Curriculum Committee. (November 2012 - May 2014).
Redesigning the curriculum for Ph.D. students

E. Service to the University

CUNY Research Foundation, Mathematics Panel. (2006 - 2011).

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

National Science Foundation, Division of Mathematical Sciences, Reviewer/Probability Panel Member/Postdoctoral Panel Member/Committee of Visitors Member.

Annals of Probability, Communications in Mathematical Physics, Communications in Mathematical Sciences, Communications in Partial Differential Equations, Communications on Pure and Applied Mathematics, Electronic Journal of Probability, Journal of Statistical Physics, Probability Theory and Related Fields, SIAM Journal on Optimization, Stochastic Processes and their Applications, Reviewer, Journal Article. (2000 - Present).

15. TEACHING ACTIVITIES AT BARUCH:
A. Courses Taught

MTH 3030, Analytical Geometry and Calculus II.
MTH 2207, Applied Calculus and Matrix Applications.
MTH 2205, Applied Calculus II.
MTH 2610, Calculus I.
MTH 9903, Capstone Project.
MTH 3006, Integral Calculus.
MTH 3020, Intermediate Calculus.
MTH 4500, Introduction to Financial Mathemtatics.
MTH 4120, Introduction to Probability.
MTH 4125, Introduction to Stochastic Processes.
MTH 9862, Probability and Stochastic Processes for Finance II.
MTH 4000, Bridge to Higher Mathematics, 4 credit hours, (Fall 2018).
MTH 5000, Independent Study, (Fall 2018).

MTH 9831, Probability and Stochastic Processes for Finance I, 3 credit hours, Graduate, (Fall 2018).
MTH 4010, Advanced Calculus, 3 credit hours, (Fall 2016).
MTH 3035, Vector Calculus, 1 credit hours, new course preparation, (Spring 2016).
MTH 4000, Bridge to Higher Mathematics, 4 credit hours, new course preparation, (Fall 2015).

B. New courses/programs developed

MTH 3035, Vector Calculus, 1 credit hours, new course preparation, (Spring 2016).
MTH 4000, Bridge to Higher Mathematics, 4 credit hours, new course preparation, (Fall 2015).

Ivan Matic

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University of California Berkeley	Mathematics	2010
BSc	University of Belgrade, Department of Mathematics	Mathematics	2002

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Assistant Professor	Mathematics	August 28, 2013 - Present
Duke University	Assistant Research Professor (Postdoc)	Mathematics	August 1, 2010 - July 31, 2013
Fields Institute, Toronto	Fields Postdoctoral Fellow	Mathematics	January 1, 2011 - June 30, 2011

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Assistant Professor	August 28, 2013 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

Matic, I., Radoicic, R., & Stefanica, D. (2021). *Probability and Stochastic Calculus Quant Interview Questions*. (pp. 334). FE Press.

Kadelburg, Z., Djukic, D., Lukic, M., & Matic, I. (2014). *Inequalities (in Serbian)*. (42nd ed.). Belgrade: Serbian Mathematical Society. www.dms.rs/DMS/html/publikacije/materijali.html

Djukic, D., Jankovic, V., Matic, I., & Petrovic, N. (2011). *The IMO Compendium 1959-2009 (second edition)*. In Peter Winkler (Ed.). Heidelberg: Springer (Problem Books in Mathematics).

B. Papers in Professional Journals:

(1) Articles:

Matic, I., Radoicic, R., & Stefanica, D. (2019). A PDE method for estimation of implied volatility. *Quantitative Finance, 20*(3), 393-408. www.tandfonline.com/toc/rquf20/current

Matic, I., Radoicic, R., & Stefanica, D. (2017). A sharp Polya-based approximation to the normal CDF. *Applied Mathematics and Computation, 322*, 111-122. www.sciencedirect.com/science/article/pii/S009630031730718X

Matic, I., Radoicic, R., & Stefanica, D. (2017). Polya-Based Approximation for the ATM-Forward Implied Volatility. *International Journal of Financial Engineering, 4*, 15 pages. http://www.worldscientific.com/doi/pdf/10.1142/S2424786317500323?src=recsys

Gatheral, J., Matic, I., Radoicic, R., & Stefanica, D. (2017). Tighter bounds for implied volatility. *International Journal of Theoretical and Applied Finance, 20*(5), 14 pages. www.worldscientific.com/doi/abs/10.1142/S0219024917500352?src=recsys

Matic, I., & Sivakoff, D. (2015). Excited deterministic walk in a random environment. *Electronic journal of probability, 20*(44), 1-19. ejp.ejpecp.org/article/view/3874

Matic, I. (2014). Inequalities with determinants of perturbed positive matrices. *Linear Algebra and its Applications/Elsevier, 449*, 166-174. www.sciencedirect.com/science/article/pii/S0024379514000937

Matic, I., & James, N. (2012). A Sublinear Variance Bound for Solutions of a Random Hamilton–Jacobi Equation. *Journal of Statistical Physics, 149*(2), 342-361. link.springer.com/article/10.1007%2Fs10955-012-0590-y

Matic, I. (2011). Large deviations for processes in random environments with jumps. *Electronic Journal of Probability, 16*(083-6489), 2406-2438. ejp.ejpecp.org/article/view/962/1151

Kadelburg, Z., Djukic, D., Lukic, M., & Matic, I. (2005). Inequalities of Karamata, Schur and Muirhead, and some applications. *The Teaching of Mathematics/ Mathematical Society of Serbia, 8*(1), 31-45. elib.mi.sanu.ac.rs/files/journals/tm/14/tm813.pdf

(2) Proceedings:

C. Chapters in Books:

Matic, I. (2018). A parallel algorithm for the constrained shortest path problem on lattice graphs. In A. Adamatzky (Ed.), *Shortest path solvers. From software to wetware* (pp. 1-26). Springer. www.springer.com/us/book/9783319775098

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Kosygina, E. (Presenter & Author), Matic, I. (Presenter & Author), 2nd Northwestern Summer School in Probability, Northwestern University, Northwestern University, "Large deviations through examples", Workshop, National, Invited. (July 2018).

Kosygina, E., Matic, I., Northwestern Summer School in Probability, Northwestern University, Evanston, IL, "Mini-course: Large Deviations through Examples". (July 2018).

Matic, I. (Presenter & Author), AMS Central Spring Sectional Meeting, American Mathematical Society, East Lansing, Michigan, "Large deviations for deterministic walks in excited random environments", Conference, National, published elsewhere, Invited. (March 25, 2015).

Matic, I. (Presenter & Author), Quantitative Finance Seminar, Baruch College, New York, "A sublinear bound for the variance of solutions for Hamilton-Jacobi equations", Seminar, Local, published elsewhere, Accepted. (October 29, 2014).

Matic, I. (Presenter & Author), Mathematical Finance and Probability Seminar, Rutgers University, New Brunswick, "Deterministic walks in random environments and excited random environments", Seminar, National, published elsewhere, Accepted. (September 16, 2014).

Matic, I. (Presenter & Author), Weissman Brown Bag Seminar, Weissman School of Arts and Sciences, Baruch College, "Regularity in randomness", Seminar, Local, Accepted. (May 6, 2014).

Matic, I. (Presenter & Author), Ohio State Probability Seminar, Ohio State University, Columbus, Ohio, "A sub linear bound for the variance of Hamilton Jacobi Equations", Seminar, National, published elsewhere, Accepted. (March 27, 2014).

Matic, I. (Presenter & Author), CUNY Probability Seminar, CUNY Graduate Center, Cuny Graduate Center, "Deterministic processes in random environments", Seminar, National, published elsewhere, Accepted. (March 11, 2014).

Matic, I. (Presenter & Author), Probability and Mathematical Physics Seminar, Courant Institute NYU, NYU, "A sublinear bound for the variance of solutions for Hamilton-Jacobi equations.", Seminar, International, published elsewhere, Accepted. (January 31, 2014).

9. <u>WORK IN PROGRESS:</u>

A. Papers submitted to journals for consideration.

B. Other completed papers.

C. Research in progress.

Radoicic, Rados, Matic, Ivan, Stefanica, Dan, "50 Challenging Brainteasers from Quant Interviews", Writing Results, Scholarly.
Pocket Book Guides for Quant Interviews, FE Press LLC

Matic, Ivan, David Sivakoff, "Branching deterministic walks", On-Going, Scholarly.
Branching deterministic walk in an excited random environment is a non-Markov integer-valued process.
The environment contains the information on whether the walk will branch once it visits the given site. We are studying laws of large numbers, central limit theorems, and large deviations for the number of particles that occupy certain sites.

Matic, Ivan, Kosygina, Elena, "Large time behavior for Hamilton Jacobi equations", On-Going, Scholarly.

We study the behavior of minimizers in variational formulas for problems related to Hamilton-Jacobi and Hamilton-Jacobi-Bellman equations.

Matic, Ivan, Jim Gatheral, Rados Radoicic, "Optimal execution in FLOB model", On-Going, Scholarly.

We want to be able to identify the timing and volume of optimal trading in the models that are governed by fractional limit order book. We have reasons to believe that the obtained strategies will have lower costs than the currently used ones. The existing trading strategies are build by assuming that the underlying assets and volatilities have dynamics whose random components are Brownian motions. However, an increasing body of research is pointing out that fractional Brownian motions are better suited to model the pricing dynamics. However, when these new models are assumed, then the trading cost becomes a functional that is overly complicated. Not only it cannot be explicitly solved, but even the numerical schemes are intolerably slow. We are trying to improve the approximation algorithms and investigate near-optimal strategies that can be determined with faster procedures.

Matic, Ivan, Shirshendu Chatterjee, Rados Radoicic, "Parallel Random Number Generators", On-Going, Scholarly.

The project contains both theoretical study and applications to statistics and Monte Carlo simulations. We are developing a parallel algorithm for increasing the size of the set of random numbers. The input is a set of O(N) numbers generated by a sequential algorithm. During the parallel phase, the input is used to construct a set of O(N^2) random numbers.

Matic, Ivan, "Waiting times for hitting hyperplanes in random competing models", On-Going, Scholarly.

The motivation for the probabilistic model comes from computer science. We assume that a database has entries that are changing fast. One example of such database is the one that contains the ranking of websites, or the ranking of chess players. Very often one website can outrank another, or a chess player can outrank a competitor. Since the current databases are storing the information in augmented Byer's B+ trees, whenever the order of entries is changed, it is necessary to perform re-balancing. Such re-balancing can cause data corruption. In this project I built a simplified model in which n particles have their scores that are randomly updating. I study the waiting times for ties to occur. When a tie occurs, then one particle has to jump over the other. The problems that I try to solve are about bounds and asymptotics for expected values of these waiting times.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Fields Postdoctoral Fellowship, Fields Institute Toronto, Scholarship/Research, International. (June 1, 2010).
I was given a fellowship to spend the Spring semester of 2011 as the postdoc at the Fields Institute.

Nikki Kose Memorial Teaching Prize, UC Berkeley, Teaching, Department. (May 19, 2010).
Every year the award is given at commencement to one graduating PhD student for exceptional teaching.

Silver Medal, International Mathematical Olympiad, Scholarship/Research, International. (July 1999).
The International Mathematical Olympiad is individual high school contest. Each country sends their top 6 students selected through the national competitions. As a member of team of Serbia, I won a second prize (also called Silver Medal)

11. GRANTS-IN-AID:

Matic, I. (Principal), Grant, "Particle systems in random environments with non-gaussian limit shapes", PSC CUNY, Baruch College - CUNY, $5,868.40, Funded. (start: July 1, 2016, end: June 30, 2017).

Matic, I. (Principal), Grant, "Random processes with non-gaussian asymptotic behavior", Eugene M. Lang Junior Faculty Fellowship, Baruch College - CUNY, $7,500.00, Funded. (start: June 1, 2016, end: June 30, 2017).

Matic, I., Grant, "Limiting behavior of variational problems", PSC-CUNY, Local, $3,496.80, Funded. (sub: December 12, 2014, start: July 1, 2015, end: June 30, 2016).

Matic, I. (Principal), Grant, "Processes in Excited Random Environments", PSC-CUNY, Other, $3,498.40, Funded. (sub: December 18, 2013, start: July 1, 2014, end: June 30, 2015).

Matic, I. (Co-Principal), David, S. (Co-Principal), Grant, "Deterministic processes in random environments", NSF, Federal, $181,940.00, Not Funded. (sub: November 11, 2013, start: July 1, 2014, end: July 1, 2014).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Committee for Prizes, Committee Member, approximately 4 hours spent for the year, Elected, Pro Bono, By correctly selecting and rewarding the outstanding students, the committee promotes the excelence in academic achievements. The best students are identified both for the purpose of giving the proper recognition and

for being referred to the appropriate faculty member for additional guidance. (August 26, 2014 - Present).
The role of the committee is to oversee the selection process of exceptional undergraduate students that need to receive department and college prizes.

Student Advisement, Faculty Advisor, approximately 12 hours spent for the year, Appointed, Pro Bono. (August 28, 2013 - Present).
Assist students in choosing and enrolling in classes.

Committee for Base Curriculum, Committee Member, approximately 10 hours spent for the year, Elected, Pro Bono, The committee is currently focusing on monitoring the implementation of the recent changes in the content in introductory calculus courses. The material now includes applications to business and finance that are placed in course schedule in a way that makes it convenient for students who are taking business classes at the same time with math classes. So far it is observed that many students are able to start their business classes before their junior year and that transfer students will become ready to graduate faster than before. (August 26, 2013 - Present).
The job of the committee is to monitor the curriculum for base courses offered by the department, discuss and implement its proposed adjustments.

Final Exams, Committee Member, approximately 10 hours spent for the year, Appointed, Pro Bono, The common final insures that all students from all sections are compared on the same set of problems. This allows individual instructors to adjust their grading schemes. Consequently, the objectivity of grading in lower division courses is controlled by the department. (August 26, 2013 - Present).
I participated in planning and supervising the common final exams in lower division courses with large number of sections.

Masters in Finance, Committee Member, approximately 10 hours spent for the year, Appointed, Pro Bono, The Committee has made a successful proposal of the new program that received very positive external reviews. The final proposal was approved by the Weissman School of Arts and Sciences. (August 26, 2013 - Present).
I participated in discussions about future undergraduate program in mathematical finance.

B. Service to the School

C. Service to the College

Collaboration with National School of Development of Beijing University, Attendee, Meeting, approximately 70 hours spent for the year, Appointed, Pro Bono, Our recruitment efforts enable us to attract a very strong pool of students for the MFE program. Our visit to Beijing University includes several presentations about our MFE program and panel sessions with students. The events are gaining the

popularity each year. During the last visit in November 2018 we have met with students from Beijing University, Tsinghua University, and Shanghai Fudan University. With such an access to top students from China, our incoming class of MFE students will be stronger than ever before. (October 2016 - Present).
I visited Beijing University with professors Jim Gatheral, Tai-Ho Wang, and Rados Radoicic. We met with the school representatives and interviewed the prospective MFE students.

NSD Beijing - MFE Baruch 2014 Summer Camp, Faculty Advisor, approximately 50 hours spent for the year, Appointed, We have successfully presented the MFE program at Baruch to the selected students from the prestigious Beijing University. The students got the chance to learn mathematics from us, meet the faculty, alumni, and companies that are employing some of Baruch's former MFE students. (August 12, 2014 - Present).
Selected students from Beijing University visited Baruch in August 2014. They had a mini course in which I gave a lecture and graded their work.

D. Service to the Graduate Center

Organizing committee for Northeastern Probability Seminar, Committee Member, approximately 50 hours spent for the year, Appointed, Pro Bono. (September 1, 2015 - Present).
Northeastern Probability Seminar is an annual event that brings bout 100 researchers every year to New York. I participate in selecting and administering the financial support for graduate students and postdocs to attend the meeting.

E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

Committee for Mathematical Competitions in Serbia, Mathematical Society of Serbia, Member of the committee, National. (October 1, 2013 - April 30, 2014).
Mathematical Society of Serbia organizes competitions for high school students at the national level and selects the team that will represent the country at the International Mathematical Olympiad.

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

Springer, Reviewer, Book, USA, Appointed, Pro Bono, International. (January 2018 - Present).
I have to review the books and suggest to the editors whether its intellectual content is significant, original, and well presented to the standard expected by the publisher.

Journal of Functional Analysis, Reviewer, Journal Article, USA, Appointed, Pro Bono, International. (July 18, 2017 - Present).
I have to review the scholarly work and suggest to the editors whether its intellectual content is significant and original to the standard expected by the journal.

Linear Algebra and Its Applications, Reviewer, Journal Article, approximately 30 hours spent for the year, Elected, Pro Bono, International. (May 1, 2015 - Present).
I have to review the scholarly work and suggest to the editors whether its intellectual content is significant and original to the standard expected by the journal.

Mathematical Inequalities & Applications, Reviewer, Journal Article, Zagreb, Croatia, approximately 30 hours spent for the year, Elected, Pro Bono, International. (January 10, 2015 - Present).
I have to review the scholarly work and suggest to the editors whether its intellectual content is significant and original to the standard expected by the journal.

ALEA, the Latino American electronic journal of Probability and Statistics, Reviewer, Journal Article, Rio de Janeiro, Brazil, approximately 30 hours spent for the year, Appointed, Pro Bono, International, The journal has gained a high reputation among researchers in probability and statistics. (August 26, 2013 - Present).
I have to review the scholarly work and suggest to the editors whether its intellectual content is significant and original to the standard expected by the journal.

Wiley, Reviewer, Book, Appointed, Pro Bono, International. (June 2012 - April 2013).
I was asked to review a proposal for the new edition of the book "The Art and Craft of Problem Solving" by Paul Zeitz.

MoMathlon, Speaker at the mathematical competition, New York, New York, USA, approximately 5 hours spent for the year, Appointed, Pro Bono, Local, The main accomplishments are the popularization of mathematics among the students from local high schools. (March 7, 2014).
I was Supervising and grading students in an event organized by the Museum of Mathematics. I was presenting the solutions to the competition problems and I was talking to the contestants.

15. <u>TEACHING ACTIVITIES AT BARUCH:</u>
    A. Courses Taught
        MTH 4300 - HMWA, Algorithms, Computers, and Programming II, 28, 4 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), new format for existing course, (Fall 2021).
            Pedagogical Innovations: The course is delivered in the hybrid format. The material had to be prepared for the new course modality.
            New Teaching Material: The new teaching material involve new class videos and optional class projects.

MTH 4000 - JMWA, Introduction to Probability, 30, 4 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), new format for existing course, (Fall 2021).

Pedagogical Innovations: This course is delivered in a hybrid format. The class materials have to be prepared and significantly modified for this course modality. The in-person classes can benefit from student interaction. However, it is often common that some students are not able to attend in-person classes. Therefore, I had to develop the delivery method and class materials that would make it easier for students who skip a small number of classes.

MTH 2205 - S2BA, Precalculus and Elements of Calculus, 36, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Summer 2021).

Pedagogical Innovations: The course was delivered online. I have created online learning materials and practice problems.

New Teaching Material: class videos, online exams.

MTH 2205 - S2CA, Precalculus and Elements of Calculus, 32, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Summer 2021).

MTH 4000 - HMWA, Algorithms, Computers, and Programming II, 35, 4 credit hours, Upper Division, Undergraduate, On-Line, (Spring 2021).

MTH 4000 - JMWB, Bridge to Higher Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Spring 2021).

Pedagogical Innovations: The courses were held online. I worked on re-designing the course website to include lecture notes, videos, and assignments. Since technical difficulties often cause students to miss classes or parts of classes, the students have to rely on notes and videos from the classes. For several lectures I have created youtube videos in addition to the recordings of the classes.

MTH 4300 - HMWA, Algorithms, Computers, and Programming II, 35, 4 credit hours, Upper Division, Undergraduate, On-Line, new format for existing course, (Fall 2020).

Pedagogical Innovations: The courses were held online. I worked on re-designing the course website to include lecture notes, videos, and assignments. Since technical difficulties often cause students to miss classes or parts of classes, the students have to rely on notes and videos from the classes. For several lectures I have created youtube videos in addition to the recordings of the classes.

MTH 4120 - JMWA, Introduction to Probability, 4 credit hours, Upper Division, Undergraduate, On-Line, new format for existing course, (Fall 2020).

Pedagogical Innovations: The courses were held online. I worked on re-designing the course website to include lecture notes, videos, and assignments. Since technical difficulties often cause students to miss classes or parts of classes, the students have to rely on notes and videos from the classes. For several

lectures I have created youtube videos in addition to the recordings of the classes.

MTH 4140 - DMWA, Graph Theory, 36, 3 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2020).

New Teaching Material: I have created new lecture notes and video lessons for asynchronous distance learning during the COVID-19 pandemic.

MTH 4120H - KMWH, Honors Introduction to Probability, 12, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2020).

Pedagogical Innovations: I have introduced interactive lectures and problem sets that can be accessed and executed from the course website.

MTH 4300 - HMWA, MTH 4300: Algorithms, Computers and Programming II, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, new format for existing course, (Spring 2020).

Pedagogical Innovations: Due to the coronavirus outbreak the course started the distance mode learning delivery in mid March.

I have prepared online tutorials and video lectures to accompany the existing lessons and assignments.

New Teaching Material: I have created the videos, lecture notes, and assignments.

MTH 4300 - 1, Algorithms, Computers and Programming II, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2019).

New Teaching Material: For this semester I have developed new lecture notes and expanded the selection of problems. I have added the practice problems from of the kind that appear on job interviews.

MTH 4120 - 2, Introduction to Probability, 37, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

Pedagogical Innovations: I have developed the lecture notes and online quizzes.

New Teaching Material: I am developing lecture notes and problems that will help students in understanding the more challenging lessons. For the more advanced students I am developing optional material that would prepare them for solving more difficult problems that arise in graduate schools and during job interviews

MTH 4300 - 1, Algorithms, Computers and Programming II, 23, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2019).

Pedagogical Innovations: For this semester I have created a new set of problems and small projects. The tasks are designed to improve problem solving skills particularly related to data structures.

The problems that were created for this semester are based on recent experiences from the interviews of our undergraduate and MFE students. I have identified the common themes and algorithms that were of interest this year and updated the problem collection accordingly

New Teaching Material: The new teaching material is integrated in the course website that I have created. It has many automated components that have options of storing the lessons and sample programs in an organized way. The cross linking allows students to easily access relevant parts of previous classes.

MTH 4300 - 1, Algorithms, Computers and Programming II, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

Pedagogical Innovations: When I first started teaching this course I designed in such a way that a part of the grading involves independent projects. This year I further expanded the selection of projects and the tutorials that students can use.

New Teaching Material: This year a major update was done to the Ubuntu operating system. I have re-designed the lessons and materials related to the system maintenance.

Enhancements to Student Learning: The independent projects was performed in groups. The students have made surprising contributions to their groups and learned from each other. The students who are coming to this course are already highly driven with a lot of extra-curricular experience. They were able to contribute to their projects by knowledge gained outside of class. This semester there were four groups working on four projects: analyzing stocks, simulations of random experiments, development of data structures using the AVL algorith, and the development of the optical mark recognition software.

MTH 4300 - 1, Algorithms, Computers and Programming II, 30, 4 credit hours, Upper Division, Undergraduate, Lecture/Lab, (Spring 2018).

Pedagogical Innovations: During Fall 2016 I coordinated with the math department, college, and library to purchase 35 laptops to be given as a semester-long loans to students during the class.

Three semesters after this purchase is made, I am very glad to see the excellent results. The students are in full control of a Linux operating system. They have the ability to experiment with administrative account and practice with powerful commands that can achieve full customization. The course encourages the inquisitiveness in system administration which is necessary for those who will be programmers or advanced users of computing technology. The students belong to a generation that grew up in digital era, but the overall dependence on fully functioning personal computers is often a limiting factor to those who need to learn the commands that can potentially compromise the system and require the formatting of the disk. Having a spare laptop provided by the college with the full support from the instructor removed the fear from taking the creative actions that have a potential to destabilize the functionality of the computers.

New Teaching Material: I have assembled a compilation of problems that are usually asked during the job interviews at software and finance companies. During classes I would often give these problems to students and allow sufficient time for them to develop the ideas and approaches on how to solve them. I would then facilitate a discussion and compare different methods and finally together with students choose the most appropriate one. Then after additional time the students were often able to successfully build the working code that solves the assigned problems.

Enhancements to Student Learning: One component of the course was a group project. I usually assign about 10 different projects for teams to choose from. To successfully complete the projects the students must master the

knowledge from the class, expand on that knowledge by learning additional techniques, and learn how to collaborate and depend on each others since the size of the projects is usually too big for individuals to keep all of the working parts in their memory.

The teams were able to exceed my expectations by making truly surprising projects that ended up being substantial items on their github repositories and resumes. Many of the students were confident in their future job and internship interviews and were able to make their first steps in a career that requires serious computer science to complement their mathematical skills.

MTH 4140 - 1, Graph Theory, 29, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2018).

New Teaching Material: To complement the materials from the textbook, I have developed additional lecture notes and practice problems.

MTH 4300 - 1, MTH 4300: Algorithms, Computers and Programming II, 27, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2017).

MTH 4300 - 1, MTH 4300: Algorithms, Computers and Programming II, 26, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, new format for existing course, (Spring 2017).

Pedagogical Innovations: With the help of the math department and the college, I helped the library obtain 35 laptops that students would be able to have for a semester-long loan. The laptops have Ubuntu 16.04 operating system which allowed students to learn how to program and administer a Unix system, which is the system of choice for most software companies and financial institutions that our best students aspire to work for.

Students were given administrative privileges to the laptops and they used them to solve problems. In addition, I have designed projects for students to work in groups and prepare presentations in the end of semester.

New Teaching Material: I have designed the projects that guided students through familiarizing with currently popular open source repositories such as Quandl, cURL, OpenMP, and OpenCL. Some of the projects involved learning how to administer cloud computing servers that are part of Amazon Web Services.

Enhancements to Student Learning: Students worked on group projects and made presentations in the end of the course.

MATH 4150 - 1, Combinatorics, 28, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2016).

MATH 4500 - 1, Introductory Financial Mathematics, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2016).

MTH 9878 - 1, Interest Rate Models, 36, 3 credit hours, Upper Division, Graduate, Classroom, new course preparation, (Spring 2016).

Pedagogical Innovations: This was an advanced graduate course for the students in the Masters of Financial Engineering program.

A substantial part of my time was devoted to carefully designing the homeworks so they serve as small projects for students. The homeworks served as guides through the material and its connections to programming techniques and simulations that are of the kind used in financial industry.

MTH 4500 - 1, Introductory Financial Mathematics, 39, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2016).

MTH 4150 - 1, Combinatorics, 27, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2015).

Pedagogical Innovations: This course was problem solving oriented. I have emphasized the real world skills that are sought after in technical job interviews that the students are most likely to have.

The examples worked in class and the assignments were designed to prepare students for their job search and provide them with the guidance and confidence in their abilities.

MTH 4500 - 1, Introductory Financial Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2015).

Pedagogical Innovations: This course was problem solving oriented. I have emphasized the real world skills that are sought after in technical job interviews that the students are most likely to have.

The examples worked in class and the assignments were designed to prepare students for their job search and provide them with the guidance and confidence in their abilities.

MTH 4500 - 1, Introductory Financial Mathematics, 40, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2015).

MTH 4100 - 2, Linear Algebra and Matrix Methods, 40, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2015).

Pedagogical Innovations: I took the opportunity to teach problem solving techniques in this course. My goal was to help students perfect their problem solving skills that as of recent became a major part of job interviews.

I have facilitated the communication between students in which they exchanged their homeworks and gave feedback to each other on their solutions.

New Teaching Material: I have created a website with quizzes. The students get immediate feedback and the number of points. After the due-date, the students can see the detailed solutions to the problems.

MTH 3030, Analytic Geometry and Calculus II, 30, 5 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2014).

Pedagogical Innovations: I have used an ative-learning technique called group work. I would have students divided into groups of 3 of 4 students in each. Students would solve the problems in their groups and I would go around to provide hints, ideas, and to comment on their solutions.

New Teaching Material: I have created a website with original homework problems that cannot be found in solution banks available on internet. I have constructed all my grade assignments out of those problems.

MTH 2610, Calculus I, 30, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).

Pedagogical Innovations: I have used an ative-learning technique called group work. I would have students divided into groups of 3 of 4 students in each. Students would solve the problems in their groups and I would go around to provide hints, ideas, and to comment on their solutions.

New Teaching Material: I have created a website with original homework problems that cannot be found in solution banks available on internet. I have constructed all my grade assignments out of those problems.

MTH 2205 - 21, Applied Calculus II, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2014).

MTH 4500 - 2, Introductory Financial Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2014).

Pedagogical Innovations: I have assigned weekly homeworks and each week a different committee of students was formed to grade the homework. I created a web portal that managed the grading table in a way that the graders did not know the names of the students they were grading. This assured the confidentiality of homework records.

New Teaching Material: I created my own homework problems that did not exist previously on the internet.

MTH 3030 - 2, Analytic Geometry and Calculus II, 21, 5 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2013).

Pedagogical Innovations: I have implemented the active learning techniques. For part of the classes I had students work on the blackboard in solving the problems and discussing their solutions with others.

New Teaching Material: I have used extensively Mathematica software and web portal wolfram alpha.com for describing parametrization of curves and surfaces. Students were also using the software to draw the graphs of surfaces.

MTH 3020 - 4, Analytic Geometry and Multivariable Calculus, 8, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2013).

Pedagogical Innovations: I have implemented the active learning techniques. For part of the classes I had students work on the blackboard in solving the problems and discussing their solutions with others.

New Teaching Material: I have used extensively Mathematica software and web portal wolfram alpha.com for describing parametrization of curves and surfaces. Students were also using the software to draw the graphs of surfaces.

MATH 2003 - 8, Pre-calculus and elements of calculus, 33, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2013).

Pedagogical Innovations: I have implemented the strategies for active learning. During some of the classes a part of the class time was devoted to a group work. Students were divided into groups consisting of 3-4 members. The students from the same group worked together on problems explaining their solutions to each other while I was walking around and providing hints to problems, answering questions, and making sure that all students are participating.

New Teaching Material: I have prepared weekly quizzes and maintained the website with solutions and explanations of solutions.

B. New courses/programs developed

MTH 2205 - S2BA, Precalculus and Elements of Calculus, 36, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Summer 2021).

MTH 2205 - S2CA, Precalculus and Elements of Calculus, 32, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Summer 2021).

MTH 4000 - JMWB, Bridge to Higher Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, On-Line, new course preparation, new format for existing course, (Spring 2021).

MTH 4120 - 2, Introduction to Probability, 37, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

MTH 4140 - 1, Graph Theory, 29, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2018).

MTH 4300 - 1, MTH 4300: Algorithms, Computers and Programming II, 26, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, new format for existing course, (Spring 2017).

MTH 9878 - 1, Interest Rate Models, 36, 3 credit hours, Upper Division, Graduate, Classroom, new course preparation, (Spring 2016).

MTH 4100 - 2, Linear Algebra and Matrix Methods, 40, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2015).

MTH 2610, Calculus I, 30, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2014).

MTH 4500 - 2, Introductory Financial Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2014).

Guy Moshkovitz

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	Tel Aviv University	Mathematics	2017
MSc	Tel Aviv University	Computer Science	2011
BSc	Tel Aviv University	Mathematics & Computer Science	2006

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Assistant Professor	Mathematics	August 25, 2020 - Present
Institute for Advanced Study & DIMACS	Postdoctoral researcher	Mathematics	September 1, 2018 - August 25, 2020
Harvard University	Postdoctoral researcher	Mathematics	September 1, 2017 - August 31, 2018

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Assistant Professor	August 25, 2020 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Moshkovitz, G., Kopparty, S., & Zuiddam, J. (in press). Geometric Rank of Tensors and Subrank of Matrix Multiplication. To appear in *Discrete Analysis*.

Moshkovitz, G., & Alon, N. (2020). Limitations on Regularity Lemmas for Clustering Graphs. *Advances in Applied Mathematics*.

Moshkovitz, G., & Shapira (2019). A sparse regular approximation lemma. *Transactions of the American Mathematical Society, 371*, 6779-6814.

Moshkovitz, G., & Shapira, A. (2019). A tight bound for hypergraph regularity. *Geometric and Functional Analysis, 29*, 1531-1578.

Moshkovitz, G., Alon, & Solomon, N. (2019). Traces of hypergraphs. *Journal of the London Mathematical Society, 100*, 498-517.

Moshkovitz, G., & A. S. (2018). Decomposing a graph into expanding subgraphs. *Random Structures and Algorithms, 52*, 158-178.

Moshkovitz, G., Levi, R., Ron, D., Rubinfeld, R., & Shapira, A. (2017). Constructing near spanning trees with few local inspections. *Random Structures and Algorithms, 50*, 183-200.

Moshkovitz, G., & Shapira, A. (2016). A short proof of Gowers' lower bound for the regularity lemma. *Combinatorica, 36*, 187-194.

Moshkovitz, G., Hosseini, K., Lovett, S., & Shapira, A. (2016). An improved lower bound for arithmetic regularity. *Mathematical Proceedings of the Cambridge Philosophical Society, 161*, 193-197.

Moshkovitz, G., & Shapira, A. (2015). Exact bounds for some hypergraph saturation problems. *Journal of Combinatorial Theory Series B, 111*, 242-248.

Moshkovitz, G., & Shapira, A. (2014). Ramsey theory, integer partitions and a new proof of the Erdos-Szekeres Theorem. *Advances in Mathematics, 262*, 1107-1129.

(2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

Moshkovitz, G., & Cohen, A. (2021). *Structure vs. Randomness for Bilinear Maps*.. 53rd ACM Symposium on Theory of Computing (STOC 2021).

Moshkovitz, G. (2012). *Complexity lower bounds through balanced graph properties*. (pp. 159-169). 27th IEEE Conference on Computational Complexity (CCC 2012).

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Moshkovitz, G., 53rd ACM Symposium on Theory of Computing (STOC 2021). (2021).

Moshkovitz, G., Algebraic Geometry Seminar, Columbia University. (2021).

Moshkovitz, G., New York Combinatorics Seminar. (2021).

Moshkovitz, G., Random Tensors Seminar, Texas A&M. (2021).

Moshkovitz, G., Theory Seminar, UCSD. (2021).

Moshkovitz, G., WAC (Webinar in Additive Combinatorics). (2021).

Moshkovitz, G., 35th Computational Complexity Conference (CCC 2020). (2020).

Moshkovitz, G., AMS-MAA Joint Mathematics Meetings Conference, Baltimore. (2019).

Moshkovitz, G., Atlanta Lecture Series in Combinatorics and Graph Theory, Emory University. (2019).

Moshkovitz, G., Discrete Mathematics Seminar, Princeton University. (2019).

Moshkovitz, G., TCS/DM Seminar, Institute for Advanced Study. (2018).

Moshkovitz, G., CMSA Members Seminar, Harvard University. (2017).

Moshkovitz, G., MIT-Harvard-MSR Combinatorics Seminar. (2017).

Moshkovitz, G., 26th ACM-SIAM Symposium on Discrete Algorithms (SODA 2015), San Diego. (2015).

Moshkovitz, G., LMS-CMI Research School on Regularity and Analytic Methods in Combinatorics, Warwick (as Teaching Assistant). (2015).

Moshkovitz, G., SIAM Conference on Discrete Mathematics, Minneapolis. (2014).

Moshkovitz, G., Combinatorics Seminar, HUJI. (2013).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Moshkovitz, G., & Cohen, A. *Partition Rank and Analytic Rank are Uniformly Equivalent*..

B. Other completed papers.

C. Research in progress.

Moshkovitz, Guy, "Counting Monotone Functions", Writing Results, Scholarly.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

PSC-CUNY Research Award (track B), City University of New York, Scholarship/Research, University. (2021).

Rector's list for excellence in teaching, Tel Aviv University, Teaching, University. (2016).

Rector's list for excellence in teaching, Tel Aviv University, Teaching, University. (2014).

Dean's prize for high Ph.D. achievements, Tel Aviv University, Scholarship/Research, School. (2012).

Excellence in M.Sc. studies, Tel Aviv University, Scholarship/Research, School. (2009).

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:
    A. Service to the Department

    B. Service to the School

    C. Service to the College

    D. Service to the Graduate Center

    E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

13th Innovations in Theoretical Computer Science (ITCS 22) conference, Committee Member. (2021).

Algebra & Number Theory, Reviewer, Journal Article. (2021).

NYC Discrete Math REU, Mentor (3 students). (2021).

Discrete Analysis, Reviewer, Journal Article. (2020).

International Mathematics Research Notices, Reviewer, Journal Article. (2020).

NYC Discrete Math REU, Mentor (2 students). (2020).

Journal of Combinatorial Theory Series A (JCTA), Reviewer, Journal Article. (2019).

Random Structures and Algorithms, Reviewer, Journal Article. (2019).

The 27th Annual European Symposium on Algorithms (ESA 2019), Reviewer, Conference Paper. (2019).

35th International Symposium on Computational Geometry (SoCG 2019), Reviewer, Conference Paper. (2018).

ACM Transactions on Computation Theory, Reviewer, Journal Article. (2018).

Institute for Advanced Study, Started & co-organized a semester-long weekly problem-solving meetings (``Bring Your Own Problem''). (2018).

Journal of Combinatorial Theory Series B (JCTB), Reviewer, Journal Article. (2017).

Co-founded and wrote for a webpage summarizing science news in plain language, ``tl;dr Science'' (in Hebrew), with nearly 20,000 followers on Facebook, National. (2015 - 2017).

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 4100 - PMWB, Linear Algebra and Matrix Methods, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Fall 2021).
MTH 3020 - KMWA, Calculus III, (Spring 2021).
MTH 3030 - KMWA, Elements of Calculus III, (Spring 2021).
MTH 3020 - KMWA, Calculus III, (Fall 2020).
MTH 3020 - SMWA, Calculus III, (Fall 2020).

B. New courses/programs developed

Andrew Obus

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University of Pennsylvania	Mathematics	2009
AB	Harvard College	Mathematics	2003

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Associate Professor	Mathematics	August 2021 - Present
CUNY Graduate Center	Doctoral Faculty	Mathematics	September 2019 - Present
Baruch College	Assistant Professor	Mathematics	August 2018 - August 2021
University of Virginia	Assistant Professor	Mathematics	August 2013 - August 2018
Columbia University	NSF Postdoctoral Fellow	Mathematics	September 2009 - June 2013

Max Planck Institute for Mathematics	Visiting Researcher	Mathematics	September 2011 - July 2012

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates
D. E. Shaw & Co.	Quantitative Analyst	September 2003 - July 2004

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Associate Professor	August 2021 - Present
Assistant Professor	August 2018 - August 2021

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

Obus, A. (2009). *Ramification of primes in fields of moduli of three-point covers*. (pp. 139). ProQuest LLC, Ann Arbor, MI. http://gateway.proquest.com.proxy01.its.virginia.edu/openurl?url_ver=Z39.88-2004&rft_val_fmt=info:ofi/fmt:kev:mtx:dissertation&res_dat=xri:pqdiss&rft_dat=xri:pqdiss:3363575

B. Papers in Professional Journals:

(1) Articles:

Obus, A., & Shaska, T. (2021). Superelliptic curves with many automorphisms and CM Jacobians. *Mathematics of Computation, 90*, 2951--2975. arxiv.org/abs/2006.12685

Obus, A., & Wewers, S. (2020). Explicit resolution of weak wild quotient singularities on arithmetic surfaces. *Journal of Algebraic Geometry, 29*(4), 691--728.

Doyle, J., Krieger, H., Obus, A., Pries, R., Rubinstein-Salzedo, S., & West, L. (2019). Reduction of dynatomic curves. *Ergodic Theory and Dynamical Systems, 38*(10), 2717--2768.

Harbater, D., Obus, A., Pries, R., & Stevenson, K. (2018). Abhyankar's conjectures in Galois theory: current status and future directions. *Bull. Amer. Math. Soc. (N.S.), 55*(2), 239--287. https://doi-org.proxy01.its.virginia.edu/10.1090/bull/1594

Hasson, H., & Obus, A. (2018). The abc conjecture implies the weak diversity conjecture. *Albanian J. Math., 12*(1), 8--14.

Obus, A. (2017). A generalization of the Oort conjecture. *Comment. Math. Helv., 92*(3), 551--620. https://doi-org.proxy01.its.virginia.edu/10.4171/CMH/419

Obus, A. (2017). Good reduction of three-point Galois covers. *Algebr. Geom., 4*(2), 247--262. https://doi-org.proxy01.its.virginia.edu/10.14231/AG-2017-013

Obus, A. (2016). The local lifting problem for A_4. *Algebra Number Theory, 10*(8), 1683--1693. https://doi-org.proxy01.its.virginia.edu/10.2140/ant.2016.10.1683

Obus, A., & Wewers, S. (2016). Wild ramification kinks. *Res. Math. Sci., 3*, Paper No. 21, 27. https://doi-org.proxy01.its.virginia.edu/10.1186/s40687-016-0070-0

Obus, A. (2014). Conductors of wild extensions of local fields, especially in mixed characteristic $(0,2)$. *Proc. Amer. Math. Soc., 142*(5), 1485--1495. https://doi-org.proxy01.its.virginia.edu/10.1090/S0002-9939-2014-11881-8

Obus, A., & Wewers, S. (2014). Cyclic extensions and the local lifting problem. *Ann. of Math. (2), 180*(1), 233--284. https://doi-org.proxy01.its.virginia.edu/10.4007/annals.2014.180.1.5

Obus, A. (2013). Fields of moduli of three-point G-covers with cyclic p-Sylow, II. *J. Th\'eor. Nombres Bordeaux, 25*(3), 579--633. http://jtnb.cedram.org.proxy01.its.virginia.edu/item?id=JTNB_2013__25_3_579_0

Obus, A. (2013). On Colmez's product formula for periods of CM-abelian varieties. *Math. Ann., 356*(2), 401--418. https://doi-org.proxy01.its.virginia.edu/10.1007/s00208-012-0855-4

Obus, A. (2012). Fields of moduli of three-point G-covers with cyclic p-Sylow, I. *Algebra Number Theory, 6*(5), 833--883. https://doi-org.proxy01.its.virginia.edu/10.2140/ant.2012.6.833

Obus, A. (2012). Vanishing cycles and wild monodromy. *Int. Math. Res. Not. IMRN*(2), 299--338. https://doi-org.proxy01.its.virginia.edu/10.1093/imrn/rnr018

Obus, A., & Pries, R. (2010). Wild tame-by-cyclic extensions. *J. Pure Appl. Algebra, 214*(5), 565--573. https://doi-org.proxy01.its.virginia.edu/10.1016/j.jpaa.2009.06.017

(2) Proceedings:

C. Chapters in Books:

Obus, A. (2019). Lifting of automorphisms of curves. In Frans Oort (Ed.), *Open Problems in Arithmetic Algebraic Geometry* (vol. 46, pp. 9--59). Beijing-Boston: Higher Education Press and International Press: Advanced Lectures in Mathematics. arxiv.org/abs/1703.01191

Ingalls, C., Obus, A., Ozman, E., & Viray, B. (2017). Unramified Brauer classes on cyclic covers of the projective plane *Brauer groups and obstruction problems*. (vol. 320, pp. 115--153). Birkh\"auser/Springer, Cham.

Obus, A. (2013). Toward Abhyankar's inertia conjecture for $PSL_2(l)$ *Geometric and differential Galois theories*. (vol. 27, pp. 195--206). Soc. Math. France, Paris.

Obus, A. (2012). The (local) lifting problem for curves *Galois-Teichm\"uller theory and arithmetic geometry*. (vol. 63, pp. 359--412). Math. Soc. Japan, Tokyo.

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Obus, A. (Presenter & Author), VIASM Algebraic Geometry Seminar, Vietnam Institute for Advanced Studies in Mathematics (VIASM), Online, "Mac Lane valuations and an application to weak wild quotient singularities", Seminar, International, Refereed, published elsewhere, Invited. (November 2021).

Obus, A., Heibronn Number Theory Seminar, University of Bristol, Online, "Fun with Mac Lane valuations", Seminar, International, Invited. (February 2021).

Obus, A., AMS/MAA Joint Meetings, American Mathematical Society, Online, "Conductor-discriminant inequalities for superelliptic curves", Conference, National, Invited. (January 2021).

Obus, A., Joint Meetings of the AMS/MAA, American Mathematical Society, Online, "Superelliptic curves with many automorphisms and CM Jacobians", Conference, National, Refereed, published elsewhere, Invited. (January 2021).

Obus, A. (Presenter & Author), AMS Southeastern Sectional Meeting (Cancelled), American Mathematical Society, Charlottesville, VA, "Superelliptic Curves: Many Automorphisms vs. Complex Multiplication", Conference, Regional, Accepted. (March 2020).

Obus, A. (Presenter & Author), Algebra and Number Theory Seminar, Dartmouth College, Hanover, NH, "Conductor-Discriminant Inequalities for Hyperelliptic Curves", Seminar, Local, Invited. (February 2020).

Obus, A. (Presenter Only), CUNY Graduate Center Colloquium, CUNY Graduate Center, CUNY Graduate Center, "Characteristic 0 vs. Characteristic p: Galois covers of curves", Seminar, Local, Invited. (February 2020).

Obus, A. (Presenter & Author), Number Theory Seminar, University of Georgia, Athens, GA, "Mac Lane Valuations and an Application to Resolution of Wild Quotient Singularities", Seminar, Local, Invited. (January 2020).

Obus, A. (Presenter & Author), Galois Seminar, University of Pennsylvania, Philadelphia, PA, "Conductor-Discriminant Inequalities for Hyperelliptic Curves", Seminar, Local, Invited. (November 2019).

Obus, A. (Presenter Only), AMS Math Research Community "Explicit Algebraic Geometry in Characteristic p", American Mathematical Society, Whispering Pines, RI, ""Abhyankar's conjectures"", Workshop, National, Invited. (June 2019).

Obus, A. (Presenter & Author), Algebraic Geometry Seminar, Stony Brook University, Stony Brook, NY, "Fun with Mac Lane Valuations", Seminar, Local, Refereed, published elsewhere, Invited. (May 2019).

Obus, A. (Presenter & Author), Algebra Seminar, University of Virginia, Charlottesville, VA, "Mac Lane valuations, conductors, and discriminants", Seminar, Local, Invited. (April 2019).

Obus, A. (Presenter & Author), AMS Spring Sectional Meeting, American Mathematical Society, Hartford, CT, "Conductor-discriminant inequalities for hyperelliptic curves", Conference, Regional, Invited. (April 2019).

Obus, A. (Presenter & Author), Colloquium, Dalhousie University, Dalhousie University, Halifax, Nova Scotia, "Dynatomic curves: the good, the bad, and the irreducible", Seminar, International, Invited. (April 2019).

Obus, A. (Presenter Only), Feliks Gross Award Ceremony, CUNY Academy, CUNY Graduate Center, "The Life and Mathematics of Évariste Galois", Other, Local, Invited, aobus/present/talk_slides-1.pdf. (April 2019).

Obus, A. (Author Only), Emory University Algebra Seminar, Emory University, Atlanta, GA, "Fun with Mac Lane valuations", Seminar, Local. (February 2019).

Obus, A. (Author Only), Georgia Institute of Technology Algebra Seminar, Georgia Institute of Technology, Atlanta, GA, "Fun with Mac Lane valuations", Seminar, Local. (February 2019).

Obus, A. (Author Only), Binghamton University Algebra Seminar, Binghamton University, Binghamton, NY, "Explicit resolution of weak wild quotient singularities", Seminar, Local. (November 2018).

Obus, A. (Author Only), AMS Central Sectional Meeting, AMS, Ann Arbor, MI, "Conductor-Discriminant inequalities for hyperelliptic curves", Conference, Regional. (October 2018).

Obus, A. (Author Only), Algebra Seminar, Unviersity of Virginia, University of Virginia, "Explicit resolution of weak wild quotient singularities", Seminar, Local, Refereed. (September 2018).

Obus, A. (Author Only), IDA/CCS Colloquium, Institute fo Defense Analyses, Center for Computing Sciences, Bowie, MD, "Reduction of dynatomic curves: The good, the bad, and the irreducible", Seminar, Local. (April 2018).

Obus, A. (Author Only), AMS Central Sectional Meeting, AMS, Columbus, OH, "Explicit resolution of weak wild quotient singularities", Conference, Regional. (March 2018).

Obus, A. (Author Only), Ohio State University Number Theory Seminar, Ohio State University, Columbus, OH, "Reduction of dynatomic curves: The good, the bad, and the irreducible", Seminar, Local. (March 2018).

Obus, A. (Author Only), Baruch College Special Colloquium, Baruch College (CUNY), New York, NY, "Reduction of dynatomic curves: The good, the bad, and the irreducible", Seminar, Local. (February 2018).

Obus, A. (Author Only), Queens College Special Colloquium, Queens College (CUNY), Queens, NY, "Reduction of dynatomic curves: The good, the bad, and the irreducible", Seminar, Local. (February 2018).

Obus, A. (Author Only), Bryn Mawr College Special Colloquium, Bryn Mawr College, Bryn Mawr, PA, "Abhyankar's conjectures on Galois covers of the affine line; or, if you can't prove that something doesn't exist, does it exist?", Seminar, Local. (January 2018).

Obus, A. (Author Only), Conference on the Algebraic and Analytic Theory of Quadratic Forms, University of Geoergia, University of Georgia, "Reduction of Dynatomic Curves", Conference, National, Invited. (July 2017).

Obus, A. (Author Only), Simons Symposium on Tropical and Non-Archimedean Geometry, Simons Foundation, Elmau, Germany, "Hurwitz Trees and Lifting", Conference, International, Invited. (May 2017).

Obus, A. (Author Only), Kummer Classes and Anabelian Geometry, University of Vermont, University of Vermont, "An introduction to frobenioids", Conference, International, Invited. (September 2016).

Obus, A. (Author Only), Conference on Algebraic Geometry, ISI-Bangalore, Bangalore, India, "The local lifting problem for A_4", Conference, International, Invited. (December 2015).

Obus, A. (Author Only), Valuation theory and its applications, Oberwolfach Mathematical Institute, Oberwolfach, Germany, "Cyclic extensions and the local lifting problem", Conference, International, Invited. (October 2014).

Obus, A. (Author Only), AMS/IMU Joint Meetings, AMS/IMU, Tel Aviv, Israel, "The local lifting problem", Conference, International, Invited. (June 2014).

Obus, A. (Author Only), Arithmetic of Fields, Oberwolfach Mathematical Institute, Oberwolfach, Germany, "Lifting of cyclic extensions", Conference, International, Invited. (June 2013).

Obus, A., Dutch Intercity Number Theory Seminar, University of Utrecht, University of Utrecht, "Cyclic extensions and the local lifting problem", Conference, International, Invited. (June 2012).

Obus, A. (Author Only), Galois Covers and Deformations, University of Bordeaux, Bordeaux, France, "Cyclic extensions and the local lifting problem", Conference, International, Invited. (June 2012).

Obus, A., Winter School on Galois Theory, University of Luxembourg, Luxembourg, "Cyclic extensions and the local lifting problem", Workshop, International, Invited. (February 2012).

Obus, A., Galois Theory and Arithmetic Geometry, University of Kyoto/RIMS, Kyoto, Japan, "Toward the Oort conjecture", Conference, International, Invited. (October 2010).

Obus, A., Differential and Geometric Galois Theory, Centre International de Recherche en Mathématiques, Luminy, France, "Fields of moduli of three-point covers", Conference, International, Invited. (March 2010).

Obus, A., Arithmetic of Fields, Oberwolfach Mathematical Institute, Oberwolfach, Germany, "Fields of moduli of three-point covers", Conference, International, Invited. (February 2009).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Obus, A., & Srinivasan, P. Explicit minimal embedded resolutions of divisors on models of the projective line. 25.

Obus, A., & Srinivasan, P. Conductor-discriminant inequality for hyperelliptic curves in odd residue characteristic. 74 pp.. https://arxiv.org/abs/1910.02589

Obus, A., Dang, H., Das, S., Karagiannis, K., & Thatte, V. Local Oort groups and the isolated differential data criterion. 16 pp.. https://arxiv.org/abs/1912.12797

B. Other completed papers.

C. Research in progress.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Feliks Gross Award, CUNY Academy for the Humanities and Sciences, Scholarship/Research, University. (April 16, 2019).
Given to CUNY assistant professors in humanities/sciences in recognition of outstanding research/research potential. $500

All-University Teaching Award, University of Virginia, Teaching, University. (April 2015).
Given to 9 faculty each year across the entire university. $2000.

Carlitz-Zippin Prize, University of Pennsylvania Math Department, Scholarship/Research, Department. (May 2009).
Given for best Ph.D. Thesis in math department. $750.

Good teaching award, University of Pennsylvania, University of Pennsylvania Math Department, Teaching, Department. (May 2007).
Given for overall teaching evaluation score of at least 3.5 on a 4.0 scale.

Honorable Mention, Penn Prize for Excellence in Teaching, University of Pennsylvania, Graduate School of Arts and Sciences, Teaching, School. (May 2006).
Given to graduate student TAs for excellence in teaching.

11. GRANTS-IN-AID:

Obus, A. (Principal), Grant, "CAREER: Models of curves and non-archimedean geometry", National Science Foundation, Federal, $473,067.00, Funded. (sub: August 11, 2020, start: July 1, 2021, end: June 30, 2026).

Obus, A. (Principal), Grant, "Models of Curves and Valuation Theory", Simons Foundation, Private, $8,400.00, Funded. (expsub: January 30, 2020, sub: January 30, 2020, start: September 1, 2020, end: August 31, 2021).

Obus, A., Grant, "PSC-CUNY Award Program Cycle 51 (Trad A)", CUNY RF, $3,500.00, Funded. (sub: December 15, 2020, start: July 1, 2020, end: June 30, 2021).

Obus, A. (Principal), Grant, "Branched Galois Covers of Curves: Lifting and Reduction", NSF, Federal, $128,500.00, Funded. (sub: October 2015, start: August 2016, end: July 2020).

Obus, A., Grant, "PSC-CUNY Award Program Cycle 50 (Trad A)", CUNY RF, Local, $3,500.00, Funded. (sub: December 2018, start: July 2019, end: June 2020).

Obus, A. (Principal), Grant, "NSA Young Investigators Grant", NSA, Federal, $40,000.00, Funded. (sub: October 2015, start: July 2016, end: August 2017).

Obus, A. (Supporting), Chinburg, T. (Co-Principal), Guralnick, R. (Co-Principal), Harbater, D. (Co-Principal), Pop, F. (Co-Principal), Grant, "Lifting Problems and Galois Theory", NSF, Federal, $1,160,002.00, Funded. (sub: October 2012, start: July 2013, end: June 2017).

Obus, A. (Co-Principal), Rapinchuk, A. (Co-Principal), West, L. (Co-Principal), Grant, "Elliptic Curves, Torsors, and L-Functions (conference grant)", NSF, Federal, $15,000.00, Funded. (sub: September 2016, start: March 24, 2017, end: March 29, 2017).

Obus, A. (Principal), Grant, "NSF Mathematical Sciences Postdoctoral Research Fellowship", NSF, Federal, $135,000.00, Funded. (sub: October 2008, start: July 2009, end: June 2013).

Obus, A., Grant, "NDSEG Graduate Research Fellowship", NDSEG, Federal, $93,000.00, Funded. (sub: December 2005, start: September 2006, end: May 2009).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Final Exam Committee, Committee Member, approximately 3 hours spent for the year, Appointed, Pro Bono. (December 2019 - Present).
Checking departmental final exams for correctness

Baruch Distinguished Math Lectures, approximately 5 hours spent for the year, Appointed, Pro Bono. (January 29, 2019).
Recruited Bjorn Poonen to give the first Baruch Distinguished Lecture in Mathematics.

B. Service to the School

C. Service to the College

D. Service to the Graduate Center

Colette LaPointe, Faculty Advisor, approximately 100 hours spent for the year. (August 2020 - Present).

James Myer, Faculty Advisor, approximately 100 hours spent for the year, Appointed, Pro Bono. (January 2020 - Present).
I co-advise (with Dennis Sullivan) James Myer's Oral Exam study.

George Mitchell, Faculty Advisor, approximately 100 hours spent for the year, Appointed, Pro Bono. (August 2019 - Present).
I advise George Mitchell's PhD thesis.

E. Service to the University

PSC-CUNY Research Award Reviewer, Grant Proposal Reviewer, Internal, approximately 2 hours spent for the year, Appointed, Pro Bono. (2021).
Reviewed 2 PSC-CUNY grant applications for Cycle 52

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

American Mathematical Society, AMS, National. (September 2004 - Present).
The leading American association furthering the interest of research and scholarship in mathematics (also has many international members).

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

Referee, Reviewer, Journal Article, approximately 50 hours spent for the year, Appointed, Pro Bono. (2010 - Present).
Referee on average 6-7 journal articles per year.

American Mathematical Society, Workshop Organizer, Charlottesville, VA, United States, approximately 20 hours spent for the year, Appointed, Pro Bono, Regional, Ran conference with 22 speakers. (March 13, 2020 - March 15, 2020).
Organized special session on "Curves, Jacobians, and Abelian Varieties" at the AMS Southeastern Sectional Meeting in Charlottesville, VA.

American Mathematical Society, Senior Advisor-in-Residence for workshop, Whispering Pines, RI, USA, approximately 40 hours spent for the year, Appointed, Pro Bono, National, Several research groups have published papers. (June 16, 2019 - June 21, 2019).
Advised research groups at workshop for graduate students and postdocs

Elliptic Curves, Torsors, and L-Functions, Workshop Organizer, Charlottesville, VA, USA, approximately 50 hours spent for the year, Appointed, Pro Bono, National. (March 24, 2017 - March 29, 2017).
With Andrei Rapinchuk and Lloyd West, organized 5-day research conference at the University of Virginia

NSF, Reviewer, Grant Proposal, Arlington, VA, USA, approximately 50 hours spent for the year, Appointed, Pro Bono, National. (November 2016 - December 2016).
Reviewed 12 NSF grant proposals in 2016.

Lifting Problems and Galois Theory, Workshop Organizer, Banff, Alberta, Canada, approximately 50 hours spent for the year, Appointed, Pro Bono, International. (August 15, 2015 - August 20, 2015).
With Frauke Bleher, Ted Chinburg, and Rachel Pries, co-Organized Workshop on lifting problems and Galois theory at the Banff International Research Station.

The I-HELP Liberia project, Board Member, New York, NY, USA, approximately 80 hours spent for the year, Elected, Pro Bono, International, Have involved over 200 teachers in workshops. Have received $50,000 in grant money from the McCall MacBain foundation to fund workshops. (June 2011 - Present).
We organize teacher training workshops and STEM competitions in Liberia. I have made 3 trips (2011, 2013, 2017) to run these workshops.

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 3006 - 34252, Elements of Calculus II, 14, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, (Fall 2020).

MTH 4000 - 49433, Bridge to Advanced Mathematics, 35, 3 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).

MTH 4009 - 49431, Proof Writing for Mathematical Analysis, 16, 1 credit hours, Upper Division, Undergraduate, On-Line, new course preparation, (Spring 2020).

MTH 3020 - 40891, Analytic Geometry and Calculus II, 5, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2019).
Pedagogical Innovations: Using Piazza as an interactive platform for student questions and announcements.

MATH 3030 - 40894, Intermediate Calculus, 10, 5 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2019).
Pedagogical Innovations: Using Piazza as an interactive platform for student questions and announcements.

MTH 4000 - 39970, Bridge to Higher Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2019).

MTH 2205 - 55056, Applied Calculus, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 4500 - 54958, Introductory Financial Mathematics, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).
Enhancements to Student Learning: Guest speaker Jon Borer (Vice President at Credit Suisse in Prime Brokerage)

B. New courses/programs developed

MTH 3006 - 34252, Elements of Calculus II, 14, 4 credit hours, Lower Division, Undergraduate, On-Line, new course preparation, (Fall 2020).

MTH 4009 - 49431, Proof Writing for Mathematical Analysis, 16, 1 credit hours, Upper Division, Undergraduate, On-Line, new course preparation, (Spring 2020).

MTH 3020 - 40891, Analytic Geometry and Calculus II, 5, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

MATH 3030 - 40894, Intermediate Calculus, 10, 5 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

MTH 4000 - 39970, Bridge to Higher Mathematics, 35, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2019).

MTH 2205 - 55056, Applied Calculus, 32, 4 credit hours, Lower Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 4500 - 54958, Introductory Financial Mathematics, 29, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

Jarrod Pickens

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University of California	Mathematics	2010
MA	University of California	Mathematics	2004
BS	University of Pittsburgh	Mathematics/Physics	2003

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College, CUNY	Lecturer	Mathematics	August 2010 - Present
Penn State Altoona	Assistant Professor	Mathematics	August 2009 - August 2010

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

University of California, Santa Barbara (UCSB)	MathLab Coordinator	Mathematics	2009
University of California, Santa Barbara	Instructor	Mathematics	2004 - 2009
University of California, Santa Barbara	Teaching Assistant	Mathematics	2003 - 2009
University of California, Santa Barbara	Grader	Mathematics	2005 - 2006
University of Pittsburgh	Research Assistant	Physics	2002

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates
Addison-Wesley/Pearson Education	WeBWork Developer	2006
University of California, Santa Barbara	WeBWork Developer	2006

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Lecturer	August 2010 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

(2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

Pickens, J. (2010). *“Ricci Flow on Manifolds with Circle Action”*.. ProQuest/UMI.

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Pickens, J., Trading Conference, Zicklin, Subotnick Center, "Weaving Trading Into Undergraduate Business Education". (2017).

Pickens, J., RITC Information Session - MFE Programs, Subotnick Center - Baruch College, "RITC - Information & Best Practices". (2016).

Pickens, J., 2012 CUNY Math Conference: Effective Instructional Strategies, CUNY and the Center for Digital Education, John Jay College - CUNY, "WeBWorK Online Homework System", Conference. (May 18, 2012).

Pickens, J. (Presenter & Author), Dissertation Defense, UCSB Math Department, Santa Barbara, "Geometric flows on manifold with circle action". (August 19, 2010).

Pickens, J., Franklin & Marshall College Department of Mathematics, Franklin & Marshall College, "An Introduction to the Poincaré Conjecture and its Proof". (2009).

Pickens, J., Western Kentucky University Department of Mathematics, Western Kentucky University, "Ricci Flow on Manifolds with Boundary/Applications". (2009).

Pickens, J. (Presenter & Author), University of California, Santa Barbara, "Ricci Flow of a Class of Metrics on T2 x I". (2007).

Pickens, J. (Presenter Only), Graduate Student Seminar, UCSB Math Department, UCSB, "Introduction to Clifford Algebras". (2006).

Pickens, J. (Presenter Only), Graduate Student Seminar, UCSB, "The Twin Paradox Revisited". (2004).

Pickens, J. (Presenter & Author), Undergraduate Research Conference, University of Pittsburgh, University of Pittsburgh, "Studying Surface Turbulence Using Photon Correlation Spectroscopy". (2002).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

B. Other completed papers.

C. Research in progress.

Pickens, J. *Cross-curvature flow on manifolds with boundary*..

Pickens, J. *Second Order Renormalization Group Flow on Manifolds with Symmetry*..

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Departmental Fee Fellowship (2004-2009), Awarded by the University of California, Santa Barbara, Department of Mathematics.

Rush Rhees Scholarship(1999-2000), Awarded by the University of Rochester.

Departmental Research Fellowship, Awarded by the University of California, Santa Barbara. (2009).

Raymond A. Wilder Award, Outstanding First Year Mathematics Graduate Student, Awarded by the University of California, Santa Barbara, Department of Mathematics. (2004).

Departmental Honors in Physics, University of Pittsburgh. (2003).

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Webmaster, approximately 36 hours spent for the year, Appointed. (2020 - Present).
Webmaster

Calculus Committee, Committee Member. (August 2013 - Present).
Discussed curriculum for MTH 2610, 3006, 3010, 3020, 3030. Involved with testing books. Coding problems for use with WebAssign.

Math Matters Group, Liaison. (January 2011 - Present).
Met with other CUNY Math Department liaisons to discuss use of CUNY Academic Commons within our departments.

Base Curriculum Committee, Committee Member. (August 2010 - Present).
Discussed curriculum for MTH 2003, 2205, 2207.

Final Exam Committee, Committee Member. (August 2010 - Present).
Assist in preparation of final exams. Created two final exams for Math 2003. Managed creation of Math 2003 exams.

Web Site Committee, Committee Member. (August 2010 - Present).
Maintaining departmental web site.

WeBWorK. (August 2010 - August 2015).
Partially managed WeBWorK system. Managed MTH 2003 courses. Developed software to expedite set up. Developed problem sets for non-standard courses. Created WeBWorK modules for hybrid courses. Assisting in embedding video solutions.

Lecturer Selection Committee, Committee Member. (December 2012 - March 2013).
Selected and interviewed candidates for 2 lecturer positions.

23rd St Room Committee, Committee Member, Prepared a report on the suitability of the classrooms in 17 Lex for use with our courses. (December 2010).
Surveyed the classrooms in 17 Lex and determined their suitability for use with our courses.

B. Service to the School

Committee on Academic Standing, Committee Member. (August 2012 - August 2014).

C. Service to the College

Baruch Traders Club, Faculty Advisor. (2015 - Present).

CUNYfirst Ambassador. (February 2014 - Present).

Joint Committee on Academic Standing, Substitute Member. (August 2012 - Present).

D. Service to the Graduate Center

E. Service to the University

CUNYMath Oversight Committee, Committee Member. (January 2011 - Present).

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 3300, Algorithms and Programming I.

MATH 2205, Applied Calculus.

MTH 2207, Applied Calculus and Matrix Algebra.

MTH 2610, Calculus I.

MATH 3010, Calculus II.

MATH 4240, Differential Geometry.

MATH 3120, Elementary Probability.

MATH 5000, Independent Study: Topics in Probability.

MATH 3020, Intermediate Calculus.

MATH 4120, Introduction to Probability.

MATH 4100, Linear Algebra.

MTH 2003, Precalculus and Elements of Calculus.

MTH 4010, Mathematical Analysis I, (2021).

MTH 9901, Special Topics, (2021).

MTH 3006, Elements of Calculus II, (2020).

CIS 9797, Blockchain Technologies, new course preparation, (2018).

CIS 4620, Financial Information Technologies, new course preparation, (2018).

MTH 9903, Capstone Project and Presentation, (2017).

MTH 4500, Financial Mathematics, (2017).

CIS 9555, IT in Financial Markets, new course preparation, (2017).

MTH 5000, Cryptography, new course preparation, (2016).

MTH 5000, Data Science, new course preparation, (2016).

MTH 4130, Mathematics of Statistics, new format for existing course, (2016).

MTH 3300, Algorithms and Programming 1 (Hybrid), new format for existing course, (2015).

MTH 9816, Fundamentals of Trading, Graduate, new course preparation, (2015).

MATH 2003, Precalculus and Elements of Calculus (Hybrid), new format for existing course, (2012).

B. New courses/programs developed

CIS 9797, Blockchain Technologies, new course preparation, (2018).

CIS 4620, Financial Information Technologies, new course preparation, (2018).

CIS 9555, IT in Financial Markets, new course preparation, (2017).

MTH 5000, Cryptography, new course preparation, (2016).

MTH 5000, Data Science, new course preparation, (2016).

MTH 9816, Fundamentals of Trading, Graduate, new course preparation, (2015).

Rados Radoicic

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	Massachussetts Institute of Technology	Mathematics	2004
BS	Massachusetts Institute of Technology	Mathematics with Computer Sciences	2000

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College - CUNY	Professor	Mathematics, Financial Engineering	September 2017 - Present
Baruch College	Associate Professor	Mathematics	January 2009 - September 2017
Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland	Visiting Research Fellow	Mathematics	October 2015 - November 2015

Alfred Renyi Institute of Mathematics, Budapest, Hungary	Visiting Research Fellow	Mathematics	June 2014
Alfred Renyi Institute of Mathematics, Budapest, Hungary	Visiting Research Fellow	Mathematics	June 2013 - July 2013
Alfred Renyi Institute of Mathematics, Budapest, Hungary	Visiting Research Fellow	Mathematics	June 2012 - July 2012
Alfred Renyi Institute of Mathematics, Budapest, Hungary	Invited Researcher	Mathematics	June 2011 - July 2011
Baruch College	Assistant Professor	Mathematics	September 2006 - January 2009
Rutgers University	Assisstant Professor	Mathematics	July 2004 - July 2006
Alfred Renyi Institute of Mathematics, Budapest, Hungary	Visiting Scholar	Mathematics	June 2005 - July 2005
Alfred Renyi Institute of Mathematics, Budapest, Hungary	Visiting Scholar	Mathematics	June 2004 - July 2004

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Massachusetts Institute of Technology	Teaching Assistant	Mathematics	1999 - 2004
University of Sarajevo	Lecturer	Mathematics	June 1998 - July 1998

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates
Mathematical Sciences Research Institute (MSRI)	Member	September 2003 - November 2003

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Professor	September 2017 - Present
Associate Professor	January 2009 - September 2017
Assistant Professor	September 2006 - January 2009

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

Matic, I., Radoicic, R., & Stefanica, D. (in press). Stochastic Calculus & Probability Quant Interview Questions *Pocket Book Guides for Quant Interviews*. (pp. 344). New York, NY: FE Press LLC.

Radoicic, R., Stefanica, D., & Wang, T.-h. (2013). 150 Most Frequently Asked Questions on Quant Interviews *Pocket Book Guides for Quant Interviews*. (pp. 224). New York, NY: FE Press LLC.

B. Papers in Professional Journals:

(1) Articles:

Matic, I., Radoicic, R., & Stefanica, D. (2020). A PDE method for estimation of implied volatility. *Quantitative Finance, 20*(3), 393-408. https://www.tandfonline.com/doi/abs/10.1080/14697688.2019.1675898?journalCode=rquf20

Alos, E., Gatheral, J., & Radoicic, R. (2020). Exponentiation of Conditional Expectations Under Stochastic Volatility. *Quantitative Finance, 20*(1), 13-27. https://www.tandfonline.com/doi/abs/10.1080/14697688.2019.1642506?journalCode=rquf20

El Euch, O., Gatheral, J., Radoicic, R., & Rosenbaum, M. (2020). The Zumbach effect under rough Heston. *Quantitative Finance, 20*(2), 235-241. https://www.tandfonline.com/doi/abs/10.1080/14697688.2019.1658889?journalCode=rquf20

Gatheral, J., & Radoicic, R. (2019). Rational Approximation of the Rough Heston Solution. *International Journal of Theoretical & Applied Finance, 22*(3), 19. https://www.worldscientific.com/doi/10.1142/S0219024919500109

Matic, I., Radoicic, R., & Stefanica, D. (2018). A sharp Pólya-based approximation to the normal cumulative distribution function. *Applied Mathematics and Computation, 322*(1), 111-122.

Radoicic, R., Matic, I., & Stefanica, D. (2018). A sharp Pólya-based approximation to the normal cumulative distribution function. *Applied Mathematics and Computation, 322*, 12 pages. https://www.sciencedirect.com/science/article/pii/S009630031730718X?via%3Dihub

Radoicic, R., & Stefanica, D. (2017). An Explicit Implied Volatility Formula. *International Journal of Theoretical and Applied Finance, 20*(7), 32 pages. https://www.worldscientific.com/doi/abs/10.1142/S0219024917500480

Radoicic, R., Gatheral, J., Matic, I., & Stefanica, D. (2017). Tighter Bounds for Implied Volatility. *International Journal of Theoretical and Applied Finance, 20*(5), 14 pages.

Radoicic, R., Matic, I., & Stefanica, D. (2017). Pólya-based approximation for the ATM-forward implied volatility. *International Journal of Financial Engineering, 4*, 15 pages. https://www.worldscientific.com/doi/abs/10.1142/S2424786317500323

Radoicic, R., & Stefanica, D. (2016). A Sharp Approximation for ATM-forward Option Prices and Implied Volatilities. *International Journal of Financial Engineering, 3*(1), 24 pages. https://www.worldscientific.com/doi/abs/10.1142/S242478631650002X

Radoicic, R., Kyncl, J., Pach, J., & Toth, G. (2015). Saturated simple and k-simple topological graphs. *Computational Geometry: Theory and Applications, 48*(4), 295-310.

Radoicic, R., Ackerman, E., Pach, J., Pinchasi, R., & Toth, G. (2014). A Note on Coloring Line Arrangements. *Electronic Journal of Combinatorics, 21*(2), 2-23.

Radoicic, R., Pach, J., & Toth, G. (2012). Tangled Thrackles. *Geombinatorics, 21*(4), 157-169.

Radoicic, R., & Pak, I. (2009). Hamiltonian Paths in Cayley Graphs. *Discrete Mathematics, 309*(17), 5501-5508.

Radoicic, R., Fox, J., & Mahdian, M. (2008). Rainbow Solutions to the Sidon Equation. *Discrete Mathematics, 308*, pp. 4773-4778.

Radoicic, R., & Toth, G. (2008). The Discharging Method in Combinatorial Geometry and the Pach-Sharir Conjecture. *Contemporary Mathematics. American Mathematical Society, 453*, pp. 319-342.

Radoicic, R., Conlon, D., & Jungic, V. (2007). On the Existence of Rainbow 4-term Arithmetic Progressions. *Graphs and Combinatorics, 23*, pp. 249-254.

Radoicic, R., Alon, N., Sudakov, B., & Vondrak, J. (2006). A Ramsey-type Result for the Hypercube. *Journal of Graph Theory, 53*, pp. 196-208.

Radoicic, R., Pach, J., Tardos, G., & Toth, G. (2006). Improving the Crossing Lemma by Finding More Crossings in Sparse Graphs. *Discrete and Computational Geometry, 36*, pp. 527-552.

Radoicic, R., Pach, J., & Vondrak, J. (2006). Nearly Equal Distances and Szemeredi's Regularity Lemma. *Computational Geometry: Theory and Applications, 34*, pp. 11-19.

Radoicic, R., Pinchasi, R., & Sharir, M. (2006). On Empty Convex Polygons in a Planar Point Set. *Journal of Combinatorial Theory, Series A, 113*, 385-419.

Radoicic, R., Pach, J., & Vondrak, J. (2006). On the Diameter of Separated Point Sets with Many Nearly Equal Distances. *European Journal of Combinatorics, 36*, pp. 1321-1332.

Radoicic, R., Alon, N., Pach, J., Pinchasi, R., & Sharir, M. (2005). Crossing Patterns of Semi-Algebraic Sets. *Journal of Combinatorial Theory, Series A, 111*, 310-326.

Radoicic, R., Iorio, M., Ismailescu, D., & Silva, M. (2005). On Point Sets Containing Their Triangle Centers. *Revue Roumaine de Mathematiques Pures et Appliquees, 50*(5-6), pp. 677-693.

Radoicic, R., & Fox, J. (2005). On the Degree of Regularity of Generalized van der Waerden Triples. *Integers, The Electronic Journal of Combinatorial Number Theory, 5*(1), #A32, 6 pages.

Radoicic, R., Jungic, V., & Nesetril, J. (2005). Rainbow Ramsey Theory. *Integers, The Electronic Journal of Combinatorial Number Theory, 5*(2), #A9, 13 pages.

Radoicic, R., & Ismailescu, D. (2004). A Dense Planar Point Set from Iterated Line Intersections. *Computational Geometry: Theory and Applications, 27*, pp. 257-267.

Radoicic, R., Pach, J., & Toth, G. (2004). A Generalization of Quasi-Planarity. *Contemporary Mathematics, American Mathematical Society, 342*, pp. 177-183.

Radoicic, R., & Dumitrescu, A. (2004). On a Coloring Problem for the Integer Grid. *Contemporary Mathematics, American Mathematical Society, 342*, pp. 67-74.

Radoicic, R., & Pinchasi, R. (2004). Topological Graphs with No Self-Intersecting Cycle of Length 4. *Contemporary Mathematics, American Mathematical Society, 342*, pp. 233-243.

Radoicic, R., & Toth, G. (2003). Monotone Paths in Line Arrangements. *Computational Geometry: Theory and Applications, 24*, pp. 129-134.

Radoicic, R., & Toth, G. (2003). Note on the Chromatic Number of the Space. *Discrete and Computational Geometry*, pp. 695-699.

Radoicic, R., & Jungic, V. (2003). Rainbow 3-Term Arithmetic Progessions. *Integers, The Electronic Journal of Combinatorial Number Theory, 3, A18*, 8 pages.

Radoicic, R., Jungic, V., Licht, J., Mahdian, M., & Nesetril, J. (2003). Rainbow Arithmetic Progressions and Anti-Ramsey Results. *Combinatorics, Probability and Computing, 12*, pp. 599-620.

Radoicic, R., & Marinov, D. (2002). Counting 1234-Avoiding Permutations. *The Electronic Journal of Combinatorics, 9*(2), R13, 9 pages.

(2) Proceedings:

Radoicic, R. (Presenter & Author), Integers Conference in Honor of Ron Graham, University of West Georgia, GA, "Ramsey-type results for the hypercube", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (November 2005).

Radoicic, R. (Presenter & Author), MSRI Postdoc Seminar, MSRI, Berkeley, CA, "Rainbow Ramsey Theory", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (October 2004).

Radoicic, R. (Presenter & Author), 20th Annual ACM Symposium on Computational Geometry, ACM, Brooklyn, NY, "Improving the Crossing Lemma by finding more crossings in sparse graphs", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (June 2004).

Radoicic, R. (Presenter & Author), 20th Annual ACM Symposium on Computational Geometry, ACM, Brooklyn, NY, "On empty convex polygons in a planar point set", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (June 2004).

Radoicic, R. (Presenter & Author), MIT Graduate Applied Mathematics Seminar, MIT, Cambridge, MA, "Noncrossing configurations in geometric graphs", Seminar, Local, published in proceedings, Accepted. (December 2001).

Radoicic, R. (Presenter & Author), NYU Geometry Seminar, CIMS, New York University, New York, "Noncrossing configurations in geometric graphs", Seminar, National, published in proceedings, Accepted. (December 2001).

Radoicic, R. (Presenter & Author), 11th Annual Fall Workshop on Computational Geometry, Polytechnic University, Brooklyn, NY, "Noncrossing configurations in geometric graphs", Conference, International, Refereed, published in proceedings, Accepted. (November 2001).

Radoicic, R. (Presenter & Author), KAM/DIMATIA Discrete Mathematics Seminar, Charles University, Prague, Czech Republic, "Monotone paths in line arrangements", Seminar, State, published in proceedings, published elsewhere, Accepted. (July 2001).

Radoicic, R. (Presenter & Author), 16th Annual ACM Symposium on Computational Geometry, Tufts University, Medford, MA, "Monotone paths in line arrangements", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (June 2001).

C. Chapters in Books:

Radoicic, R., & Fulek, R. (2015). Vertical Visibility Among Parallel Polygons in Three Dimensions *Graph Drawing and Network Visualization*. (vol. 9411, pp. 373-379). Lecture Notes in Computer Science.

Radoicic, R., Fox, J., & Jungic, V. (2007). Sub-Ramsey Numbers for Arithmetic Progressions and Schur Triples. In B. Landman, M. B. Nathanson, & J. Nesetril (Eds.), *Combinatorial Number Theory: Proceedings of the 'Integers Conference 2005' in Celebration of the 70th Birthday of Ronald Graham, Carrollton, Georgia, ... 2005 (De Gruyter Proceedings in Mathematics)* (pp. pp. 179-198). de Gruyter.

Radoicic, R., Pach, J., & Toth, G. (2006). Relaxing Planarity for Topological Graphs. In E. Gyori & G. O.H. Katona (Eds.), *Bolyai Society Mathematical Studies* (vol. 15, pp. 285-300). Budapest: Bolyai Mathematical Society.

D. Government Reports or Monographs:

E. Book Reviews:

7. <u>OTHER PUBLICATIONS:</u>

Radoicic, R. (2012). Tangled Thrackles *Computational Geometry - XIV Spanish Meeting on Computational Geometry, EGC 2011, Dedicated to Ferran Hurtado on the Occasion of His 60th Birthday, Alcalá de Henares, Spain, June 27-30, 2011* In Márquez, Alberto; Ramos, Pedro; Urrutia, Jorge (Ed.). (vol. 7579, pp. 45-53). Lecture Notes in Computer Science.

Radoicic, R., Pach, J., & Toth, G. (2004). Improving the Crossing Lemma by Finding More Crossings in Sparse Graphs *Proceedings of the 20th Annual ACM Symposium on Computational Geometry*. (pp. 68-75).

Radoicic, R., Pinchasi, R., & Sharir, M. (2004). On Empty Convex Polygons in a Planar Point Set *Proceedings of the 20th Annual ACM Symposium on Computational Geometry*. (pp. 391-400).

Radoicic, R., Pach, J., & Toth, G. (2003). Relaxing planarity for topological graphs *Discrete and Computational Geometry* In J. Akiyama, M. Kano (Ed.). (vol. 2866, pp. 221-232). Lecture Notes in Computer Science, Springer-Verlag, Berlin.

Radoicic, R., & Pinchasi, R. (2003). Topological Graphs with no Self-Intersecting Cycle of Length 4 *Proceedings of the 19th Annual ACM Symposium on Computational Geometry*. (pp. 98-103).

Radoicic, R., & Toth, G. (2001). Monotone Paths in Line Arrangements *Proceedings of the 17th Annual ACM Symposium on Computational Geometry*. (pp. 312-315).

Radoicic, R., & Toth, G. (2001). Noncrossing Configurations in Geometric Graphs *11th Annual Fall Workshop on Computational Geometry, Polytechnic University, Brooklyn, NY*. (pp. 45-51).

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Radoicic, R., NYU Geometry Seminar, New York University, New York, NY, "Saturated simple topological graphs", Seminar, Regional, published elsewhere, Accepted. (February 2015).

Radoicic, R., MIT Combinatorics Seminar, Massachusetts Institute of Technology, Cambridge, MA, "Saturated simple topological graphs", Seminar, Regional, published elsewhere, Accepted. (September 2014).

Radoicic, R., Summit 240: Frankl + Furedi + Gyori + Pach Conference, Alfred Renyi Institute of Mathematics, Budapest, Hungary, "Saturated topological graphs", Conference, International, published elsewhere, Accepted. (July 2014).

Radoicic, R., Columbia University Discrete Mathematics Seminar, Columbia University, New York, NY, "Vertical visibility among polygons in 3 dimensions", Seminar, Regional, published elsewhere, Accepted. (March 2014).

Radoicic, R. (Presenter & Author), University of Calgary Combinatorics and Discrete Geometry Seminar, University of Calgary, Calgary, Alberta, Canada, "Some recent results on topological graphs", Seminar, Local, published elsewhere, Accepted. (November 2013).

Radoicic, R., Annual Workshop on Combinatorial and Additive Number Theory, CUNY Graduate Center, New York, NY, "Recent results in (rainbow) Ramsey theory on integers", Workshop, International, Accepted. (May 2013).

Radoicic, R. (Presenter & Author), CUNY Combinatorics Seminar, CUNY Graduate Center, New York, NY, "Some recent results on topological graphs", Seminar, Local, published elsewhere, Accepted. (October 2012).

Radoicic, R. (Presenter & Author), 10th Annual Workshop on Combinatorial and Additive Number Theory, CUNY Graduate Center, New York, NY, "Recent results in rainbow Ramsey theory", Workshop, National, Accepted. (May 2012).

Radoicic, R. (Presenter & Author), NYU Geometry Seminar, CIMS, NYU, New York, NY, "On two problems in combinatorial geometry", Seminar, National, published elsewhere, Accepted. (April 2012).

Radoicic, R. (Presenter & Author), MIT Combinatorics Seminar, MIT, Cambridge, MA, "Tangles and Thrackles", Seminar, Regional, published elsewhere, Accepted. (March 2012).

Radoicic, R. (Presenter & Author), 3rd Emlektabla Workshop, Janos Bolyai Mathematical Society, Balatonalmadi, Hungary, "Tangled thrackles", Workshop, International, published elsewhere, Accepted. (June 2011).

Radoicic, R. (Presenter & Author), Conference on Geometric Graph Theory, Bernoulli Interdisciplinary Center, EPFL, Lausanne, Switzerland, "Some recent results on topological graphs", Conference, International, Refereed, published elsewhere, Invited. (September 2010).

Radoicic, R. (Presenter & Author), Conference on Algorithmic and Combinatorial Geometry, Alfred Renyi Institute of Mathematics, Budapest, Hungary, "Crossing patterns", Conference, Accepted. (June 2009).

Radoicic, R. (Presenter & Author), Intuitive Geometry Conference (in memoriam of Laszlo Fejes Toth), Alfred Renyi Institute of Mathmatics, Budapest, Hungary, "Turan-type Problems for Geometric Graphs", Conference, International, published elsewhere, Accepted. (July 2008).

Radoicic, R. (Presenter & Author), AMS Central Section Meeting, DePaul University, Chicago, IL, "Extremal problems on topological graphss", Session, National, published elsewhere, Accepted. (October 2007).

Radoicic, R. (Presenter & Author), CANADAM: The 1st Canadian Discrete and Algorithmic Mathematics Conference, Banff Conference Center, Alberta, Canada, "The Discharging Method and Its Applicatios for Graph Drawing", Conference, International, published elsewhere, Accepted. (May 2007).

Radoicic, R. (Presenter & Author), EXCILL: Extremal Combinatorics at Illinois, University of Illinois, Urbana-Champaign, IL, "Turan-type problems for intersection graphs of convex sets", Conference, National, published elsewhere, Accepted. (November 2006).

Radoicic, R. (Presenter & Author), Princeton Discrete Mathematics Seminar, Princeton University, Princeton, NJ, "Turan-type problems for intersection graphs of convex sets", Seminar, Local, published elsewhere, Accepted. (November 2006).

Radoicic, R. (Co-Chair), Workshop on topological graph theory and crossing numbers, Banff International Research Station, Alberta, Canada, "Turan-type problems for intersection graphs of convex sets", Workshop, International, published elsewhere, Accepted. (October 2006).

Radoicic, R. (Presenter & Author), DIMACS/DIMATIA/Renyi Combinatorial Challenges Meeting, DIMACS Center, Rutgers University, Piscataway, NJ, "Van der Waerden diversions", Conference, International, Accepted. (April 2006).

Radoicic, R. (Presenter & Author), CUNY Combinatorics Seminar, CUNY, Graduate Center, New York, NY, "Old and new directions in Ramsey theory on integers", Seminar, Local, published elsewhere, Accepted. (March 2006).

Radoicic, R. (Presenter & Author), Dartmouth College Math Colloquium, Dartmouth College, Hanover, NH, "Intersection patterns of geometric objects", Seminar, Local, published elsewhere, Accepted. (February 2006).

Radoicic, R. (Presenter & Author), Northeastern University Geometry-Algebra-Singularities-Combinatorics Seminar, Northeastern University, Boston, MA, "Intersection patterns of geometric objects", Seminar, Local, published elsewhere, Accepted. (February 2006).

Radoicic, R. (Presenter & Author), New York Number Theory Seminar, CUNY Graduate Center, New York, NY, "Some new directions in Ramsey Theory", Seminar, Local, published elsewhere, Accepted. (December 2005).

Radoicic, R. (Presenter & Author), MIT Combinatorics Seminar, MIT, Cambridge, MA, "Ramsey-type results for the hypercube", Seminar, National, published elsewhere, Accepted. (November 2005).

Radoicic, R. (Presenter & Author), (AMS Eastern Sectional Meeting) Special Session on Extremal and Probabilistic Combinatorics, AMS, Bard College, Annadale-on-Hudson, NY, "On the diameter of separated point sets with many nearly equal distances", Session, Regional, Refereed, published elsewhere, Accepted. (October 2005).

Radoicic, R. (Presenter & Author), Rutgers Discrete Mathematics and Theory of Computing Seminar, Rutgers University, Piscataway, NJ, "Intersection patterns of geometric objects", Seminar, Local, published elsewhere, Accepted. (September 2005).

Radoicic, R. (Presenter & Author), A Taste of Pi (NSERC program for high school students), Department of Mathematics, Simon Fraser University, Burnaby, BC, Canada, "Iterative processes in the plane", Seminar, Local, published elsewhere, Accepted. (May 2005).

Radoicic, R. (Presenter & Author), SFU Discrete Mathematics Seminar, Simon Fraser University, Burnaby, BC, Canada, "Intersection patterns of geometric objects", Seminar, Local, published elsewhere, Accepted. (May 2005).

Radoicic, R. (Presenter & Author), AMS Special Session on Probabilistic Paradigms in Combinatorics, AMS, Umiversity of Delaware, Newark, DE, "Intersection patterns of geometric objects", Session, National, Refereed, published elsewhere, Accepted. (April 2005).

Radoicic, R. (Presenter & Author), Princeton Discrete Mathematics Seminar, Princeton University, Princeton, NJ, "Intersection patterns of geometric objects", Seminar, National, published elsewhere, Accepted. (February 2005).

Radoicic, R. (Presenter & Author), CUNY Combinatorics Seminar, CUNY Graduate Center, New York, NY, "Iterative processes in the plane", Seminar, Local, published elsewhere, Accepted. (November 2004).

Radoicic, R. (Presenter & Author), Baruch College Mathematics Department Seminar, CUNY, Baruch College, New York, "Crossing patterns in geometric graphs", Session, Local, published elsewhere, Accepted. (February 2004).

Radoicic, R. (Presenter & Author), Microsoft Theory Research Group, Microsoft, Redmond, WA, "Extremal problems in geometric graph theory", Seminar, Accepted. (January 2004).

Radoicic, R. (Presenter & Author), MIT Combinatorics Seminar, MIT, Cambridge, MA, "Crossing patterns in geometric graphs", Seminar, International, published elsewhere, Accepted. (December 2003).

Radoicic, R. (Presenter & Author), MSRI Postdoc Seminar, MSRI, Berkeley, CA, "Crossing patterns of semi-algebraic sets", Seminar, Regional, published elsewhere, Accepted. (November 2003).

Radoicic, R. (Presenter & Author), MIT Graduate Applied Mathematics Seminar, MIT, Cambridge, MA, "A dense planar point set from iterated line intersections", Seminar, Local, published elsewhere, Accepted. (October 2003).

Radoicic, R. (Presenter & Author), Workshop on Extremal Graph Theory, Alfred Renyi Institute of Mathematics, Csopak, Hungary, "Crossing patterns in geometric graphs", Workshop, International, Accepted. (June 2003).

Radoicic, R. (Presenter & Author), CUNY Combinatorics Seminar, City University of New York, NYC, NY, "Graphs drawn with at most 3 crossing per edge", Seminar, Local, published elsewhere, Accepted. (November 2002).

Radoicic, R. (Presenter & Author), MIT Graduate Applied Mathematics Seminar, MIT, Cambridge, MA, "Relaxations of planarity and locally planar graphs", Seminar, Local, published elsewhere, Accepted. (November 2002).

Radoicic, R. (Presenter & Author), NYU Geometry Seminar, CIMS, New York University, New York, "On a coloring problem for the integer grid", Seminar, National, published elsewhere, Accepted. (November 2002).

Radoicic, R. (Presenter & Author), DIMACS Workshop on Geometric Graph Theory, Rutgers University, Piscataway, NJ, "On topological graphs with no self-intersecting cycle of length 4", Workshop, International, Refereed, published elsewhere, Accepted. (October 2002).

Radoicic, R. (Presenter & Author), SFU Discrete Mathematics Seminar, Simon Fraser University, Burnaby, BC, Canada, "Rainbow arithmetic progressions", Seminar, Local, published elsewhere, Accepted. (May 2002).

Radoicic, R. (Presenter & Author), CUNY Combinatorics Seminar, CUNY, NYC, NY, "The chromatic number of 3-space", Seminar, Local, published elsewhere, Accepted. (October 2001).

Radoicic, R. (Presenter & Author), MIT Graduate Applied Mathematics Seminar, MIT, Cambridge, MA, "k-set problem and monotone paths in line arrangements", Seminar, Local, Accepted. (June 2001).

9. <u>WORK IN PROGRESS:</u>

A. Papers submitted to journals for consideration.

Friz, P., Gatheral, J., & Radoicic, R. Forests, cumulants, martingales. *The Annals of Probability*, 25.

B. Other completed papers.

C. Research in progress.

Radoicic, Rados, Matic, Ivan, Stefanica, Dan, "50 Challenging Brainteasers from Quant Interviews", Writing Results, Scholarly.
Pocket Book Guides for Quant Interviews, FE Press LLC

Radoicic, Rados, Fox, J., "Degree of Regularity and the Axioms of Set Theory", Writing Results, Scholarly.

Radoicic, Rados, Jungic, V., Brown, T., "Monochromatic Exponential Triples", Writing Results, Scholarly.

Radoicic, Rados, Howard, C. Douglas, "On a Continuous Version of the Gamow-Stern Elevator Problem", Writing Results, Scholarly.

Radoicic, Rados, Fox, J., Jungic, V., "On the Existence of Arithmetic Progressions with a Specified Color Pattern or Common Difference", Writing Results, Scholarly.

Radoicic, Rados, G. Toth, "Saturated and Game Variants of Erdos-Szekeres Theorem", On-Going, Scholarly.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Presidential Excellence Award, Baruch College, Teaching, University. (2014).
nominated

Presidential Excellence Award, Baruch College, Teaching, University. (2013).
nominated

Presidential Excellence Award, Baruch College, Teaching, University. (2010).
nominated

Friend of SEEK (Search for Education Elevation Knowledge) Award, Baruch College, Teaching, School. (April 2010).

Marie Curie Fellowship for the Transfer of Knowledge, Visiting Reseach Fellowship, Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences, Budapest Hungary, Scholarship/Research, International. (June 2006).

Selected among the fifty most successful refugees, Ministry of Education of Bosnia & Herzegovina, Leadership, National. (2005).

Marie Curie Fellowship for the Transfer of Knowledge, Visiting Reseach Fellowship, Alfred Renyi Institute of Mathematics, Hungarian Academy of Sciences, Budapest Hungary, Scholarship/Research, International. (June 2005).

2004-05 Herman Goldstine Postdoctoral Fellowship, finalist, Mathematical Sciences Department, IBM Thomas J. Watson Research Center, Scholarship/Research, International. (2004).

2004 American Institute of Mathematics Five-Year Fellowship, runner up, American Institute of Mathematics, Scholarship/Research, National. (January 2004).

Mathematical Sciences Research Institute, General Membership, Program: Discrete and Computational Geometry, Berkeley, California, Scholarship/Research, International. (September 2003).

Visiting Student Fellowship, Central European University, Scholarship/Research, International. (July 2002).

Visiting Student Fellowship, DIMATIA, Center for Discrete Mathematics and Theoretical Informatics and Applications, Prague, Czech Republic, Scholarship/Research, International. (July 2001).

Walter A. Rosenblith Fellowship, MIT. (April 2001).

AMS Institutional Nominee for MAA and AMS Membership. (April 2000).

11. GRANTS-IN-AID:

Radoicic, R. (Supporting), Grant, "EU project 267165-DISCONV", European Research Council, Other, $21,000.00, Funded. (start: 2011, end: 2014).

Radoicic, R. (Principal), Grant, "3-year research grant, DMS 0503184 continued as DMS 0719830 after transfer to Baruch College, NSF Division: DMS; Program name: Algebra, Number Theory and Combinatorics. Project Title: Graph Theory, Ramsey Theory and Combinatorial Geometry", National Science Foundation, $109,168.00. (start: June 1, 2005, end: May 31, 2009).

Radoicic, R., Grant, "On the Existence of Crossing Configurations in Graph Drawings and Intersection Graphs", PSC-CUNY 38 Research Award, PSCOOC-38-176, $4,017.00. (start: July 1, 2007, end: December 31, 2008).

Radoicic, R. (Co-Principal), Pach, J. (Principal), Grant, "NYU, NSF Grant CCR-00-98245", Courant Institute of Mathematical Sciences, $5,000.00. (start: July 2004, end: August 2004).

Radoicic, R. (Co-Principal), Pach, J. (Principal), Grant, "Courant Institute of Mathematical Sciences NSF grant CCR-00-98246", $5,000.00. (start: June 2003, end: July 2003).

Radoicic, R. (Co-Principal), Vempala, S. (Principal), "Research Assistantship, NSF Grant CCR-9875024", MIT, $2,000.00. (end: August 2001).

Radoicic, R. (Co-Principal), Toth, G. (Principal), "Research Assistantship. NSF Grant DMS 99-70071", MIT, $2,000.00. (end: June 2001).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Department Committee on Computer Science Curriculum, Committee Member, Appointed. (2009 - Present).

Department Committee on Honors and Academic Standing, Committee Member, Appointed. (2009 - Present).

Department Executive Committee, Committee Member, Elected. (2009 - Present).
Application evaluation, phone interviews, teaching observations, post-observation conferences

Admissions Committee for the MFE Program, Committee Member, Appointed. (2007 - Present).
Application evaluation, conducting first round phone interviews

Department Committee on Curriculum, Committee Member, Appointed. (2007 - Present).

Final Exams Committee, Committee Member, Elected. (2006 - Present).

Masters in Financial Engineering Committee, Committee Member, Elected. (2006 - Present).

Transcript evaluation and placement of transfer students, Faculty Advisor. (2006 - Present).

B. Service to the School

Graduate Studies Committee, Committee Member, Elected. (2008 - 2011).

C. Service to the College

Department Committee on Masters Program in Financial Engineering, Committee Member, Appointed. (2014 - Present).
Worked on the proposal and the curriculum development for the new Bachelor of Science in Financial Engineering program

9th Annual Rotman International Trading Competition at the Rotman School of Management, University of Toronto, Faculty Mentor, The Baruch MFE teams ranked first and fourth place out of 50 teams. (2012).

Baruch's First Annual Mathlete Competition, Committee Chair. (2008).

D. Service to the Graduate Center

E. Service to the University

CUNY Math Challenge Committee (CUNY-wide Undergraduate Contest in Mathematics), Committee Member, Appointed. (September 2008 - Present).
Sponsored by the Office of Academic Affairs and the CUNY Institute for Software Design and Development (CISDD) and supported by the Office of the Chancellor

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

Society for Industrial and Applied Mathematics, SIAM, member, International. (2002 - Present).

American Mathematical Society, AMS, member, National. (1999 - Present).

The Mathematical Association of America, MAA, member, National. (1999 - Present).

Bosnian Mathematical Society, BMS, member, National. (1998 - Present).

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

Quantitative Finance, Reviewer, Journal Article, International. (2016 - Present).

Central European Journal of Mathematics, Editor, Journal Editor, Appointed, International. (2011 - Present).

Journal of Graph Theory, Reviewer, Journal Article, International. (2007 - Present).

NSA Grant in Mathematical Sciences, Reviewer, Grant Proposal, Appointed. (2007 - Present).

Combinatorica, Reviewer, Journal Article, International. (2006 - Present).

Journal of Combinatorial Theory, Series B, Reviewer, Journal Article, International. (2006 - Present).

Annual International Symposium on Graph Drawing, Reviewer, Conference Paper, Elected, International. (2004 - Present).

Graphs and Combinatorics, Reviewer, Journal Article, International. (2004 - Present).

Integers, the Electronic Journal of Combinatorial Number Theory, Reviewer, Journal Article, International. (2004 - Present).

Annual ACM Symposium on Computational Geometry, Reviewer, Conference Paper, Elected, International. (2003 - Present).

Electronic Journal of Combinatorics, Reviewer, Journal Article, International. (2003 - Present).

Discrete Mathematics, Reviewer, Journal Article, International. (2002 - Present).

Journal of Combinatorial Theory, Series A, Reviewer, Journal Article, International. (2002 - Present).

Computational Geometry: Theory and Applications, Reviewer, Journal Article, International. (2001 - Present).

Discrete and Computational Geometry, Reviewer, Journal Article, International. (2001 - Present).

20th International Symposium on Graph Drawing, Reviewer, Conference Paper, Redmond, WA, USA, International. (2012).

38th ACM Symposium on Theory of Computing (STOC), Reviewer, Conference Paper, Seattle, WA, USA, Elected, International. (2006).

Discrete Math and Theory of Computing Seminar at Rutgers University, Program Organizer, Piscataway, NJ, USA. (2005 - 2006).

Symposium on Geometric Graph Theory at the SIAM Conference on Discrete Mathematics, Workshop Organizer, Victoria, British Columbia, Canada, International. (December 2005 - June 2006).

Research Problems in Discrete Geometry (P. Brass, W. Moser, J. Pach), Springer, 2005, Reviewer, Book. (2005).

Handbook of Discrete and Computational Geometry (J.E. Goodman, J. O'Rourke, eds.), Reviewer, Book. (2004).

Towards a Theory of Geometric Graphs, Contemporary Mathematics, Volume 342, AMS, Reviewer, Book. (2004).

Discrete and Computational Geometry: The Goodman-Pollack Festschrift, Springer, 2003, Reviewer, Book. (2003).

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 4000, Bridge to Higher Mathematics, (Spring 2021).

MTH 4140, Graph Theory, (Spring 2021).

MTH 3010, Calculus II, (Fall 2020).

MTH 9903, Capstone Project and Presentation, (Fall 2020).

MTH 4150, Combinatorics, (Fall 2020).

MTH 5001, Independent Study Math II, (Fall 2020).

MTH 5001, Independent Study Math I, (Spring 2020).

MTH 9903, Capstone Project and Presentation, (Fall 2019).

MTH 4150, Combinatorics, (Fall 2019).

MTH 3010, Elementary Calculus II, (Fall 2019).

MTH 2003, Pre-calculus and Elements of Calculus, (Summer 2019).

MTH 9903, Capstone Project and Presentation, (Spring 2019).

MTH 4500, Introductory Financial Mathematics, (Spring 2019).

MTH 4009, Proof Writing for Mathematical Analysis, (Spring 2019).

MTH 4150, Combinatorics, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 4120, Introduction to Probability, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 4500, Introductory Financial Mathematics, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2018).

MTH 4150, Combinatorics, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2017).

MTH 4120, Introduction to Probability, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2017).

MTH 4119, Multivariate Probability Distributions, 1 credit hours, Upper Division, Undergraduate, (Fall 2017).

MTH 9893, Time Series Analysis, 1.5 credit hours, Graduate, (Fall 2017).

MTH 4140, Graph Theory, 3 credit hours, Upper Division, Undergraduate, (Spring 2017).

MTH 4500, Introductory Financial Mathematics, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2017).

MTH 9900, Special Topics in Mathematics, (Spring 2017).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2016).

MTH 4000, Bridge to Higher Mathematics, Upper Division, Undergraduate, new course preparation, (Fall 2015).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2015).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2014).

MTH 4120, Probability, Upper Division, Undergraduate, (Fall 2014).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2014).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2013).

MTH 4500, Introductory Financial Mathematics, Upper Division, Undergraduate, (Fall 2013).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2013).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2012).

MTH 4500, Introductory Financial Mathematics, Upper Division, Undergraduate, (Fall 2012).

MTH 2205, Applied Calculus, Lower Division, Undergraduate, (Spring 2012).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2012).

MATH 3100, Selected Topics in Discrete Mathematics, Upper Division, Undergraduate, new course preparation, (Spring 2012).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2011).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Fall 2011).

MATH 4005, Problem Solving Seminar, Upper Division, Undergraduate, new course preparation, (Fall 2011).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2011).

MATH 9891, Introduction to Applied Financial Econometrics, Graduate, new course preparation, (Winter 2011).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2010).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Fall 2010).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2010).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Spring 2010).

MTH 2610, Calculus I, Lower Division, Undergraduate, (Fall 2009).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2009).

MTH 9841, Statistics for Finance, Graduate, (Summer 2009).

MTH 2205, Applied Calculus, Lower Division, Undergraduate, (Spring 2009).

MTH 4140, Graph Theory, Upper Division, Undergraduate, (Spring 2009).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Spring 2009).

MTH 9814, A Quantitative Introduction to Pricing Financial Instruments, Graduate, (Fall 2008).

MTH 4150, Combinatorics, Upper Division, Undergraduate, (Fall 2008).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Fall 2008).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Spring 2008).

MTH 4120, Probability, Upper Division, Undergraduate, (Spring 2008).

MTH 4150, Combinatorics, Upper Division, Undergraduate, new format for existing course, (Fall 2007).

MTH 9841, Statistics for Finance, Graduate, new format for existing course, (Summer 2007).

MTH 2205, Applied Calculus, Lower Division, Undergraduate, (Spring 2007).

MTH 4140, Graph Theory, Upper Division, Undergraduate, new format for existing course, (Spring 2007).

MTH 3010, Calculus II, Lower Division, Undergraduate, (Fall 2006).

MTH 2003, Precalculus and Elements of Calculus, Lower Division, Undergraduate, (Fall 2006).

B. New courses/programs developed

MTH 4000, Bridge to Higher Mathematics, Upper Division, Undergraduate, new course preparation, (Fall 2015).

MATH 3100, Selected Topics in Discrete Mathematics, Upper Division, Undergraduate, new course preparation, (Spring 2012).

MATH 4005, Problem Solving Seminar, Upper Division, Undergraduate, new course preparation, (Fall 2011).

MATH 9891, Introduction to Applied Financial Econometrics, Graduate, new course preparation, (Winter 2011).

Tim Ridenour

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University of California, Riverside	Mathematics	2010
MS	University of California, Riverside	Mathematics	2008
BA	Cornell University	Mathematics	2004

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College, City University of New York	Lecturer	Mathematics	August 27, 2013 - Present
Northwestern University	Visiting Lecturer	Mathematics	September 1, 2010 - August 15, 2013

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
University of California, Riverside	Teaching Assistant/Teaching Fellow	Mathematics	September 1, 2004 - June 30, 2010

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Lecturer	August 27, 2013 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Ridenour, T., Khare, A., & Chari, V. (2012). Faces of Polytopes and Koszul Algebras. *Journal of Pure and Applied Algebra, 216*(7), 1611 - 1625.

Ridenour, T., & Khare, A. (2012). Faces of Weight Polytopes and a Generalization of a Theorem of Vinberg. *Algebras and Representation Theory, 15*(3), 593 - 611.

Ridenour, T., Dolbin, R., & Chari, V. (2009). Ideals of Parabolic Subalgebras of Simple Lie Algebras. *Contemporary Mathematics, 409*, 47 - 60.

(2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Ridenour, T., CUNY Representation Theory Seminar, CUNY Graduate Center, "Faces of weight polytopes and Koszul algebras", Seminar, Local. (November 18, 2016).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Ridenour, T., & Senesi, P. The Euclidean geometry of cardinal welfare functions. *Social Choice and Welfare*. https://arxiv.org/pdf/1609.07673.pdf

B. Other completed papers.

C. Research in progress.

Ridenour, T., Dolbin, R., & Park, S. *Abelian p0-Module Subalgebras in Z2-graded subalgebras*..

Ridenour, T. *Prime Factorizations of finite-dimensional modules for Simple Lie Algebras*..

Ridenour, T., & Sandler, A. *ad-Nilpotent positively-graded Borel module subalgebras*.. arxiv.org/pdf/1209.3832v2.pdf

Ridenour, Timothy, Prasad Senesi, "Algebraic voting theory", On-Going, Scholarly.
Applying representation theoretic techniques to the study of (ranked) voting methods.

Ridenour, Timothy, Malaika Iyer, "Combinatorial Ideals for Twisted Affine Lie Algebras", On-Going, Scholarly.
The aim of this project is to classify the sets of roots which determine a combinatorial ideal in a Borel subalgebra for a twisted affine Lie algebra up to an equivalence relation.

Ridenour, Timothy, Ovadia Sutton, "Prime Factorizations of finite-dimensional modules for Simple Lie Algebras", On-Going, Scholarly.

A study of tensor product factorizations of certain finite-dimensional representations for simple finite-dimensional Lie algebras.

Ridenour, Timothy, Jamie Ephraim, "Probability and Condorcet cycles in Voting Theory", On-Going, Scholarly.
A systematic study of Condorcet cycles in ranking voting procedures using methods from both representation theory and probability.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Prize Committee, Committee Chair, Appointed, Pro Bono. (August 1, 2019 - Present).

Actuarial Science, Committee Chair, Appointed, Pro Bono. (August 27, 2018 - Present).

Calculus, Committee Member, Appointed, Pro Bono. (August 27, 2018 - Present).

Curriculum, Committee Member. (August 27, 2018 - Present).

Committee on Math Placement, Committee Member, approximately 10 hours spent for the year, Appointed, Pro Bono. (September 1, 2017 - Present).

Base Curriculum, Committee Member. (August 27, 2013 - Present).

Final Exam, Committee Member. (August 27, 2013 - Present).

Prize committee, Committee Member, Appointed. (April 2017 - July 31, 2019).

Actuarial Science, Committee Member. (August 27, 2015 - August 26, 2018).

Committee on Math Placement, Committee Member, approximately 10 hours spent for the year. (September 26, 2016 - October 26, 2016).

B. Service to the School

WSAS Assessment Committee, Committee Member. (August 27, 2018 - Present).

Weissman Undergraduate Committee on Academic Standing, Committee Member, approximately 10 hours spent for the year, Elected, Pro Bono. (September 2016 - Present).

Improving Learning Outcomes with Structured Knowledge Through Adaptive Learning Technologies, Committee Member, approximately 15 hours spent for the year, Appointed, Compensated. (September 1, 2015 - May 31, 2016).
This CUNY Strategic Investment Initiative project investigated whether providing College Algebra students with an active learning module would positively affect learning outcomes.

C. Service to the College

D. Service to the Graduate Center

E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 4420, Actuarial Mathematics I, 32, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).

MTH 4100, Linear Algebra & Matrix Methods, 27, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2021).

MTH 4100, Linear Algebra & Matrix Methods, 30, 3 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2021).

MTH 4410, Theory of Interest, 8, 4 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2021).

MTH 4421, Actuarial Mathematics II, 30, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2021).

MTH 4500, Introduction to Financial Mathematics, 34, 4 credit hours, Upper Division, Undergraduate, On-Line, (Spring 2021).

MTH 3040, Actuarial Seminar: R for Actuaries, 11, 2 credit hours, Upper Division, Undergraduate, On-Line, (Winter 2021).

MTH 4420 - KTRA, Actuarial Mathematics I, 27, 4 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).

MTH 4420 - STRA, Actuarial Mathematics I, 33, 4 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).

MTH 4500, Introduction to Financial Mathematics, 36, 4 credit hours, Upper Division, Undergraduate, On-Line, (Fall 2020).

MTH 4100, Linear Algebra & Matrix Methods, 34, 3 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2020).

MTH 4410, Theory of Interest, 19, 4 credit hours, Upper Division, Undergraduate, On-Line, (Summer 2020).

MTH 4421, Actuarial Mathematics II, 17, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2020).

MTH 4110, Ordinary Differential Equations, 30, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2020).

MTH 3040, Actuarial Seminar: R for Actuaries, 18, 2 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Winter 2020).

MTH 4420, Actuarial Mathematics I, 36, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2019).

MTH 4010, Mathematical Analysis I, 34, 3 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2019).

MTH 3050, Multivariable and Vector Calculus, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

MTH 4100, Linear Algebra & Matrix Methods, 36, 3 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2019).

MTH 4410, Theory of Interest, 10, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2019).

MTH 4421, Actuarial Mathematics II, 7, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2019).

MTH 3040, Actuarial Seminar: R for Actuaries, 14, 2 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Winter 2019).

MTH 4420, Actuarial Mathematics I, 31, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2018).

MTH 3050, Multivariable and Vector Calculus, 25, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 4009, Proof Writing for Mathematical Analysis, 20, 1 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 4100, Linear Algebra & Matrix Methods, 32, 3 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2018).

MTH 4410, Theory of Interest, 9, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2018).

MTH 4421, Actuarial Mathematics II, 10, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2018).

MTH 4010, Mathematical Analysis I, 25, 3 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2018).

MTH 4410, Theory of Interest, 33, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2018).

MTH 3040, Actuarial SeminaR, 17, 2 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), new course preparation, (Winter 2018).

MATH 4420, Actuarial Mathematics I, 4 credit hours, Upper Division, Undergraduate, (Fall 2017).

MATH 3030, Analytic Geometry and Calculus II, 5 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2017).

MATH 2003, Precalculus and Elements of Calculus, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2017).

MATH 2003, Precalculus and Elements of Calculus, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2017).

MTH 4100, Linear Algebra, 30, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2017).

MATH 4410, Theory of Interest, 15, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2017).

MTH 4421, Actuarial Mathematics II, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, new format for existing course, (Spring 2017).

MTH 4010, Advanced Calculus, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2017).

MTH 4410, Theory of Interest, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2017).

MTH 4420, Actuarial Mathematics I, 4 credit hours, Upper Division, Undergraduate, Classroom, (Fall 2016).

MTH 3030, Analytic Geometry and Calculus II, 5 credit hours, Undergraduate, Classroom, new course preparation, (Fall 2016).

MTH 2610, Calculus I, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2016).

MTH 2610, Calculus I, 4 credit hours, Lower Division, Undergraduate, Classroom, (Fall 2016).

MATH 2205, Applied Calculus, 4 credit hours, Lower Division, Undergraduate, Classroom, (Summer 2016).

MATH 4410, Theory of Interest, 4 credit hours, Upper Division, Undergraduate, Classroom, (Summer 2016).

MATH 2207, Applied Calculus and Matrix Algebra, 4 credit hours, Lower Division, Undergraduate, Classroom, (Spring 2016).

MATH 4410, Theory of Interest, 4 credit hours, Upper Division, Undergraduate, Classroom, (Spring 2016).

MATH 4420, Actuarial Science I, 33, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2015).

MATH 2610, Calculus I, 24, 4 credit hours, Lower Division, Undergraduate, (Fall 2015).

MATH 2610, Calculus I, 31, 4 credit hours, Lower Division, Undergraduate, (Fall 2015).

MATH 4410, Theory of Interest, 31, 4 credit hours, Upper Division, Undergraduate, (Fall 2015).

MATH 2205, Applied Calculus II, 34, 4 credit hours, Lower Division, Undergraduate, (Summer 2015).

MATH 4410, Theory of Interest, 26, 4 credit hours, Upper Division, Undergraduate, (Summer 2015).

MATH 2207, Applied Calculus and Matrix Algebra, (Spring 2015).

MATH 3020, Intermediate Calculus, (Spring 2015).

MATH 4410, Theory of Interest, (Spring 2015).

MATH 2207, Applied Calculus and Matrix Algebra, (Fall 2014).

MATH 2205, Applied Calculus II, (Fall 2014).

MATH 2003, Precalculus and Elements of Calculus, (Fall 2014).

MATH 4410, Theory of Interest, (Fall 2014).

MATH 2205, Math 2205: Applied Calculus, (Summer 2014).

MATH 3010, Math 3010: Calculus II, (Summer 2014).

MATH 2207, Math 2207: Applied Calculus and Matrix Applications, (Spring 2014).

MATH 2207, Math 2207: Applied Calculus and Matrix Applications, (Spring 2014).

MATH 4410, Math 4410: Theory of Interest, (Spring 2014).

MATH 2207, Math 2207: Applied Calculus and Matrix Applications, (Fall 2013).

MATH 2610, Math 2610: Calculus I, (Fall 2013).

MATH 2003, Pre-Calculus and Elements of Calculus, Undergraduate, (Fall 2013).

MATH 2003, Pre-Calculus and Elements of Calculus, (Fall 2013).

B. New courses/programs developed

MTH 4110, Ordinary Differential Equations, 30, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2020).

MTH 3050, Multivariable and Vector Calculus, 28, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2019).

MTH 3050, Multivariable and Vector Calculus, 25, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 4009, Proof Writing for Mathematical Analysis, 20, 1 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2018).

MTH 3040, Actuarial SeminaR, 17, 2 credit hours, Upper Division, Undergraduate, Hybrid (Part Classroom/Part On-Line), new course preparation, (Winter 2018).

MTH 4100, Linear Algebra, 30, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Summer 2017).

MTH 4421, Actuarial Mathematics II, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, new format for existing course, (Spring 2017).

MTH 4010, Advanced Calculus, 3 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Spring 2017).

MTH 3030, Analytic Geometry and Calculus II, 5 credit hours, Undergraduate, Classroom, new course preparation, (Fall 2016).

MATH 4420, Actuarial Science I, 33, 4 credit hours, Upper Division, Undergraduate, Classroom, new course preparation, (Fall 2015).

Ryan Ronan

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	The Graduate Center of the City University of New York	Mathematics	2017
B.E.	The Cooper Union for the Advancement of Science and Art	Electrical Engineering (Signals Processing & Communications track)	2012

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College (CUNY)	Lecturer	Mathematics	August 2017 - Present

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College (CUNY)	Graduate Teaching Fellow	Mathematics	August 2014 - May 2017
The Cooper Union	Adjunct Instructor	Mathematics	September 2013 - May 2017

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Lecturer	August 2017 - Present
Graduate Teaching Fellow	August 2014 - May 2017

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Gamburd, A., Magee, M., & Ronan, R. (2019). An asymptotic formula for integer points on Markoff-Hurwitz varieties. *Annals of Mathematics, 190*(3), 751-809.

Becker, T., Burt, D., Corcoran, T. C., Greaves-Tunnell, A., Iafrate, J. R., Jing, J., Miller, S. J., Porfilio, J. D., Ronan, R., Samranvedhya, J., Strauch, F. W., & Talbut, B. (2018). Benford's Law and Continuous Dependent Random Variables. *Annals of Physics, 388*, 350-381.

(2) Proceedings:

Amersi, N., Beckwith, O., Miller, S. J., Ronan, R., Sondow, J., Combinatorial and Additive Number Theory (CANT) 2011 and 2012, "Generalized Ramanujan Primes", Conference, published in proceedings. (2014).

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R., Conference in Combinatorial and Additive Number Theory (CANT) 2021, The Graduate Center (CUNY)-- virtual conference on Zoom, "An asymptotic for the growth of Markoff-Hurwitz tuples", Conference. (May 2021).

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R. (Presenter & Author), Rutgers Number Theory Seminar, Rutgers University, "An asymptotic for the growth of Markoff-Hurwitz tuples", Seminar, Invited. (February 27, 2018).

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R. (Presenter & Author), Special Seminar, Institute for Advanced Study, "An asymptotic for the growth of Markoff-Hurwitz tuples", Seminar, Invited. (December 8, 2017).

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R. (Presenter & Author), Conference in Combinatorial and Additive Number Theory (CANT) 2017, The Graduate Center (CUNY), "An asymptotic for the growth of Markoff-Hurwitz tuples satisfying a congruence relation.", Conference, Accepted. (May 2017).

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R. (Presenter & Author), Junior Number Theory Days, Rutgers University, "An asymptotic for the growth of Markoff-Hurwitz tuples", Conference, Accepted. (November 2016).

Amersi, N. (Author Only), Beckwith, O. (Author Only), Miller, S. J. (Author Only), Ronan, R. (Presenter & Author), Sondow, J. (Author Only), SUMRY Colloquium, Yale University, "Generalized Ramanujan Primes", Seminar, Invited. (July 2016).

Gamburd, A. (Author Only), Magee, M. (Author Only), Ronan, R. (Presenter & Author), Conference in Combinatorial and Additive Number Theory (CANT) 2016, The Graduate Center (CUNY), "An asymptotic for the growth of Markoff-Hurwitz tuples", Conference, Accepted. (May 2016).

Amersi, N. (Author Only), Beckwith, O. (Author Only), Miller, S. J. (Author Only), Ronan, R. (Presenter & Author), Sondow, J. (Author Only), Combinatorial and Additive Number

Theory (CANT) 2012, The Graduate Center (CUNY), "Generalized Ramanujan Primes and their Distribution", Conference, Accepted. (May 2012).

Amersi, N. (Presenter & Author), Beckwith, O. (Author Only), Miller, S. J. (Author Only), Ronan, R. (Presenter & Author), Sondow, J. (Author Only), Joint Mathematics Meetings, American Mathematical Society (AMS), Boston, MA, "The Distribution of Generalized Ramanujan Primes", Conference, Accepted. (January 2012).

Amersi, N. (Presenter & Author), Beckwith, O. (Author Only), Miller, S. J. (Author Only), Ronan, R. (Presenter & Author), Sondow, J. (Author Only), Young Mathematicians Conference, Ohio State University, "The Distribution of Generalized Ramanujan Primes", Conference, Accepted. (August 2011).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

B. Other completed papers.

C. Research in progress.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Science Fellowship coupled with Enhanced Chancellor's Fellowship, The Graduate Center (CUNY). (August 2012).
Five year support.

Harold Edwin Rue Prize to a Deserving Student in Electrical Engineering, The Cooper Union. (May 2012).

Harry W. Reddick Award to an Outstanding Student for Meritorious Work in Mathematics, The Cooper Union. (May 2012).

SAME (Society of American Military Engineers) Scholarship, SAME. (September 2011).

Outstanding Presentation, Honorable Mention, Young Mathematicians Conference. (August 2011).

Cooper Union Dean's List, The Cooper Union. (December 2008).
All semesters (Fall 2008-Spring 2012).

Undergraduate Full Tuition Scholarship, The Cooper Union. (September 2008).
Four year support.

11. GRANTS-IN-AID:

12. INSTITUTIONAL SERVICE:
    A. Service to the Department

        Tech Committee, Committee Member. (March 2020 - Present).

        Final Exams Committee, Committee Chair. (June 2019 - Present).

        Calculus Committee, Committee Member. (August 2018 - Present).

        Department Secretary, Committee Member. (August 2018 - Present).

        Lecturer Search Committee, Committee Member. (June 2019 - March 2020).

        Committee on Math Placement, Committee Member. (February 2018 - November 2019).

        Final Exams Committee, Committee Member. (August 2017 - May 2019).

    B. Service to the School

    C. Service to the College

        Baruch College Faculty Senate, Representative for Department of Mathematics (Category II Senator). (August 2018 - Present).

    D. Service to the Graduate Center

    E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:
    A. Courses Taught

        MTH 3120 - 45033, Elementary Probability, 35, 3 credit hours, Undergraduate, On-Line, (Spring 2021).

        MTH 4100 - 17814, Linear Algebra & Matrix Methods, 39, 3 credit hours, Undergraduate, On-Line, (Spring 2021).

MTH 3007 - 20813, Infinite Series, 7, 1 credit hours, Undergraduate, On-Line, (Winter 2021).

MTH 2610 - 33946, Calculus I, 40, 4 credit hours, Undergraduate, On-Line, (Fall 2020).

MTH 4120 - 34392, Introduction to Probability, 30, 4 credit hours, Undergraduate, On-Line, (Fall 2020).

MTH 4010 - 34383, Mathematical Analysis I, 30, 3 credit hours, Undergraduate, On-Line, (Fall 2020).

MTH 3120 - 25420, Elementary Probability, 36, 3 credit hours, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).

MTH 4100 - 25442, Linear Algebra & Matrix Methods, 39, 3 credit hours, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).

MTH 4010 - 25438, Mathematical Analysis I, 25, 3 credit hours, Undergraduate, Hybrid (Part Classroom/Part On-Line), (Spring 2020).

MTH 3007 - 56687, Infinite Series, 5, 1 credit hours, Undergraduate, Classroom, (Winter 2020).

MTH 3010 - 40887, Calculus II, 22, 4 credit hours, Undergraduate, Classroom, (Fall 2019).

MTH 4120 - 41012, Introduction to Probability, 34, 4 credit hours, Undergraduate, Classroom, (Fall 2019).

MTH 2003 - 40201, Precalculus and Elements of Calculus, 42, 4 credit hours, Undergraduate, Classroom, (Fall 2019).

MTH 3120 - 39938, Elementary Probability, 35, 3 credit hours, Undergraduate, Classroom, (Spring 2019).

MTH 4100 - 39975, Linear Algebra & Matrix Methods, 34, 3 credit hours, Undergraduate, Classroom, (Spring 2019).

MTH 4010 - 39971, Mathematical Analysis I, 22, 3 credit hours, Undergraduate, Classroom, (Spring 2019).

MTH 3010 - 55025, Calculus II, 27, 4 credit hours, Undergraduate, Classroom, (Fall 2018).

MTH 4120 - 55016, Introduction to Probability, 41, 4 credit hours, Undergraduate, Classroom, (Fall 2018).

MTH 2003 - 55219, Precalculus and Elements of Calculus, 33, 5 credit hours, Undergraduate, Classroom, (Fall 2018).

MTH 2003 - 55225, Precalculus and Elements of Calculus, 35, 4 credit hours, Undergraduate, Classroom, (Fall 2018).

MTH 5020 - 69449, Theory of Functions of a Complex Variable, 1, 0.2 credit hours, Undergraduate, (Fall 2018).

MTH 2610 - 48530, Calculus I, 34, 4 credit hours, Undergraduate, Classroom, (Spring 2018).

MTH 4100 - 48479, Linear Algebra & Matrix Methods, 37, 4 credit hours, Undergraduate, Classroom, (Spring 2018).

MTH 4010 - 48590, Mathematical Analysis I, 14, 3 credit hours, Undergraduate, Classroom, (Spring 2018).

MTN 3010 - 28660, Calculus II, 31, 4 credit hours, Undergraduate, Classroom, (Fall 2017).

MTH 4120 - 30269, Introduction to Probability, 39, 4 credit hours, Undergraduate, Classroom, (Fall 2017).

MTH 2003 - 28614, Precalculus with Elements of Calculus, 35, 4 credit hours, Undergraduate, Classroom, (Fall 2017).

MTH 2003 - 47604, Precalculus with Elements of Calculus, 23, 5 credit hours, Undergraduate, Classroom, (Fall 2017).

MTH 2003 - 28902, Precalculus with Elements of Calculus, 34, 4 credit hours, Undergraduate, Classroom, (Spring 2017).

MTH 2610 - 36314, Calculus I, 27, 4 credit hours, Undergraduate, Classroom, (Fall 2016).

MTH 2003 - 43360, Precalculus with Elements of Calculus, 22, 4 credit hours, Undergraduate, Classroom, (Spring 2016).

MTH 2003 - 10855, Precalculus with Elements of Calculus, 34, 4 credit hours, Undergraduate, Classroom, (Fall 2015).

MTH 2003 - 55204, Precalculus with Elements of Calculus, 28, 4 credit hours, Undergraduate, Classroom, (Spring 2015).

MTH 2003 - 52457, Precalculus with Elements of Calculus, 30, 4 credit hours, Undergraduate, (Fall 2014).

B. New courses/programs developed

Adam Sheffer

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	Tel-Aviv University	Computer Science	2014
MSc	Tel-Aviv University	Computer Science	2009
BSc	Tel-Aviv University	Computer Science	2004

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College (CUNY)	Associate Professor	Mathematics	August 2020 - Present
The CUNY Graduate Center	Associate Professor	Mathematics	August 2020 - Present

Baruch College (CUNY)	Assistant Professor	Mathematics	August 2017 - August 2020
California Institute of Technology	Bateman Research Instructor (postdoc)	Mathematics	August 2014 - August 2017

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Associate Professor	August 2020 - Present
Assistant Professor	August 2017 - August 2020

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Palsson, E., Senger, S., & Sheffer, A. (2021). On the Number of Discrete Chains. *Proceeding of the American Mathematical Society, 149*.

Adaricheva, K., Brubaker, B., Devlin, Miller, S. J., Reiner, V., Seceleanu, A., Sheffer, A., & Zeytuncu, Y. (2021). When Life Gives You Lemons, Make Mathematicians. *Notices of the American Mathematical Society*.

Do, T., & Sheffer, A. (in press). A General Incidence Bound in R^d and Related Problems. To appear in *European Journal of Combinatorics*.

Sheffer, A., & Zahl, J. (in press). Distinct distances in the complex plane. To appear in *Transactions of the American Mathematical Society*.

Fish, S., Pohoata, C., & Sheffer, A. (2020). Local Properties via Color Energy Graphs and Forbidden Configurations. *SIAM Journal on Discrete Mathematics, 34*, 177-187.

Hase-Liu, M., & Sheffer, A. (in press). Sum-Product Phenomena for Planar Hypercomplex Numbers. To appear in *European Journal of Combinatorics*.

Fish, S., Lund, B., & Sheffer, A. (2019). A Construction for Difference Sets with Local Properties. *European Journal of Combinatorics, 79*, 237--243.

Bardwell-Evans, S., & Sheffer, A. (2019). A Reduction for the Distinct Distances Problem in R^d. *Journal of Combinatorial Theory A, 166*, 171--225.

Pohoata, C., & Sheffer, A. (2019). Local Properties in Colored Graphs, Distinct Distances, and Difference Sets. *Combinatorica, 39*, 705-714.

Sheffer, A., Szabó, E., & Zahl, J. (2018). Point-curve incidences in the complex plane. *Combinatorica,, 38*, 487--499.

Fox, J., Pach, J., Sheffer, A., Suk, A., & Zahl, J. (2017). A semi-algebraic version of Zarankiewicz's problem. *Journal of the European Mathematical Society, 19*, 1785--1810.

Lund, B., Sheffer, A., & De Zeeuw, F. (2016). Bisector energy and few distinct distances. *Discrete & Computational Geometry, 56*(2), 337–356.

Pak, I., Sheffer, A., & Tassy, M. (2016). Fast domino tileability. *Discrete & Computational Geometry, 56*(2), 377–394.

Sharir, M., Sheffer, A., & Solomon, N. (2016). Incidences with Curves in $\mathbb{R}$ d. *Electronic Journal of Combinatorics, 23*, 4–16.

Sheffer, A. (2016). Lower bounds for incidences with hypersurfaces. *Discrete Analysis 2016:16*.

Sharir, M., Sheffer, A., & Zahl, J. (2015). Improved bounds for incidences between points and circles. *Combinatorics, Probability and Computing, 24*(03), 490–520.

Cilleruelo, J., Sharir, M., & Sheffer, A. (2014). A note on distinct distances in rectangular lattices. *Discrete Mathematics, 336*, 37–40.

Sheffer, A. (2014). Distinct Distances: Open Problems and Current Bounds. *arXiv preprint arXiv:1406.1949*.

Sheffer, A., Zahl, J., & de Zeeuw, F. (2014). Few distinct distances implies no heavy lines or circles. *Combinatorica, 36*, 349--364.

Basit, A., & Sheffer, A. (2014). Incidences with k-non-degenerate Sets and Their Applications. *Journal of Computational Geometry, 5*(1), 284–302.

Dumitrescu, A., Schulz, A., Sheffer, A., & Tóth, C. D. (2013). Bounds on the maximum multiplicity of some common geometric graphs. *SIAM Journal on Discrete Mathematics, 27*(2), 802–826.

Sharir, M., Sheffer, A., & Welzl, E. (2013). Counting plane graphs: perfect matchings, spanning cycles, and Kasteleyn's technique. *Journal of Combinatorial Theory, Series A, 120*, 777–794.

Dujmovic, V., Morin, P., & Sheffer, A. (2013). Crossings in grid drawings. *Electr. J. Comb., 21*.

Sharir, M., Sheffer, A., & Solymosi, J. (2013). Distinct distances on two lines. *Journal of Combinatorial Theory, Series A, 120*(7), 1732–1736.

Ben-Ner, M., Schulz, A., & Sheffer, A. (2013). On numbers of pseudo-triangulations. *Computational Geometry, 46*(6), 688–699.

(2) Proceedings:

C. Chapters in Books:

Hoffmann, M., Sharir, M., Sheffer, A., Tóth, C., & Welzl, E. (2013). Counting plane graphs: Flippability and its applications *Thirty Essays on Geometric Graph Theory (J. Pach, ed.)*. (pp. 524–535). Springer Berlin/Heidelberg.

D. Government Reports or Monographs:

E. Book Reviews:

7. <u>OTHER PUBLICATIONS:</u>

8. <u>PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:</u>

Sheffer, A., UW Combinatorics Seminar, University of Washington, "A structural Szemerédi–Trotter theorem for cartesian products", Invited. (March 10, 2021).

Sheffer, A., NY Number Theory Seminar, CUNY Graduate Center, CUNY Graduate Center, "Local Properties in Additive Combinatorics". (December 12, 2019).

Sheffer, A., Combinatorial and Additive Number Theory, NSF, CUNY Graduate Center, "Lower Bounds for Incidences with Hypersurfaces", Conference, International, Invited. (May 23, 2019).

Sheffer, A., Connections between algebraic geometry and incidence geometry, University of Loughborough, England, "Incidence Geometry and Polynomial Partitioning", Conference, International, Invited. (January 21, 2019).

Sheffer, A., Inspiring Lectures II: Challenges in Combinatorial & Discrete Geometry, CRM, NSF, EMS, CONNECT, Polytechnic University of Catalonia, Barcelona, "Using Additive Combinatorics in Combinatorial Geometry", Workshop, International, Invited. (May 2018).

Sheffer, A., CUNY's Harmonic Analysis Seminar, CUNY, CUNY Graduate Center, "Lower Bounds for Incidences with Hypersurfaces", Seminar, Invited. (April 27, 2018).

Sheffer, A., NYU Geometry Seminar, NYU, Courant Institute of Mathematical Sciences, NYU, "Geometric Energies: Between Combinatorial Geometry and Additive Combinatorics", Seminar, Local, Invited. (April 10, 2018).

Sheffer, A., Discrete Geometry and Topological Combinatorics Student Seminar, CUNY Graduate Center, CUNY Graduate Center, "Polynomial Partitioning and Geometric Incidences", Seminar, Local, Invited. (March 1, 2018).

Sheffer, A., Discrete Geometry and Topological Combinatorics Student Seminar, CUNY Graduate Center, CUNY Graduate Center, "Polynomial Partitioning and Geometric Incidences 1", Seminar, Local, Invited. (February 22, 2018).

Sheffer, A., NY Combinatorics Seminar, CUNY, CUNY Graduate Center, "Counting Plane Graphs: Perfect Matchings, Spanning Cycles, and Kasteleyn's Technique", Seminar, Local, Invited. (February 16, 2018).

Sheffer, A., Workshop on Algebraic Methods in Combinatorics, Harvard, Harvard, "Geometric Energies: Between Discrete Geometry and Additive Combinatorics", Conference, International, Invited. (November 16, 2017).

Sheffer, A., NY Number Theory Seminar, CUNY, CUNY Graduate Center, "The Erdős distinct distances problem with a focus on number theory, 2", Seminar, Local, Invited. (October 26, 2017).

Sheffer, A., NY Number Theory Seminar, CUNY, CUNY graduate center, "The Erdős distinct distances problem with a focus on number theory, 1", Seminar, Local, Invited. (October 19, 2017).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Sheffer, A., & O. A structural Szemerédi-Trotter Theorem for Cartesian Products.

Mathialagan, S., & Sheffer, A. Distinct distances on non-ruled surfaces and between circles. *Discrete & Computational Geometry*.

B. Other completed papers.

C. Research in progress.

Sheffer, A. *Polynomial Methods and Incidence Theory*.. Cambridge University Press.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

NSF award DMS-2113535, National Science Foundation, National. (March 2021).
This award provides stipends to 12 PhD students who work in Sheffer's Polymath Jr program.

NSF award DMS-2051026, NSF, Scholarship/Research, National. (January 2021).
Provides $259,200 to run a summer research program for undergraduate students. Defines Baruch as an NSF REU site in Mathematics, with Sheffer as the director.

PSC-CUNY grant (Traditional B), PSC CUNY, Scholarship/Research, University. (April 17, 2020).

Henry Wasser Award, CUNY, Scholarship/Research, University. (2018).
"The CUNY Academy's Henry Wasser Awards are given to outstanding CUNY Assistant Professors"

PSC-CUNY grant (traiditional B award), PSC-CUNY, Scholarship/Research, University. (June 1, 2018).
Providing a teaching reduction, to support research projects

NSF grant DMS-1710305, NSF, Scholarship/Research, National. (July 1, 2017).
PI of a three-year NSF award of 155,359 USD

Excellence in teaching award, Caltech Mathematics Department, Teaching, Department. (May 16, 2017).

11. GRANTS-IN-AID:

Sheffer, A. A. (Principal), Soberon, P. (Co-Principal), Grant, "REU site: New York City Discrete Math REU", Baruch College (CUNY), Federal, $259,200.00, Currently Under Review. (sub: August 2020, start: May 2021).

Sheffer, A., Grant, "The Polymath Jr program", National Science Foundation, Federal, $30,000.00, Funded. (start: May 2021).

Sheffer, A. (Principal), Soberon-Bravo, P. (Co-Principal), Grant, "REU Site: New York City Discrete Mathematics REU", NSF, Federal, $259,200.00, Funded. (sub: August 26, 2020, start: May 1, 2021, end: April 30, 2024).

Sheffer, A. A. (Principal), Grant, "DMS-1710305 (Polynomial Methods in Discrete Geometry)", NSF, Federal, $155,359.00, Funded. (sub: September 2016, start: July 1, 2017, end: July 1, 2020).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Committee on Women and Underrepresented Minorities, Committee Member, This is the first year of the committee. We arranged a lecture for the mathematics faculty about how social stereotypes affect women and minorities in STEM. We also ran a well-attended first meeting of the Baruch branch of the Association for Women in Mathematics. (We then had to stop due to the pandemic.). (October 2019 - Present).
The goal of the committee is to have a mathematics department that is supportive and encouraging to women and underrepresented minorities.

Creating honors courses, In Spring 2020, the department ran its first honors course. (2019 - Present).

Computer Science Committee, Committee Member. (August 2018 - Present).

Calculus Committee, Committee Member. (September 2017 - Present).

Exam Committee, Committee Member. (September 2017 - Present).

Lecturer hiring committee, Committee Member. (September 2019 - February 2020).

B. Service to the School

WSAS DEI Alliance, Committee Member. (December 2020 - Present).

WSAS Strategic Implementation Committee, Committee Member. (October 2020 - Present).

The Baruch Distinguished Mathematics Lecture Series, Organizer, Our last talk (Feb 19th 2020) attracted audience from Dartmouth, Rutgers, Hunter College, Drexel University, the CUNY Graduate Center, BMCC, York College, City College, Bloomberg, Brooklyn College, Queens College, and possibly more. (March 2019 - Present).
Bringing leaders of the mathematical world to speak in Baruch. Advertising the talks around New York City.

C. Service to the College

D. Service to the Graduate Center

CUNY/NYU Geometry Seminar, Co-organizer, The seminar is well attended and attracts interest from many researchers. (August 2018 - Present).
Inviting speakers and running the seminar. (The seminar runs weekly, alternating between the CUNY Graduate Center and NYU's Courant Institute)

E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

Polymath REU, Founder and organizer, In the summer of 2020, the program accepted over 300 undergraduates who had no other opportunities due to the pandemic. The program consisted of 12 research projects in a variety of mathematical fields. These were being mentored by 27 mathematicians. The program already produced at least 14 papers, and is likely to produce more. Many of those were already accepted to research journals. (May 2020 - Present).
Created an online summer research program for undergraduates who are stuck at home due to the pandemic. Handling the majority of the the program's organization. Recently applied for NSF funding for the program.

Journal of Computational Geometry, Editor, Journal Editor. (February 7, 2019 - Present).

CUNY Combinatorics REU, Founder and Oraganizer, Every year over 400 students apply to the program. These come from every type of institution, from Harvard and MIT to community colleges. Most applicants are honors students at their institution. The number of papers that are submitted to research journals is consistently equal or larger than the number of participants. The program is becoming known across the country. (November 2017 - Present).

Organizing and running the program. This includes mentoring some of the research, handling the bureaucracy of having students visiting NYC for a summer, bringing speakers, organizing day trips, writing grant proposals, and a lot more.

Mentoring promising high school students, Organizer, In Spring 2020, the two most recent students who completed their projects got accepted to degrees in Oxford University and Caltech. Both submitted papers to research journals. (October 2017 - Present).
Mentoring promising high school students in their first mathematics research project. The students spend several months learning the material and then several more working on the research project.

New Horizons in Geometry (conference), Organizer, Tel Aviv, Israel, Senior mathematicians and computer scientists from around the world confirmed attending the conference. These include professors from Stanford, Princeton, Duke, and other such institutions. (June 2021).
Organizing the conference - inviting speakers, handling the venue, obtaining funding, advertising, and so on.

MSRI summer school for graduate students in Polynomial Methods, Program Organizer, Appointed, Compensated, Taught advanced mathematics to a varied group of graduate students from around the world. Some still maintain contact with me. The lecture videos are now available online. (July 2019).
One of the two main organizers. Preparing and running lectures, exercises, and so on. Also managing two program TAs.

The 35th International Symposium on Computational Geometry - Multimedia Committee, Committee Member. (November 2018 - June 2019).

Caltech Summer Undergraduate Research Fellowships, Research mentor, Several mentored students produced research papers. Most of the students continued to Ph.D. programs. (November 2014 - August 2017).
Mentored Caltech undergraduates in research projects.

Tel-Aviv University, Research mentor, Several projects resulted in research papers. All students continued to graduate school. (November 2010 - May 2014).
Mentored undergraduate students in research projects.

15. <u>TEACHING ACTIVITIES AT BARUCH:</u>
A. Courses Taught

MTH 3300, Algorithms, Computers, and Programming I, (Fall 2021).

MTH 4320, Fundamental Algorithms, (Spring 2021).

MTH 4320, Fundamental Algorithm, Upper Division, Undergraduate, Classroom, (Spring 2020).

MTH 3010, Calculus II, (Fall 2019).

MTH 6001, Honors Thesis, (Fall 2019).

MTH 5000, Independent study, (Fall 2019).

MTH 3300, Introductory Computer Concepts, (Fall 2019).

MTH 4320, Fundamental Algorithms, 36, Upper Division, Undergraduate, new course preparation, (Spring 2019).

MTH 3010, Calculus II, Undergraduate, Classroom, (Fall 2018).

MTH 3300, Introductory Computer Concepts, 4 credit hours, Upper Division, Undergraduate, (Spring 2018).

MTH 3010, Calculus II, 4 credit hours, Upper Division, Undergraduate, (Fall 2017).

MTH 4010, Mathematical Analysis, 3 credit hours, Upper Division, Undergraduate, (Fall 2017).

B. New courses/programs developed

MTH 4320, Fundamental Algorithms, 36, Upper Division, Undergraduate, new course preparation, (Spring 2019).

Pablo Soberón

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	University College London	Mathematics	2013
Licenciatura, Mexican equivalent of BA	Universidad Nacional Autonoma de Mexico	Mathematics	2010

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Assistant Professor	Mathematics	August 27, 2018 - Present
Northeastern University	Andrei Zelevinsky Postdoctoral Research Instructor	Mathematics	September 1, 2015 - April 30, 2018
University of Michigan	Postdoctoral Assistant Professor	Mathematics	September 1, 2013 - May 31, 2015

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Assistant Professor	August 27, 2018 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

Soberón, P. (2013). *Problem-Solving Methods in Combinatorics*. (pp. 1--183). Problem-Solving Methods in Combinatorics. link.springer.com/book/10.1007%2F978-3-0348-0597-1

Soberón Bravo, P. (2010). *Combinatoria para olimpiadas internacionales*. (1st ed., pp. 193). Mexico City: Instituto de Matemáticas, UNAM. http://www.ommenlinea.org/portfolio-items/combinatoria-para-olimpiadas-internacionales/

B. Papers in Professional Journals:

(1) Articles:

Sarkar, S., Xue, A., & Soberón, P. (2021). Quantitative combinatorial geometry for concave functions. *Journal of Combinatorial Theory, Series A, 182*, article 105465. https://doi.org/10.1016/j.jcta.2021.105465

Roldán-Pensado, E., & Soberón, P. (2021). A survey of mass partitions. *Bulletin of the American Mathematical Society*.

Chirvasitu, A., Ladisch, F., & Soberón, P. (in press). Non-commutative groups as prescribed polytopal symmetries. To appear in *Israel Journal of Mathematics*.

Palic, N., Blagojevic, P., Soberón, P., & Ziegler, G. M. (2019). Cutting a part from many measures. *Forum of Mathematics, Sigma, 7*(37E).

Soberón, P. (2019). Tverberg partitions as weak epsilon-nets. *Combinatorica, 39*(2).

Blagojevi\'c, P. V., & Soberón, P. (2018). Thieves can make sandwiches. *Bulletin of the London Mathematical Society, 50*(1), 108--123.

Bárány, I., & Soberón, P. (2018). Tverberg's theorem is 50 years old: a survey. *Bulletin if the American Mathematical Society, 55*(4), 459-492. https://doi.org/10.1090/bull/1634

Bárány, I., & Soberón, P. (2018). Tverberg Plus minus. *Discrete & Computational Geometry, 60*(3), 588-598. https://doi.org/10.1007/s00454-017-9960-1

Bárány, I., & Soberón, P. (2018). Tverberg's theorem is 50 years old: A survey. *Bulletin of the American Mathematical Society, 55*, 459--492.

Soberón, P. (2018). Robust Tverberg and Colourful Carath\'eodory Results via Random Choice. *Combinatorics, Probability and Computing, 27*(3), 427--440.

Soberón, P. (2017). Gerrymandering, sandwiches, and topology. *Notices of the AMS, 64*(9).

Amenta, N., De Loera, J. A., & Soberón, P. (2017). Helly's theorem: new variations and applications. *Algebraic and geometric methods in discrete mathematics (Contemporary Mathematics), 685*, 55--96.

Rolnick, D., & Soberón, P. (2017). Quantitative (p, q) theorems in combinatorial geometry. *Discrete Mathematics, 340*(10), 2516--2527.

De Loera, J. A., La Haye, R. N., Rolnick, D., & Soberón, P. (2017). Quantitative combinatorial geometry for continuous parameters. *Discrete & Computational Geometry, 57*, 318--334.

De Loera, J. A., La Haye, R. N., Rolnick, D., & Soberón, P. (2017). Quantitative Tverberg theorems over lattices and other discrete sets. *Discrete & Computational Geometry, 58*(2), 435--448.

Barvinok, A., & Soberón, P. (2017). Computing the partition function for graph homomorphisms. *Combinatorica, 37*(4), 633--650.

Magazinov, A., & Soberón, P. (2017). Positive-fraction intersection results and variations of weak epsilon-nets. *Monatshefte f\"ur Mathematik, 183*(1), 165--176.

Barvinok, A., & Soberón, P. (2016). Computing the partition function for graph homomorphisms with multiplicities. *Journal of Combinatorial Theory, Series A, 137*, 1--26.

Soberón, P. (2016). Helly-type theorems for the diameter. *Bulletin of the London Mathematical Society, 48*(4), 577--588.

Karasev, R. N., Roldán-Pensado, E., & Soberón, P. (2016). Measure partitions using hyperplanes with fixed directions. *Israel Journal of Mathematics, 212*(2), 705--728.

Montejano, A., Montejano, L., Roldán-Pensado, E., & Soberón, P. (2015). About an Erd\Hos-Gr\"unbaum conjecture concerning piercing of non bounded convex sets. *Discrete & Computational Geometry, 53*(4), 941--950.

Soberón, P. (2015). Equal coefficients and tolerance in coloured Tverberg partitions. *Combinatorica, 35*(2), 235--252.

Jerónimo-Castro, J., Magazinov, A., & Soberón, P. (2015). On a problem by Dol'nikov. *Discrete Mathematics, 338*(9), 1577--1585.

Rold\'an-Pensado, Edgardo, & Soberón, P. (2014). An Extension of a Theorem of Yao and Yao. *Discrete & Computational Geometry, 51*(2), 285--299.

Soberón, P., & Strausz, R. (2012). A Generalisation of Tverberg's Theorem. *Discrete & Computational Geometry, 47*(3), 455--460.

Soberón, P. (2012). Balanced Convex Partitions of Measures in R\^d. *Mathematika, 58*(01), 71--76.

Montejano, L., & Soberón, P. (2011). Piercing numbers for balanced and unbalanced families. *Discrete & Computational Geometry, 45*(2), 358--364.

(2) Proceedings:

Soberon-Bravo, P., 29th ACM Symposium on Computational Geometry, ACM, Rio de Janeiro, Brazil, "Equal Coefficients and Tolerance in Coloured Tverberg Partitions", Conference, International, Refereed, published in proceedings, published elsewhere, Accepted. (2013).

C. Chapters in Books:

Schulte, E., Soberón, P., & Williams, G. I. (2021). Prescribing Symmetries and Automorphisms for Polytopes. In Gabriel Cunningham, Mark Mixer, Egon Schultee (Ed.), *Polytopes and Discrete Geometry* (vol. 764, pp. 221-234). Contemporary Mathematics, American Mathematical Society. arxiv.org/abs/1902.05439

D. Government Reports or Monographs:

E. Book Reviews:

7. OTHER PUBLICATIONS:

Xue, A., & Soberon-Bravo, P. (2020). *Balanced convex partitions of lines in the plane*.. Discrete & Computational Geometry. https://doi-org.remote.baruch.cuny.edu/10.1007/s00454-020-00257-1

Soberon Bravo, P. (2013). *Partition problems in discrete geometry*. (pp. 86). UCL (University College London). discovery.ucl.ac.uk/1398297/

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Soberón, P. (Presenter & Author), Bard College Mathematics Colloqium, Bard College, Bard, NY, "Quantitative Helly Theorems", Seminar, Local, Invited. (March 2021).

Soberon-Bravo, P. (Presenter & Author), Binghampton Combinatorics Seminar, University of Binghampton (SUNY), Binghampton, NY, "Quantitative Helly Theorems", Seminar, State, Invited. (March 2021).

Soberon-Bravo, P. (Presenter & Author), Budapest Big Combinatorics and Geometry seminar, Renyi Institute, Budapest, "Quantitative Helly Theorems", Seminar, International, Invited. (March 2021).

Soberon-Bravo, P. (Presenter & Author), Copenhagen-Jerusalem Combinatorics Seminar, University of Copenhagen, Copenhagen, "Tverberg's theorem beyond prime powers", Seminar, International, Invited. (March 2021).

Soberón, P. (Presenter & Author), Seminario de Matemáticas discretas, Universidad Nacional Autónoma de México, Juriquilla, Querétaro, México, "Teoremas de Helly Cuantitativos", Seminar, National, Invited. (March 2021).

Soberón, P. (Presenter & Author), University of Massachusetts Lowell mathematics colloqium, University of Massachusets Lowell, Lowell, MA, "Quantitative Helly Theorems", Seminar, Local, Invited. (March 2021).

Soberón, P. (Presenter & Author), IST Austria Seminar, IST Austria, Austria, "The topological Tverberg theorem beyond prime powers", Seminar, International, Invited. (January 2021).

Soberón, P., COMBINATORICS AND GEOMETRY DAYS III, Moscow Institute of Physics and Technology, Moscow (conference was done via zoom), "The topological Tverberg Theorem beyond prime powers", Conference, International, Invited. (December 2, 2020).

Soberon-Bravo, P., CoSP seminar on Topologial Combinatorics, University of Iowa, Online (due to COVID19), "Variations of equipartitions of measures with convex sets", Seminar, International, Invited. (July 30, 2020).

Soberon-Bravo, P., Mathematics Colloqium, Centro de Ciencias Matemáticas, Online (CCM is in Morelia, Mexico), "Teoría de Tverberg sin potencias de primos", Seminar, International, Invited. (June 12, 2020).

Frick, F. (Author Only), Soberón, P. (Presenter & Author), Combinatorial and Additive Number Theory Conference, CUNY Graduate Center, Online (due to COVID19), "The topological Tverberg theorem beyond prime powers", Conference, International, Invited. (June 2, 2020).

Soberon-Bravo, P., AMS Fall Southeastern sectional meeting, American Mathematical Society + University of Florida, University of Florida, FL, "Matroids, Helly's theorem, and ellipsoids", Conference, International, Invited. (2019).

Soberon-Bravo, P., AMS Sectional mmeting 1151, special session on oriented matroids and related topics, American Mathematical Society + University of Binghampton, University of Binghampton, NY, "Probabilistic Methods for the colorful Tverberg theorem", Conference, International, Invited. (2019).

Soberon-Bravo, P., AMS Southeastern sectional meeting, American MAthematical Society + University of Auburn, University of Auburn, AL, "Prescribing symmetries of centrally symmetric polytopes", Conference, International, Invited. (2019).

Soberon-Bravo, P., CMO-BIRS Workshop 19w5028, Casa Matematica Oaxaca, Oaxaca, Mexico, "Exact Quantitative Helly Theorems", Conference, International, Invited. (2019).

Soberon-Bravo, P., New York Number Theory Seminar, Graduate Center, CUNY, "Barvinok's method to approximate the permanent I", Seminar, State, Invited. (2019).

Soberon-Bravo, P., New York Number Theory Seminar, Graduate Center, CUNY, "Barvinok's method to approximate the permanent II", Seminar, State, Invited. (2019).

Soberon-Bravo, P., NYC Discrete Geometry Seminar, CUNY GC / NYU Courant Insitute, Courant Institute, "Tverberg's theorem and weak epsilon-nets", Seminar, International, Invited. (2019).

Soberón, P., Rutgers Combinatorics Seminar, "Exact Quantitative Versions of Tverberg's theorem", Seminar, National. (September 23, 2019).

Soberon-Bravo, P., "Pick my brain seminar", Northeastern University, Northeastern University, "Different approaches to the colorful Tverberg theorem", Seminar, International, Invited. (2018).

Soberon-Bravo, P., ACO Seminar, Carnegie Mellon University, Carnegie Mellon University, "Random partitions and the Colorful Tverberg theorem", Seminar, International, Invited. (2018).

Soberon-Bravo, P., Latinx in the mathematical sciences conference, Institute of Pure and Applied Mathematics, Los Angeles, CA, "Tverberg's theorem: a gem in discrete geometry", Conference, International, Invited. (2018).

Soberon-Bravo, P., Northeastern university math club, Northeastern University, Northeastern University, "Packing densities, kissing numbers and piercing numbers.", Seminar, Local. (2018).

Soberon-Bravo, P., Special Session on Polytopes and Discrete Geometry, AMS Northeastern Sectional Meeting, American Mathematical Society, Boston, "Extending robust versions of Tverberg's theorem", Conference, International, Invited. (2018).

Soberon-Bravo, P., Worlwide Center of Mathematics Lecture Series, Worlwide Center of Mathemtics, Cambridge, MA, "Tverberg-type results, weak epsilon-nets and the probabilistic method", Seminar, International. (2018).

Soberon-Bravo, P., BIRS-CMO Workhop 17w5015: Symmetries and Discrete Structures in Geometry, Banff International Research Station: Casa Matematica Oaxaca, Oaxaca, Mexico, "Symmetries in mass partition problems", Workshop, International, Invited. (2017).

Soberon-Bravo, P., Coloquium of Centro de Ciencias Matematicas, Centro de Ciencias Matematicas, UNAM, Morelia, Mexico, "Problemas de particiones justas (Fair partition problems)", Seminar, International, Invited. (2017).

Soberon-Bravo, P., Discrete Geometry and Convexity: Barany 70, Renyi Insitute, Budapest, Hungary, "Tensors, colors, convex hulls.", Conference, International, Invited. (2017).

Soberon-Bravo, P., Introductory Workshop: Geometric and Topological Combinatorics. (program 309), MSRI, Berkeley, CA, "Linear versions of Tverberg's theorem: progress and problems", Conference, International, Invited. (2017).

Soberon-Bravo, P., Ninth Discrete Geometry and Algebraic Combinatorics Conference, University of Texas Rio Grande Valley, South Padre Island, TX, "Robust Tverberg results via the probabilistic methdod.", Conference, International, Invited. (2017).

Soberon-Bravo, P., Pacific Rim Mathematical Associaton 3rd Congress, Pacific Rim Mathmatical Association, Oaxaca, Mexico, "Fair division problems and high-dimensional necklaces", Conference, International, Invited. (2017).

Soberon-Bravo, P., University of Washington Combinatorics Seminar, University of Washington, Seattle, WA, "Thieves and High-dimensional necklaces", Seminar, International, Invited. (2017).

Soberon-Bravo, P., 8th Algebraic Combinatorics and Discrete Geometry Conference, University of Texas Rio Grande Valley, South Padre Island, TX, "Quantitative and Colorful combinatorial geometry", Conference, International, Invited. (2016).

Soberon-Bravo, P., AMS Eastern Sectional Meeting, American Mathematical Society, Brunswick, ME, "A probabilistic approach to Tverberg-type results", Conference, Invited. (2016).

Soberon-Bravo, P., CMO-BIRS workshop: Transversal, Helly and Tverberg type Theorems in Geometry, Banff International Research Station: Casa Matematica Oaxaca, Oaxaca, Mexico, "An application of the probabilistic method to Tverberg's theorem", Workshop, International, Invited. (2016).

Soberon-Bravo, P., ICERM workshop: Topology and Geometry in a Discrete Setting, ICERM, Providence, RI, "A toolbox for topologists", Conference, International, Invited. (2016).

Soberon-Bravo, P., MIT Combinatorics Seminar, MIT, Cambridge, MA, "Positive-fraction results in combinatorial geometry", Seminar, International, Invited. (2016).

Soberon-Bravo, P., Northeastern University Posdoc Seminar, Northeastern University, Boston, MA, "A glimpse of combinatorial geometry", Seminar, Local, Invited. (2016).

Soberon-Bravo, P., SIAM Discrete Mathematics Conference, Society of Industrial and Applied Mathematics, Atlanta, GA, "Quantitative Helly-type theorems", Conference, International, Invited. (2016).

Soberon-Bravo, P., Freie Universitet Topological Combinatorics Seminar, Freie Universitet Berlin, Berlin, Germany, "Variations of positive-fraction intersection results in combinatorial geometry", Seminar, International, Invited. (2015).

Soberon-Bravo, P., GASC Seminar (Geometry, Algebra, Singularities and Combinatorics), Northeastern University, Boston, MA, "Measure partitions using hyperplanes with fixed directions", Seminar, International, Invited. (2015).

Soberon-Bravo, P., Laszlo Fejes Toth centenial conference, Renyi Institute, Budapest, Hungary, "Quantitative Helly-type theorems", Conference, International, Invited. (2015).

Soberon-Bravo, P., University of Massachusetts Coloquium, University of Massachusetts, Boston, MA, "Quantitative Helly-type theorems in combinatorial geometry", Seminar, International, Invited. (2015).

Soberon-Bravo, P., University of Michigan Combinatorics Seminar, University of Michigan, Ann Arbor, MI, "Fixed directions in mass partition problems", Seminar, International, Invited. (2015).

Soberon-Bravo, P., Algebra and Discrete Mathematics Seminar, UC Davis, Davis, CA, "Variations of the ham sandwich theorem", Seminar, International, Invited. (2014).

Soberon-Bravo, P., CIM Seminar, Centro de Inovacion en Matematicas, Queretaro, Mexico, "Teoremas coloreados y productos tensoriales (Colorful theorems and tensor products)", Seminar, National, Invited. (2014).

Soberon-Bravo, P., Discrete Mathematics Seminar, Freie Universitet Berlin, Berlin, Germany, "Tverberg's theorem and the Birkhoff Polytople", Seminar, International, Invited. (2014).

Soberon-Bravo, P., II Reunion de Matematics Mexicano en el Mundo (II Reunion of Mexican Mathematicians in the world), CIMAT, Guanajuato, Mexico, "Aproximando números de homomorfismos (Approximating homomorphism numbers, in spanish", Conference, International, Invited. (2014).

Soberon-Bravo, P., MIT Combinatorics Seminar, MIT, Cambridge, MA, "Variations of Tverberg's theorem", Seminar, International, Invited. (2014).

Soberon-Bravo, P., Oberwolfach Workshop 1436, Oberwolfach Mathematics Instute, Oberwolfach, Germany, "Mass Partitions with Hyperplanes of Fixed Directions", Conference, International, Invited. (2014).

Soberon-Bravo, P., SIAM conference in discrete mathematics, Society of Industrial and Applied Mathematics, Minneapolis, MN, "Splitting points and hyperplanes.", Conference, International, Invited. (2014).

Soberon-Bravo, P., National Congress of the Royal Spanish Mathematical Society, Royal Spanish Mathematical Society, Santiago de Compostela, Spain, "Particiones balanceadas de medidas en R^d (Balanced Partitions of Measure in IRd", Conference, International, Invited. (2013).

Soberon-Bravo, P., Seminar, Warwick University, Warwick, United Kingdom, "Partitions of measures and combinatorial geometry", Seminar, International, Invited. (2013).

Soberon-Bravo, P., Seminario de Matematicas Discretas, University of Cantabria, Santander, Spain, "Variaciones del teorema de Tverberg (Variations of Tverberg's Theorem", Seminar, National, Invited. (2013).

Soberon-Bravo, P., University of Michigan Combinatorics Seminar, University of Michigan, Ann Arbor, MI, "Tverberg's theorem: different approaches to the colorful version", Seminar, International, Invited. (2013).

Soberon-Bravo, P., European Workshop on Computational Geometry, Assisi, Italy, "An extension of a theorem by Yao and Yao", Conference, International, Accepted. (2012).

Soberon-Bravo, P., Geometry Seminar, Renyi Institute, Budapest, Hungary, "Variations of Tverberg's theorem", Seminar, International, Invited. (2012).

Soberon-Bravo, P., LSE Lunchtime Seminar, London School of Economics, London, United Kingdom, "Some generalisations of Radon's theorem", Seminar, International, Invited. (2012).

Soberon-Bravo, P., Recent Advances in Transversal and Helly-type thoerems in Geometry, Combinatorics and Topology, Banff International Research Station, Banff, Canada, "Equal coefficients in coloured Tverberg partitions", Workshop, Invited. (2012).

Soberon-Bravo, P., Convexity, Topology, Combinatorics and Beyond: A workshop in honor of Montejano's 60th Birthday, UNAM, Puerto Vallarta, Mexico, "Balanced partitions of measures in R^d", Conference, International, Invited. (2011).

Soberon-Bravo, P., Discrete Geometry Workshop (Workshop ID 1136), Oberwolfach Mathematical Institute, Oberwolfach, Germany, "On the tolerated Tverberg theorem", Workshop, International, Invited. (2011).

Soberon-Bravo, P., Discrete Mathematics Seminar, University College London, London, United Kingdom, "Balanced equipartitions of measures in R^d", Seminar, International, Invited. (2011).

Soberon-Bravo, P., National Congress of the Mexican Mathematical Society, Mexican Mathematical Society, San Luis Potosi, Mexico, "Round table for the 25 years of the Mexican Mathematical Olympiad", Roundtable, National, Invited. (2011).

Soberon-Bravo, P., Transversals and Helly-type theorems in Geometry, Combinaotrics and Topology, Banff International Research Station, Banff, Canada, "Piercing numbers for balanced families", Workshop, International, Invited. (2009).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Dillon, T., & Soberón, P. (2021). A mélange of diameter Helly-type theorems. *SIAM Journal on Discrete Mathematics, 35*(3), 1615-1627. https://epubs.siam.org/doi/abs/10.1137/20M1365119

Messina, J. A., & Soberón, P. Isometric and affine copies of a set in volumetric Helly results.

Soberón, P., & Tang, Y. Tverberg's theorem, disks, and Hamiltonian cycles.

Frick, F., & Soberón, P. *The topological Tverberg problem beyond prime powers*.. https://arxiv.org/abs/2005.05251

Sarkar, P., & Soberón, P. *Tolerance for colorful Tverberg partitions*.. https://arxiv.org/abs/2005.13495

B. Other completed papers.

C. Research in progress.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

Feliks Gross Award, CUNY. (2021).

National Researcher Level 1, CONACyT (Consejo Nacional de Ciencia y Tecnologia), Scholarship/Research, National. (September 26, 2019).
CONACyT is the Mexican Equivalent of the National Science Foundation. Mexican researchers can apply for a National Researcher status, which makes it easier to obtain

collaborative grants. The status is subject to significant research activity and is evaluated every three years.

11. GRANTS-IN-AID:

Soberon-Bravo, P. (Principal), Grant, "Topology and Linear Algebra in Discrete Geometry", NSF, Federal, $195,094.00, Funded. (sub: September 21, 2020, start: July 1, 2021, end: June 30, 2024).

Sheffer, A. (Principal), Soberon-Bravo, P. (Co-Principal), Grant, "REU Site: New York City Discrete Mathematics REU", NSF, Federal, $259,200.00, Funded. (sub: August 26, 2020, start: May 1, 2021, end: April 30, 2024).

Soberon-Bravo, P., Grant, "Quantitative Combinatorial Geometry.", PSC CUNY, $4,530.00, Funded. (expsub: July 1, 2021, sub: June 30, 2022, start: July 1, 2021, end: June 30, 2022).

Soberon-Bravo, P., Grant, "REU supplement - Combinatorial Properties of Convex Sets and Measures in Euclidean spaces", NSF, Federal, $12,000.00, Funded. (start: August 28, 2018, end: July 1, 2021).

Soberon-Bravo, P., Grant, "Combinatorial topology in discrete geometry", PSC CUNY, Local, $4,530.00, Funded. (start: July 1, 2020, end: June 30, 2021).

Soberon-Bravo, P., Grant, "Combinatorial Properties of Convex Sets and Measures in Euclidean spaces", NSF, Federal, $105,211.00, Funded. (start: August 28, 2018, end: June 30, 2021).

Soberon-Bravo, P., Grant, "Linearalgebraic and topological approaches to Tverberg theory", PSC-CUNY, Local, $5,700.07, Funded. (start: July 1, 2019, end: June 30, 2020).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

REU organizer, Faculty Mentor, approximately 70 hours spent for the year, Pro Bono, Seven students attended the REU, and we expect several research papers to be submitted with the undergraduate students as co-authors. (June 14, 2021 - August 12, 2021).
Organized with Adam Scheffer and Frank de Zeeuw an REU project with external students. This included the selection of students, research mentoring, organization of academic and non-academic activities, and writing the necessary results for publication.

PUTNAM organizer, Faculty Mentor, approximately 15 hours spent for the year, Pro Bono, Successfully participated in the competition. We had students solving full problems. Most of our students were above or significantly above the median score. (September 2020 - December 2020).
Organized a team for Baruch College for the PUTNAM mathematical competition.

REU organizer, Faculty Mentor, approximately 70 hours spent for the year, Pro Bono, Seven students attended the REU, and we expect several research papers to be submitted with the undergraduate students as co-authors. (June 17, 2020 - August 9, 2020).
Organized with Adam Scheffer and Frank de Zeeuw an REU project with external students. This included the selection of students, research mentoring, organization of academic and non-academic activities, and writing the necessary results for publication.

PUTNAM organizer, Faculty Mentor, approximately 15 hours spent for the year, Pro Bono, Successfully participated in the competition. We had students solving full problems. Most of our students were above or significantly above the median score. (September 2019 - December 2019).
Organized a team for Baruch College for the PUTNAM mathematical competition.

Combinatorics REU organizer, Faculty Mentor, approximately 70 hours spent for the year, Pro Bono, Seven students attended the REU, and we expect several research papers to be submitted with the undergraduate students as co-authors. (June 17, 2019 - August 9, 2019).
Organized with Adam Scheffer and Frank de Zeeuw an REU project with external students. This included the selection of students, research mentoring, organization of academic and non-academic activities, and writing the necessary results for publication.

PUTNAM organizer, Faculty Mentor, approximately 15 hours spent for the year, Successfully participated in the competition. We had students solving full problems. Most of our students were above or significantly above the median score. (September 2018 - December 2018).
Organized a team for Baruch College for the PUTNAM mathematical competition.
Organized weekly training sessions and special office hours for students interested in participating.

B. Service to the School

Diversity, Equity, and Inclusion alliance, Faculty Advisor, approximately 10 hours spent for the year, Appointed, Pro Bono. (January 2021 - Present).
I am a departmental liaison for the DEI alliance during Spring 2021.

C. Service to the College

DEI Alliance, Committee Member, approximately 15 hours spent for the year, Appointed, Pro Bono. (January 2021 - August 2021).

D. Service to the Graduate Center

E. Service to the University

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

NSF Panel, Reviewer, Grant Proposal, approximately 20 hours spent for the year, Appointed, Pro Bono, The applications merits were discussed and ranked in order of preference for funding. (July 2021).
I was part of an NSF merit panel that reviewed seven grant applications.

Mathematics Association of American, Grader for the Putnam Mathematical Competition, approximately 14 hours spent for the year, Compensated. (February 22, 2021 - March 3, 2021).
Help grade papers for the Putnam Mathematical Competition. This is the largest mathematics competition in the US at college level.

Reviewer, Journal Article, approximately 50 hours spent for the year, Pro Bono. (2020).
In 2020 I have reviewed 5 papers for journal articles. The journals include: Discrete & Computational Geometry, Acta Mathematica Hungarica, Combinatorial Theory, Operations Mathematics Research, Discrete Applied Mathematics

CONICYT (Chilean equivalent to NSF), Reviewer, Grant Proposal, approximately 5 hours spent for the year, Appointed, Pro Bono, International. (July 2020 - September 2020).
Review and evaluate a grant proposal.

Panama Mathematical Olympiad, Coach, Panama City, Panama, approximately 30 hours spent for the year, Pro Bono, International. (January 20, 2020 - January 24, 2020).
Mentored the teams of the Panam Mathematical Olimpiad in problem-solving techniques in combinatorics for a week. Gave two public talks at the University of Panama.

Reviewer, Journal Article, approximately 50 hours spent for the year, Pro Bono. (2019).
In 2019 I have reviewed 9 papers for journal articles. The journals include:
Rose Hulman Undergraduate Mathematics Journal, Contemporary Mathematics, Forum of Mathematics Sigma, Simposium of Computational Geometry, Discrete and Computational Geometry, Random Structures and Algorithms, Combinatorica, Simposium on Discrete Algorithms

CONICYT (Chilean equivalent to NSF), Reviewer, Grant Proposal, approximately 5 hours spent for the year, Appointed, Pro Bono, International. (July 2019 - September 2019). Review and evaluate a grant proposal.

15. TEACHING ACTIVITIES AT BARUCH:

A. Courses Taught

MTH 2610 - HMWA (17513), Calculus I, 35, 4 credit hours, Lower Division, Undergraduate, On-Line, (Spring 2021).

MTH 4100 - DMWA (17813), Linear Algebra & Matrix Methods, 35, 3 credit hours, Upper Division, Undergraduate, On-Line, (Spring 2021).

MTH 4005 - FFA - 34382, Problem Solving Seminar, 8, 3 credit hours, Undergraduate, On-Line, new format for existing course, (Fall 2020).
Pedagogical Innovations: The course was made online, so heavy use of student presentations and small group discussions was used.

MTH 4100 - DMWA 25441, Linear Algebra & Matrix Methods, 38, 3 credit hours, Undergraduate, Classroom, new format for existing course, (Spring 2020).
Pedagogical Innovations: We had to transition to online teaching due to COVID19. We had some problems for students who went back to their home countries with different time zones. We were able to continue having an engaging class with student partiticipation.
New Teaching Material: I recorded online classes and sent the students videos explaining the solution to problems using the recording function of an ipad, so they could see me writing in real time.
Enhancements to Student Learning: When we transition online, I gave a couple mock sessions with different setups, and students chose their favorite. They liked being asked about the possible instruction methods in the class.

MTH 4005 - 40920, Problem Solving Seminar, 24, 3 credit hours, Undergraduate, Classroom, new course preparation, (Fall 2019).
Pedagogical Innovations: The course was based on problem solving, and therefore the majority of the course was spent by the students working in pairs on hard problem. Presentation of solutions was emphasized.
New Teaching Material: We had a mock Putnam exam, to perpare the students for the format of the Putnam mathematical competition.

MTH 2610 - 39908, Calculus 1, 16, 4 credit hours, Undergraduate, Classroom, (Spring 2019).
Pedagogical Innovations: Every example was explained on the board and then verified on the computer using wolfram alpha. The students would comment on why the graph looked different from what they expected, and it allowed

them to test their intuition by suggesting changes to the function and predicting how it would affect the outcome in the computer.

MTH 4100 - 39974, Linear Algebra and Matrix Methods, 39, 3 credit hours, Undergraduate, Classroom, (Spring 2019).

MTH 4430 - 67667, Mathematics of Inferential Statistics, 13, 4 credit hours, Classroom, new course preparation, (Fall 2018).
Pedagogical Innovations: Team homework
New Teaching Material: All material was new, as this was a new course. The team homeworks, solutions, exams and quizzes were developed from scratch.
Enhancements to Student Learning: Team homeworks.

MTH 2003 - 55217, Precalculus and elements of calculus, 33, 4 credit hours, Classroom, (Fall 2018).

B. New courses/programs developed

MTH 4005 - 40920, Problem Solving Seminar, 24, 3 credit hours, Undergraduate, Classroom, new course preparation, (Fall 2019).

MTH 4430 - 67667, Mathematics of Inferential Statistics, 13, 4 credit hours, Classroom, new course preparation, (Fall 2018).

Giulio Trigila

1. EDUCATION:

Degree	Institution	Field	Dates
Ph D	Courant Institute of Mathematical Sciences	Applied Mathematics	2013
MSc	Sapienza University of Rome	Theoretical Physics	2007
Two months data science program.	Data Incubator	Data Analysis	2015

2. FULL-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates
Baruch College	Assistant Professor	Mathematics	August 2017 - Present
New York University	Postdoctoral Fellow	Mathematics	November 2015 - August 2017
Technical University of Munich	Postdoctoral Fellow	Mathematics	September 2013 - August 2015

3. PART-TIME ACADEMIC EXPERIENCE:

Institution	Rank	Field	Dates

4. NON ACADEMIC EXPERIENCE:

Place of Employment	Title	Dates

5. EMPLOYMENT RECORD AT BARUCH:

Rank	Dates
Assistant Professor	August 2017 - Present

6. PUBLICATIONS IN FIELD OF EXPERTISE:

A. Books:

B. Papers in Professional Journals:

(1) Articles:

Pavon, M., Tabak, E. G., & Trigila, G. (2021). Data Driven Schroedinger bridge. *Communication on Pure and Applied Mathematics, 74*(7), 1545-1573.

Tabak, E., Trigila, G., & Zhao, W. (2020). Conditional density estimation and simulation through optimal transport. *Machine Learning - Springer*(109), 665-668. https://www.springer.com/journal/10994

Pavon, M., Tabak, E., & Trigila, G. (in press). Data-driven conditional optimal transport. To appear in *Machine Learning - Springer*. https://www.springer.com/journal/10994

Trigila, G., & Tabak, E. (2018). Conditional Expectation Estimation through Attributable Components. *Information and Inference: A journal of IMA - Oxford Academic*. https://academic.oup.com/imaiai

Trigila, G., & Tabak, E. (2018). Explanation of variability and removal of confounding factors from data through optimal transport. *Communications on Pure and Applied Mathematics, 71*, 0163-0199.

Trigila, G., & Esteban, T. (2016). Data-driven Optimal Transport. *Communications on Pure and Applied Mathematics,, 69*, 613.

Trigila, G., Lasser, C., Beliayev, A., & Domcke, W. (2015). Nonadiabatic nuclear dynamics of the ammonia cation studied by surface hop- ping classical trajectories. *The Journal Chemical Physics, 142*, 104307.

Trigila, G., Lasser, C., & Belyaev, A. (2014). Landau-Zener type surface hopping algorithms. *The Journal of Chemical Physics, 140*, 224108.

Trigila, G., & e. a. (2013). Moment-Based Approach for DVH-Guided Radiotherapy Treatment Plan Optimization. *Physics in Medicine and Biology, 58*, 1869.

(2) Proceedings:

C. Chapters in Books:

D. Government Reports or Monographs:

E. Book Reviews:

7. <u>OTHER PUBLICATIONS:</u>

8. PRESENTED PAPERS, LECTURES, AND EXHIBITIONS AND PERFORMANCES:

Trigila, G. (Coordinator/Organizer), SIAM CSE 2021, Society of Industrial and Applied Mathematics, Fort Worth, TX, US, "Conditional Optimal Transport", Conference, International, Refereed, Accepted. (March 2021).

Trigila, G., MCQMC 2020, University of Oxford, Oxford, UK, Conference, International, Invited. (August 10, 2020).

Trigila, G., Applied and Computational Mathematics Seminar, GeorgiaTech University, Atlanta, Seminar, International, Accepted. (April 6, 2020).

Trigila, G., SIAM Uncertainty Quantification 2020, Society of Industrial and Applied Mathematics, Munich, Germany, Conference, International, Refereed, Accepted. (March 2020).

Trigila, G., SciCADE, International Conference on Scientific Computation and Differential Equations, University of Innsbruck,, Austria, "Characterization of conditional probability densities", Conference, International, Refereed, published elsewhere, Invited. (July 22, 2019).

Trigila, G., Seminar ``Differential Equations and Applications", University of Padova, Italy, "Characterization of conditional probability densities", Seminar, National, Accepted. (June 2019).

Trigila, G. (Presenter & Author), AMS Special Session on Financial Mathematics, I, American Mathematics Society, Baltimore, Maryland, "Data driven Schroedinger bridge", Conference, International, Refereed. (January 2019).

Trigila, G. (Presenter & Author), SIAM Computational sciences and engineering 2019, SIAM, Spokane Washington, "Data driven Schroedinger bridge", Conference, International, Refereed, Invited. (January 2019).

Trigila, G. (Presenter & Author), SIAM Uncertainty Quantification, SIAM, Los Angeles, "Conditional density estimation with optimal transport", Conference, International, Refereed, published elsewhere, Invited. (April 2018).

9. WORK IN PROGRESS:

A. Papers submitted to journals for consideration.

Tabak, E. G., Trigila, G., & Zhao, W. Distributional barycenter problem. *Pattern Recognition/Elsevier*.

Trigila, G., Tabak, E., & Essid, M. An implicit gradient-descent procedure for minimax problems. *Machine Learning*. https://www.springer.com/journal/10994

B. Other completed papers.

C. Research in progress.

Trigila, Giulio, "Causal Inference via Optimal Transport", On-Going, Scholarly.
This research topic combines the mathematical theory of optimal transport to solve problems in causal inference. Examples of these problem is the statistical estimation of heterogeneous treatment effect in medicine on observational studies

Trigila, Giulio, Ricardo Baptista, "Conditional density estimation via optimal triangular flows", Writing Results, Scholarly.

Trigila, Giulio, Michele Pavon, "Data Driven Schroedinger bridge II", On-Going, Scholarly.
A second paper on the topic is under preparation. The collaboration with the Mathematician Michele Pavon has been strengthened also thanks to a visit to his department in Padova where I delivered a talk.

Trigila, Giulio, John A. Burns, "Gene analysis of ocean's water", On-Going, Scholarly.
This is a multidisciplinary project in which genetic analysis together with cutting edge statistical tools are combined in order to develop new techniques to determine the proportions of different type of organism present in ocean's water.

10. PROFESSIONAL HONORS, PRIZES, FELLOWSHIPS:

SIAM Early Career Travel Award, SIAM, Scholarship/Research, International. (January 2018).
Provide funding to participate to SIAM conferences

Data Incubator Fellowship, Data Incubator, Scholarship/Research. (July 31, 2015).
Selected from over a thousand applicants to participate in a rigorous two months data science program.

TUM University Foundation Fellowship, Technical University of Munich, Scholarship/Research, University. (September 1, 2013).

NYC Department Of Education Award N6150, Depart. of Education of New York City, Scholarship/Research. (September 2012).

Moses A. Greenfield Research Award, New York University, Scholarship/Research, University. (2009).

Henry MacCracken Fellowship, New York University, Scholarship/Research, University. (September 1, 2007).
5 years Fellowship

11. GRANTS-IN-AID:

Trigila, G. (Principal), Sponsored Research, "PSC-CUNY Research Award", The Research Foundation of CUNY, $4,530.00. (start: June 1, 2021, end: June 1, 2022).

Trigila, G., Sponsored Research, "PSC-CUNY Research Award Program", CUNY, Baruch College - CUNY, $3,500.00. (start: January 2021, end: December 2021).

Trigila, G. (Principal), Grant, Stewart travel award - CUNY, $250.00, Funded. (start: January 1, 2019, end: December 2020).

Trigila, G., Sponsored Research, "PSC-CUNY Research Award Program", CUNY, $3,500.00, Funded. (start: July 1, 2019, end: June 30, 2020).

12. INSTITUTIONAL SERVICE:

A. Service to the Department

Basic Curriculum, Attendee, Meeting, Appointed. (January 2020 - December 2020).

Base Curriculum, Attendee, Meeting, Appointed, Pro Bono. (January 2019 - January 2020).

Base Curriculum, Committee Member. (2017 - 2018).

B. Service to the School

C. Service to the College

D. Service to the Graduate Center

E. Service to the University

Committee on Graduate Studies, Appointed, Pro Bono. (May 2021 - Present).

Financial Engineering Hub Steering Committee, Appointed, Pro Bono, served ex-officio. (May 2021 - Present).

The Financial Engineering Hub is an interdisciplinary collaboration between Weissman and Zicklin. The Steering Committee is charged with monitoring the evolution of the field, proposing refinements to the existing curriculum, and developing new offerings such as dual-degree, executive, and non-degree programs.

13. OFFICES HELD IN PROFESSIONAL SOCIETIES:

14. OTHER PROFESSIONAL ACTIVITIES AND PUBLIC SERVICE:

15. TEACHING ACTIVITIES AT BARUCH:
    A. Courses Taught

MTH 9903, Capstone Project and Presentation MTH 9903 GUI[64750], (Fall 2021).

MTH 9898, Data Science in Finance I: Big Data in Finance MTH 9898 2UTA[62261], (Fall 2021).

MTH 4130, Mathematics of Data Analysis MTH 4130 HMWA[30272], (Fall 2021).

MTH 9898, Data Science in Finance I: Big Data in Finance MTH 9898 1UWA[17842], (Spring 2021).

MTH 5000, Independent Study Math I MTH 5000 GTRI[66193], (Spring 2021).

MTH 5000, Independent Study Math I MTH 5000 TRIG[66190], (Spring 2021).

PHY 5000, Independent Study Physics I PHY 5000 TRIG[66189], (Spring 2021).

MTH 4120, Introduction to Probability MTH 4120 KTRA[44900], (Spring 2021).

MTH 4119, Multivariate Probability Distributions MTH 4119 KTRA[44913], (Spring 2021).

MTH 9900, Special Topics in Mathematics MTH 9900 GT3[65993], (Spring 2021).

MTH 9903 - TRIG, Capstone Project, 4, new course preparation, (Fall 2020).
Pedagogical Innovations: This course is fully online via Zoom meeting. The meetings used interactive virtual white boards supported with computer code sharing and digital textbooks.

MTH 4100 - DMWA, Linear Agebra, 36, 3 credit hours, new format for existing course, (Fall 2020).
Pedagogical Innovations: The course is now fully online
New Teaching Material: I am adopting a virtual whiteboard to make the online experience as close as the in person experience. Recording of the lecture held via Zoom and my handwritten notes are posted on blackboard

MTH 4130 - GTRA, Mathematics of data analysis, 33, 4 credit hours, new format for existing course, (Fall 2020).
Pedagogical Innovations: The course if now fully online
New Teaching Material: I am adopting a new online platform called zybook (Wiley editor). A zybook is an interactive textbook to stimulate the active participation of the students during the lecture

MTH 9898, Big Data In Finance, 3 credit hours, Graduate, Classroom, (Spring 2020).

MTH 4120, Introduction to Probability, 4 credit hours, (Spring 2020).

MTH 4119, Multivariate probability distributions, (Spring 2020).

MTH 2610, Calculus 1, Undergraduate, Classroom, (Fall 2019).

MTH 9903, Capstone project and presentation, Graduate, Discussion, (Fall 2019).

MTH 4100, Linear Algebra and Matrix Methods, Undergraduate, Classroom, (Fall 2019).

MTH 9900, Special topics in Mathematics, Graduate, Discussion, (Fall 2019).

MTH 9898, Big Data in Finance, (Spring 2019).

MTH 5001 - 1, Deep learning for option pricing, Undergraduate, (Spring 2019).

MTH 4120, Introductoin to probability, Undergraduate, (Spring 2019).

PHY 5000 - 1, Physics with Calculus II, (Spring 2019).

MTH 2610, Calculus 1, (Fall 2018).

MTH 4100, Linear Algebra and Matrix Methods, (Fall 2018).

MTH 9898 - 56152, Big Data in Finance, 39, 3 credit hours, Graduate, Classroom, new course preparation, new format for existing course, (Spring 2018).
Pedagogical Innovations: Computer applications
New Teaching Material: Simulations
Enhancements to Student Learning: Group projects

4120 - 48591, Introductoin to probability, 4 credit hours, Undergraduate, Classroom, new course preparation, (Spring 2018).

MTH 2610 - 1, Calculus I, 25, 3 credit hours, Undergraduate, Classroom, (Fall 2017).

MTH 4100 - 1, Linear Algebra and Matrix Methods, 33, 4 credit hours, Undergraduate, Classroom, (Fall 2017).

B. New courses/programs developed

MTH 9903 - TRIG, Capstone Project, 4, new course preparation, (Fall 2020).

MTH 9898 - 56152, Big Data in Finance, 39, 3 credit hours, Graduate, Classroom, new course preparation, new format for existing course, (Spring 2018).

MTH 4120 - 48591, Introductoin to probability, 4 credit hours, Undergraduate, Classroom, new course preparation, (Spring 2018).

Important Information

1. This application is for use by institutions of higher education that hold an absolute charter or permanent authority to award degrees seeking to register **general academic curricula**.

2. **Do not** use this application for the following program proposals:

   - Programs preparing teachers, educational leaders, or other school personnel
   - Programs preparing licensed professionals
   - Programs leading to doctoral level degrees
   - Programs leading to a credit-bearing Certificates or Advanced Certificates
   - Proposals for revisions to existing registered programs (including title changes, curricular changes, etc.)

3. Program registration is based upon standards in the Regulations of the Commissioner of Education (8 NYCRR Chapter II, Subchapter A). The Department registers individual curricula/programs rather than the institution as a whole, but the registration process includes, in some instances, an assessment of institutional-level compliance with some of the standards.

4. This application includes attestations/assurances, by the Chief Administrative or Academic Officer/Provost of the institution, on behalf of the institution, concerning the institution's compliance with statutory and regulatory requirements related to the standards for curricula/program registration and operation of higher education programs in New York State.

5. The Department will audit compliance and, if an institution is found to be out of compliance with one or more standard to which it attested compliance, that finding may lead to denial of: (1) re-registration of the program, pursuant to §52.1(l) of the Regulations of the Commissioner of Education and (2) the ability of the institution to utilize attestations in future applications for program registration; and in certain circumstances may warrant deregistration of the program.

6. Program proposals from SUNY and CUNY System institutions must be submitted to the Department by the System Administration. Contact the System Administration for information concerning relevant proposal submission requirements.

7. The Department reserves the right to request additional information and/or clarification of any information provided by the institution that may be necessary for the Department to make a registration decision concerning the proposed program.

Submission Instructions

Applications for program registration will be accepted in **electronic format only** via the instructions below. Hard copy applications will not be accepted or reviewed by the Department and will not be retained.

1. Create a single PDF document that includes the following documents:

    - The completed Application for the Registration of New Graduate and Undergraduate Curricula/Programs, with all required signatures included;
    - Any request for a Master Plan Amendment and associated information and materials that may be required concerning this program proposal (see below); and
    - Any external review of the proposed program that is required (see below).

2. Attach the PDF document to an e-mail.

3. Send the e-mail (with attachment) to OCUERevAdmin@nysed.gov.

4. The subject line of the email should include the name of the institution, the degree award and the program title. For example:

    Subject: ABC College, Master of Science, English Literature.

Master Plan Amendments

If this program proposal necessitates a Master Plan Amendment, additional information and materials related to that request will be required. Please refer to information on the Department's web site at: http://www.highered.nysed.gov/ocue/aipr/guidance/gpr2.html for information on Master Plan Amendments to determine if such an amendment is required for this program proposal and to access the Master Plan Amendment Supplement.

External Review

Please refer to http://www.highered.nysed.gov/ocue/aipr/guidance/gpr9.html for information about when an external review of a proposed program is required. If such a review is required, that material must be submitted with the program registration application.

General Information

Institution (Legal Name)	Institution Code
Baruch College	1409
Proposed Program Title	Degree Award
CS+	Bachelor of Science
Address of Any Campus Where the Proposed Program Will Be Offered (main and/or branch campuses)	Full-time or Part-time [1]
Newman Vertical Campus, 55 Lexington Ave, New York, NY 10010	Full-time
All Program Format(s) (standard, distance education[2], evening, weekend and/or other)	HEGIS Code
Standard	0701.00
Joint Registration IHE (if applicable)	Total Number of Credits
	120
Lead Contact [First Name, Last Name, Title]	Telephone Number
Dr. Warren Gordon Chair, Department of Mathematics, Baruch College	646.312.4110
Email Address	

[1] Please refer to §52.2(c) and §145-2.1 of the Regulations of the Commissioner for definitions and information concerning full and part time study. Note: Only programs registered as full time are eligible for TAP. Programs are subject to audit by the NYS Office of the State Comptroller and the Higher Education Services Corporation (HESC) for financial aid compliance purposes.

[2] If a major portion of the program (50% or more) can be completed through study delivered by distance education then the program must be registered in the distance education format. Hybrid or blended courses do not count toward the 50%.

warren.gordon@baruch.cuny.edu	

Attestation and Assurances

On behalf of the institution, I hereby attest to the following:

That all educational activities offered as part of this proposed curriculum are aligned with the institutions' goals and objectives and meet all statutory and regulatory requirements, including but not limited to Parts 50, 52, 53 and 54 of the Rules of the Board of Regents and the following specific requirements:

That credit for study in the proposed program will be granted consistent with the requirements in §50.1(o).

That, consistent with §52.1(b)(3), a reviewing system has been devised to estimate the success of students and faculty in achieving the goals and objectives of the program, including the use of data to inform program improvements.[3]

That, consistent with §52.2(a), the institution possesses the financial resources necessary to accomplish its mission and the purposes of each registered program, provides classrooms and other necessary facilities and equipment as described in §52.2(a)(2) and (3), sufficient for the programs dependent on their use, and provides libraries and library resources and maintains collections sufficient to support the institution and each registered curriculum as provided in §52.2(a)(4), including for the program proposed in this application.

That, consistent with 52.2(b), the information provided in this application demonstrates that the institution is in compliance with the requirements of §52.2(b), relating to faculty.

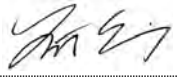
That all curriculum and courses are offered and all credits are awarded, consistent with the requirements of §52.2(c).

That admissions decisions are made consistent with the requirements of §52.2(d)(1) and (2) of the Regulations of the Commissioner of Education.

That, consistent with §52.2(e) of the Regulations of the Commissioner of Education: overall educational policy and its implementation are the responsibility of the institution's faculty and academic officers, that the institution establishes, publishes and enforces explicit policies as required by §52.2(e)(3), that academic policies applicable to each course as required by §52.2(e)(4), including learning objectives and methods of assessing student achievement, are made explicit by the instructor at the beginning of each term; that the institution provides academic advice to students as required by §52.2(e)(5), that the institution maintains and provides student records as required by §52.2(e)(6).

That, consistent with §52.2(f)(2) of the Regulations of the Commissioner of Education, the institution provides adequate academic support services and that all educational activities offered as part of a registered curriculum meet the requirements established by state, the Rules of the Board of Regents and Part 52 of the Commissioner's regulations.

[3] The Department reserves the right to request this data at any time and to use such data as part of its evaluation of future program registration applications submitted by the institution.

CHIEF ADMINISTRATIVE or ACADEMIC OFFICER/ PROVOST	
Signature 	Date 04-25-22
Type or print the name and title of signatory Linda Essig	Phone Number

Program Purpose, Objectives and Targets

Program Purpose

Department Expectation: *Clearly define a program purpose that is aligned to the degree award and program title.*

Training to be computer scientists is an excellent way for students from underprivileged backgrounds to enter a prestigious profession. In other words, the program fits perfectly with Baruch College's mission of being a national leader in social mobility. The program will also strengthen the offerings to our mathematics and computer information systems majors and minors.

Another purpose of the CS+ program is to prepare students for careers at the intersection of CS and other disciplines. This novel approach will attract qualified students who may not have considered applying to a public college.

Program Objectives

Department Expectation: Articulate between 1 and 3 program-level (curriculum-level) objectives that are clearly defined and directly aligned with the program purpose and proposed degree award.

1. Upon completion of this program, students will be able to write advanced computer programs in multiple programming languages, including object-oriented code.
2. Upon completion of this program, students will be able to design efficient algorithms for real-world problems in a variety of fields. This includes incorporating common data structures into the algorithm, modifying existing algorithms, and relying on algorithmic approaches such as divide-and-conquer and dynamic programming.
3. Upon completion of this program, students will be able to describe and work with physical components of computer systems, such as processors and memory hierarchies.

Program Targets - *Department Expectation*: *Establish realistic enrollment, retention, graduation, and job placement targets for this program that are connected to the reviewing system by which the success of students and faculty in achieving such goals and objectives of the program are determined. Note: There are not specific Department defined targets required for the registration of curricula. The Department expects institutions to establish targets that reflect the espoused quality of the program, and to periodically and systematically review such targets are they related to program implementation.*

Enrollment Projections

The Department assumes that Year 5 enrollment projections will be full-capacity relative to existing and new resources planned.

Year 1	Year 2	Year 3	Year 4	Year 5
0	25	50	80	90

Annual Retention Rate Target (%)	Target graduation rate (%)	Target Job Placement Rate (%)
92%	71.64%	100%

Curriculum and Course Information

Please provide the following:

1. The applicable sample student program schedule table:
   - Table A: Undergraduate Program Schedule; or
   - Table B: Graduate Program Schedule

   When completing the program schedule table please refer to the requirements in §52.2(c) of the Regulations of the Commissioner concerning completion of Associate, Baccalaureate and Master's degree programs.

2. Please list the course titles for all new courses included as part of the proposed program, and, either attach the course syllabi or, if such syllabi are not yet available, provide course descriptions and objectives in the chart below.

New Course Titles	Indicate that course syllabi are attached or, provide course descriptions and objectives (if course syllabi are not available)
Computer Architecture (MTH4350)	Syllabus attached
Operating Systems (MTH4355)	Syllabus attached
Complexity and Computational Models (MTH4360)	Syllabus attached
Programming Languages (MTH4325)	Syllabus attached
Cryptography (MTH4250)	Syllabus attached
Data Structures and Algorithms (MTH4320)	Revision of existing algorithm course. Syllabus attached

Table A: Undergraduate Program Schedule

- *Indicate academic calendar type: **X** Semester ☐ Quarter ☐ Trimester ☐ Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: Fall 1		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 2610 - Calculus I (satisfies Math and Quantitative Reasoning)	4	4			Placement
ENG 2100 - Writing I	3	3			
Flexible Core Course	3	3			
Flexible Core Course	3	3			
Flexible Core Course	3	3			
FYS 1000 - First Year Seminar	0				
Term credit total:	16	16			

Term: Spring 1		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 3010 - Calculus II (satisfies Math and Quantitative Reasoning)	4	4			MTH 2610
MTH 3300 - Algorithms, Computers and Programming I	3	3	3		MTH 2610
ENG 2150 - Writing II	3	3			
Life and Physical Sciences	3	3			
Scientific World	3	3			
Term credit total:	16	16	3		

Term: Fall 2		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 3150 - Discrete Mathematics	4	4	4		MTH 2610
MTH 4300 - Algorithms, Computers and Programming II	3	3	3		MTH 3300
COM 1010 - Speech Communication	3	3			
Foreign Language I	3	3			
Flexible Core Course	3	3			
Term credit total:	16	16	7		

Term: Spring 2		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 4320 - Fundamental Algorithms	4	4	4		MTH 3300, MTH 3010
Major Elective	3	3	3		
Foreign Language II	3	3			
Flexible Core Course	3	3			
ENG 28x0 - Great Works of Literature I or II	3	3			
Term credit total:	16	16	7		

Term: Fall 3	Credits per classification

Term: Spring 3	Credits per classification

Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 4350 - Computer Architecture	4	4	4	Y	MTH 3300	MTH 4355 - Operating Systems	4	4	4	Y	MTH 4350
Major Elective	4	4	3			Major Elective	4	4	4		
Liberal Arts Minor Course	3	3				Liberal Arts Minor Course	3	3			
Liberal Arts Elective	3	3				Liberal Arts Elective	3	3			
Term credit total:	14	14	7			**Term credit total:**	14	14	8		
Term: Fall 4		Credits per classification				Term: Spring 4		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
MTH 4360 - Complexity and Computational Models	4	4	4	Y	MTH 3150, MTH 4320	Major Elective	3	3	3		
Major Elective	3	3	3			Free Elective	3				
Liberal Arts Minor Capstone	3	3				Free Elective	3				
Free Elective	3					Free Elective	3				
Free Elective	3										
Term credit total:	16	10	7			**Term credit total:**	12	3	3		

Program Totals:	Credits: 120	Liberal Arts & Sciences: 105	Major: 42	Elective & Other: 15

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Table B: Graduate Program Schedule

- *Indicate academic calendar type:* ☐ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term:					Term:			
Course Number & Title	Credits	New	Prerequisite(s)		Course Number & Title	Credits	New	Prerequisite(s)

Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)
Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)
Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)

Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)
Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)
Term credit total:			

Term:			
Course Number & Title	Credits	New	Prerequisite(s)

Term credit total:					Term credit total:			
Program Totals:	**Credits:**	Identify any comprehensive, culminating element(s) (e.g., thesis or examination), including course number if applicable:						
New = indicate if new course **Prerequisite(s)** = list prerequisite(s) for the noted course								

Faculty Information

Existing Core Faculty

Department Expectations: Identify the specific faculty members that will be responsible for setting the curricular objectives, teaching program courses, advising students, and determining the means by which program and course objectives are measured. ***Identify the program director.***

Core faculty members must meet minimum academic qualifications as identified in Part 52.2(b) of regulation, and be of sufficient depth and breadth to provide leadership, direction, and discharge other responsibilities critical to the start-up of the program.

Note: *Faculty curricula vitae or resumes should not be attached to this application and should only be provided if specifically requested by the Department.*

Faculty Member Name, Title, and Rank	Courses to be taught	Full-time or Part-time; if Full-time identify % of time to the program	Highest Earned Degree, Discipline, IHE	Additional qualifications which demonstrate professional competence relative to the specific program.
Adam Sheffer, Associate Professor	Program director, MTH3300, MTH4320, MTH4360, advising students, research mentoring.	Full-time, 78%	PhD in Computer Science, Tel-Aviv University	Experience working in cybersecurity. Regularly teaching computer science courses for over a decade.
Warren Gordon, Professor and Chair	Administrative work	Full-Time, 10%	PhD in Mathematics, NYU	Experienced with creating new programs at Baruch
Areeba Ikram, Lecturer	MTH 3300, MTH4360, MTH4320, MTH4300, MTH4250	Full-time, 50%	PhD in Mathematics, University of Nebraska-Lincoln	Experience teaching multiple CS courses in multiple institutions.
Guy Moshkovitz, Assistant Professor	MTH4150, MTH4140, MTH4360, research mentoring	Full-time, 22%	PhD in Mathematics, Tel-Aviv University	Research focus is on the intersection of computer science and mathematics.

Existing Core Faculty

Department Expectations: Identify the specific faculty members that will be responsible for setting the curricular objectives, teaching program courses, advising students, and determining the means by which program and course objectives are measured. ***Identify the program director.***

Core faculty members must meet minimum academic qualifications as identified in Part 52.2(b) of regulation, and be of sufficient depth and breadth to provide leadership, direction, and discharge other responsibilities critical to the start-up of the program.

Note: *Faculty curricula vitae or resumes should not be attached to this application and should only be provided if specifically requested by the Department.*

Evan Fink, Lecturer	MTH3150, MTH3300, MTH4300, MTH4325, MTH4330	Full-Time, 50%	PhD in Mathematics, Columbia University	Extensive experience teaching programming classes and other computer science classes.
Ivan Matic, Associate Professor	MTH4300, MTH4350, MTH4355	Full-Time, 44%	PhD in Mathematics, UC Berkeley	Has a significant background in studying and teaching computer science.
Jarrod Pickens, Lecturer	MTH3300, MTH4300	Full-Time, 33%	PhD in Mathematics, UC Santa Barbara	Coached many winning teams in algorithmic trading competitions.
Giulio Trigila, Assistant Professor	MTH3150, MTH3300, MTH4330, MTH4140, MTH4325	Full-Time, 22%	PhD in Applied Mathematics, NYU	An active researcher in machine learning, numerical analysis.
Pablo Soberón, Assistant Professor	MTH3150, MTH4140, MTH4150, research mentoring	Full-Time, 22%	PhD in Mathematics, University College London	His work is closely related to computational geometry, a sub-field of computer science.
Ryan Ronan, Lecturer	MTH3300, MTH3150, MTH4140	Full-Time, 17%	PhD in Mathematics, CUNY Graduate Center	Has a BE in Electrical Engineering
Rados Radoicic, Professor	MTH4140, MTH4150, MTH3150, MTH4250, MTH4320, MTH4360	Full-Time, 44%	PhD in Mathematics, MIT	Has a BSc in computer science. Some of his research interests are in computer science.

Existing Core Faculty

Department Expectations: Identify the specific faculty members that will be responsible for setting the curricular objectives, teaching program courses, advising students, and determining the means by which program and course objectives are measured. ***Identify the program director.***

Core faculty members must meet minimum academic qualifications as identified in Part 52.2(b) of regulation, and be of sufficient depth and breadth to provide leadership, direction, and discharge other responsibilities critical to the start-up of the program.

Note: *Faculty curricula vitae or resumes should not be attached to this application and should only be provided if specifically requested by the Department.*

Faculty to be Hired

Department Expectations: Identify the specific job title, courses to be taught, and qualifications for each position and the specific timeline by which the faculty member(s) will be hired. The job descriptions and minimum qualifications of faculty to be hired meet the meet minimum academic qualifications as identified in Part 52.2(b) of Commissioner's regulation. The date provided by which faculty to be hired will be in place must be clear and directly connected to when they are needed to discharge their responsibilities during program implementation. The Department reserves the right to request more information concerning recruitment and hiring of faculty if it is needed to make a determination concerning compliance with program registration standards.

Position Title, and Rank	Highest Earned Degree, Discipline, and additional qualifications	Courses to be taught	Date by which they will begin job duties
Assistant Professor	PhD in Computer Science or a related field	MTH4350, MTH4355, MTH4325, MTH4330, new CS electives	August 2023

Faculty to be Hired *<u>Department Expectations</u>: Identify the specific job title, courses to be taught, and qualifications for each position and the specific timeline by which the faculty member(s) will be hired. The job descriptions and minimum qualifications of faculty to be hired meet the meet minimum academic qualifications as identified in Part 52.2(b) of Commissioner's regulation. The date provided by which faculty to be hired will be in place must be clear and directly connected to when they are needed to discharge their responsibilities during program implementation. The Department reserves the right to request more information concerning recruitment and hiring of faculty if it is needed to make a determination concerning compliance with program registration standards.*			
Assistant Professor	PhD in Computer Science or a related field	MTH4350, MTH4355, MTH4325, MTH4330, new CS electives	August 2025

THE CITY UNIVERSITY OF NEW YORK

ARTICULATION AGREEMENT

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: **Bronx Community College of the City University of New York**

Department: Mathematics and Computer Science

Program: Computer Science

Degree: Associate in Science

Receiving College: **Baruch College of the City University of New York**

Department: Mathematics

Program: Computer Science

Degree: Bachelor of Science

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

Students must go to the CUNY.edu and complete a transfer application. Application Priority Deadlines are as follows:

Spring Admissions: September 15

Fall Admissions: February 1

Admission to the program is very competitive. Standards include the following:

- Students must earn a combined GPA of 3.5 in Calculus I and II (MTH 31 and 32).
- Students must earn a minimum grade of B in Programming I and II (CSI 31 and 32).

Students may connect with the BCC Office of Transfer Services for assistance with the CUNY transfer application.

Associate in Science Degree from Bronx Community College.

Bronx Community College graduates with the Associate Degree in Computer Science will receive 60 credits toward the Bachelor of Science in Computer Science at Baruch College. In addition, they will be deemed to have met all lower level, Pathways general education requirements. Determination of the Liberal Arts credits required for the baccalaureate degree in accordance with New York State Education Department requirements will be made by Baruch College

Total transfer credits granted toward the baccalaureate degree: 60

Total additional credits required at the senior college to complete baccalaureate degree: 60

C. COURSE TO COURSE EQUIVALENCIES AND TRANSFER CREDIT AWARDED

CUNY Pathways General Education Requirements	
Required Common Core	**Credits**
A. **English Composition** (2 courses) B. **Mathematical and Quantitative Reasoning** (1 course) MTH 31 Calculus and Analytic Geometry I* C. **Life and Physical Sciences** (1 course) SCIENCE I BIO 11 General Biology I, OR CHM 11 General College Chemistry I, OR PHY 11 College Physics I, OR PHY 31 Physics I *Students interested in the Concentration in Biology at Baruch are encouraged to complete BIO 11* *Students interested in the Concentration in Physics at Baruch are encouraged to complete PHY 11*	14
Flexible Common Core	**Credits**
A. **World Cultures and Global Issues** (1 course) B. **U.S. Experience in Its Diversity** (1 course) *Students are advised to complete COMM 20 to improve transfer credit applicability to Baruch.* C. **Creative Expression** (1 course) D. **Individual and Society** (1 course) *Students interested in pursuing the Concentration in Psychology at Baruch are advised to complete PSY 11* E. **Scientific World** (2 courses) CSI 30 Discrete Mathematics I** **Additional course from the Flexible Core E:** SCIENCE II BIO 12 General Biology II, OR CHM 12 General College Chemistry II, OR PHY 12 College Physics II, OR PHY 32 Physics II *Students interested in the Concentration in Biology at Baruch are encouraged to complete BIO 12* *Students interested in the Concentration in Physics at Baruch are encouraged to complete PHY 12*	19
Subtotal	**33**

** Transfers to Baruch as MTH 2610 Calculus I*

***Transfers to Baruch as MTH 2301 Concepts of Discrete Math*

Sending College		**Receiving College Equivalent**		
Major Requirements				
[Bronx Community College] **Course & Title**	**Credit**	[Baruch College] **Course & Title**	**Credit**	**Credit Granted**
MTH 32 Analytic Geometry and Calculus II	4	MTH 3010 Calculus II	4	4
MTH 33 Analytic Geometry and Calculus III	4	MTH 3030 Elements of Calculus III	5	4
CSI 31 Introduction to Computer Programming I	3	MTH 3300 Algorithms, Computers, and Programming I	3	3
CSI 32 Introduction to Computer Programming II	3	MTH 4300 Algorithms, Computers and Programming II	3	3
CSI 35 Discrete Mathematics II	3	MTH 3150 Discrete Math: An Invitation to Computer Science	4	3
CSI 33 Data Structures	3	*Computer Science Elective*	3	3

Free Elective / MTH 28/28.5 / MTH 30 depending on placement.	7	*Elective Credit / MTH 2000*	7	7
			Subtotal	**27**

TOTAL	**60**

D. UPPER DIVISION COURSES

BACHELOR OF SCIENCE IN COMPUTER SCIENCE	
ABOUT THE PROGRAM Students who participate in the Computer Science program will be prepared to do programming in multiple widely used programming languages and will develop the intellectual and attitudinal wherewithal to solve challenging practical and theoretical problems. Upon completion of this program, students will be able: • To write advanced computer programs in multiple programming languages, including object-oriented code. • To design efficient algorithms for real-world problems in a variety of fields. This includes incorporating common data structures into the algorithm, modifying existing algorithms, and relying on algorithmic approaches such as divide-and-conquer and dynamic programming. • To describe and work with the major physical components of computer systems, such processors, memory hierarchies, and I/O systems. • To understand and interact with major components of operating systems, such as file systems, process scheduling, and basic security mechanisms. • To discuss and explain the theory of computer science, including topics such as computational complexity and computational models.	
COLLEGE OPTION	**Credits**
ENG/CMP 2800 or ENG/CMP 2850 4000-level capstone course **Transfer students with an associate degree are required to complete only 6 college option credits per Pathways policy.*	6*
PRE-WEISSMAN CORE COURSES	
COM 1010 Speech Communication *(Students who have completed COMM 20 at BCC will not have to take this course at Baruch)* Foreign Language I Foreign Language II	6-9
REQUIRED COMPUTER SCIENCE CORE	
MTH 4320 Data Structures and Algorithms MTH 4350 Computer Architecture MTH 4355 Operating Systems MTH 4360 Complexity and Computational Models	16

<table>
<tr><td colspan="2">COMPUTER SCIENCE ELECTIVES OR SELECT CONCENTRATION</td><td></td></tr>
<tr><td colspan="2">Select three from the following:

MTH 4330 Introduction to Machine Learning

CIS 3500 Computer Networking

CIS 3400 Database Management Systems

CIS 3630 Principles of Web Design

MTH 4140 Graph Theory

CIS 4560 Ethical Hacking

MTH 4325 Programming Languages

MTH 4150 Combinatorics

MTH 4250 Cryptography

MTH 4135 Computational Methods in Probability</td><td>12</td></tr>
<tr><td colspan="2">CONCENTRATIONS</td><td rowspan="2"></td></tr>
<tr><td>Applied Linguistics:

One of the following:

• ENG 3700 Introduction to Linguistics and Language Learning (3 Credits)
• ENG 3750 Structure and History of English (3 Credits).
ENG 3960 Topics in Languages (3 credits). This course has different types of sections. The concentration requires the CALL-based section.

BCC transfer students should complete one computer science elective.</td><td>Financial Mathematics:

This concentration is focused on computational finance.

MTH 4120 Probability (4 credits).

MTH 4500 Introductory Financial Mathematics (4 credits).

MTH 4115 Numerical Methods for Differential Equations in Finance (4

credits). This course has linear algebra as a pre- or co-requisite. However, MTH3150 would be an alternative prerequisite.</td></tr>
</table>

<table>
<tr><td>Biology:

This concentration focuses on bioinformatics.

BIO 2100 Biostatistics (3 credits).

BIO XX Bioinformatics (4 credits) – a new course BCC transfer students should complete one computer science elective.</td><td>Psychology:

This concentration includes computational work in one of Baruch’s psychology laboratories.

PSY 1001 General Psychology (3 credits). This course is part of the Pathways requirements. Students who completed PSY 11 at BCC will not be required to complete this course.

PSY 3001 Research Methods (4 credits).

One of the following four:

• PSY 3081 Cognitive Psychology (3 credits).
• PSY 3082 Mind, Brain, and Behavior (3 credits).
• PSY 3056 Social Psychology (3 credits).
• PSY 3067 Motivational Learning (3 credits).
Independent study at one of the relevant psychology labs.</td><td></td></tr>
<tr><td>Environmental Science:

ENV 1003L Fundamentals of Ecology (3 credits).

ENV 1004 Fundamentals of Ecology Research (3 credits).

ENV 3016 Environmental Modeling (4 credits).

ENV 4900 Topics in Environmental Science (4 credits).

Students are encouraged to take the Machine Learning elective (MTH 4330) for the one computer science elective required for BCC transfer students.</td><td>Physics:

This concentration is focused on computational physics.

PHY 3004 Physics on computer with Python (4 credits). This course has no significant overlap with the CS Python course MTH 3300 (or CIS

2300).

PHY 4004 Statistical physics with applications to finance (4 credits).

BCC transfer students should complete one computer science elective.</td><td></td></tr>
<tr><td colspan="2">Subtotal</td><td>40-43</td></tr>
<tr><td colspan="2">Free Electives</td><td>17-20</td></tr>
<tr><td colspan="2">TOTAL</td><td>60</td></tr>
</table>

E. ARTICULATION AGREEMENT FOLLOW-UP PROCEDURES

1. Procedures for reviewing, up-dating, modifying or terminating agreement:

Bronx Community College and Baruch College will review implementation of the agreement every four years to ensure that students are adequately informed of the program and to identify issues requiring attention.

2. Procedures for evaluating agreement, e.g., tracking the number of students who transfer under the articulation agreement and their success:

After transfer into the Baruch College Computer Science major, the performance of Bronx Community College students will be tracked using the CUNY Institutional Research Data Base.

3. Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisers, Websites, etc.:

Notice of articulation will be placed on web sites and other college documents as appropriate.

Respective transfer and academic advisers will be informed and provided with copies of this agreement.

The Baruch College Admissions Office to make certain that materials are sent with recruitment officers for BCC's biannual Transfer Day event.

Effective Date: Fall 2022

For Bronx Community College

Dr. Lester Sandres Rápalo,

Vice President & Provost, Academic Affairs

_____

Signature of Sending College Chief Academic Officer

Dr. Anthony Weaver, Chairperson

Department of Mathematics and Computer Science

_____

Signature of Sending College Department Chairperson

For Baruch College

Dr. Linda Essig

Provost and Senior Vice President for Academic Affairs

_____

Signature of Receiving College Chief Academic Officer

Dr. Warren B. Gordon, Chairperson

Department of Mathematics

_____

Signature of Receiving College Department Chairperson

Board of Trustees of The City University of New York

RESOLUTION TO

Establish a Program in Health Sciences Leading to the Associate of Science Degree at Kingsborough Community College of The City University Of New York

June 6, 2022

WHEREAS, Kingsborough Community College, Brooklyn College, and Medgar Evers College were awarded over $9 million to launch the Healthcare Career Hub of Central and South Brooklyn, a new workforce ecosystem; and

WHEREAS, This Hub will have three main objectives: expand and enhance the healthcare workforce in Central and South Brooklyn; build a healthcare high school to career pipeline for students; and match well-prepared college graduates with excellent healthcare employment opportunities; and

WHEREAS, According to the U.S. Bureau of Labor Statistics, employment in healthcare occupations is projected to grow 16 percent from 2020 to 2030, much faster than the average for all occupations, adding approximately 2.6 million new jobs; and

WHEREAS, In response to the needs of the health services industry as well as our current society, which continues to deal with the negative impacts of the COVID-19 pandemic and other current and emerging health disparities; and

WHEREAS, The Department of Health, Physical Education, and Recreation is proposing an Associate of Science Degree in Health Sciences to prepare students to enter emerging professions that respond to the bio-psycho-social needs of various communities in the region; and

WHEREAS, The program will provide students with courses to attain foundational knowledge and skills in health information, health education, and health care while providing various paths for transfer to 4-year degree programs in health sciences and other related majors both within and outside CUNY; and

WHEREAS, Opportunities to attain microcredentials in *Health Coaching*, *Basic Life Support*, and *First Aid* are embedded within the degree requirements to provide each student with industry-recognized credentials; and

WHEREAS, The program will consist of 60 credits offered in a number of modalities (fully online, hybrid and/or in-person), with a core that will focus on academic and practical opportunities to students who desire a career in health services, but have not yet realized the range of specialized careers that exist in the field and the degree will also be useful for incumbent workers in health-related fields who desire an academic degree as a credential for upward professional mobility; and

WHEREAS, The enrollment in this degree is expected to be strong and no additional initial costs with respect to facilities, library resources, or faculty are needed to launch the program and the college has budgeted for future new faculty lines as the program rolls out and the enrollment grows.

NOW, THEREFORE, BE IT

RESOLVED, That the proposed program in Health Sciences Leading to the Associate of Science Degree at Kingsborough Community College of The City University of New York be presented to the New York State Education Department for their consideration and registration in accordance with any and all regulations of the New York State Department of Education, including the Master Plan Amendment, effective June 28, 2022, subject to financial ability.

EXPLANATION: The proposed program will fulfill the College's goal to expand its healthcare offering, match well-prepared career entrants with healthcare employment opportunities, and build the healthcare high school to career pipeline. The program will also serve Central and South Brooklyn and other communities in New York City to meet the community health demands and disparities.

e

KINGSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK

Proposal to Establish a
Associate of Science Degree in Health Sciences
Anticipated Start
Fall 2022

Sponsored By The Department Of Health, Physical Education, And Recreation

Approved by the
College Curriculum Committee on
October 28, 2021

Approved by
College Council on
November 16, 2021

College Representative: Dr. Joanne Russell
Provost and Senior Vice President for Academic Affairs
Contact:
Telephone (718) 368-5661
Fax: (718) 368-5029
Email: Joanne.Russell@kbcc.cuny.edu

Joanne L Russell

Provost's Name: Joanne Russell, Ph.D.

PROGRAM IDENTIFICATION

COLLEGE
KINGSBOROUGH COMMUNITY COLLEGE
of The City University of New York

PROGRAM TITLE
Health Sciences

DEGREE
Associate of Science

CONTACT PEOPLE
Dr. Joanne Russell
Provost and Vice President of Academic Affairs
Kingsborough Community College
Email: Joanne.Russell@KBCC.CUNY.EDU

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ABSTRACT

With cooperation from Academic Affairs, the Academic Departments of Biology, Allied Health, Mental Health and Human Services, Communications & Performing Arts, and Behavioral Sciences, and the Department of Continuing Education and Workforce Development, the Department of Health, Physical Education, and Recreation (HPER) is proposing an Associate of Science (AS) in Health Sciences. This is a degree to better prepare students for baccalaureate degrees in health-related fields, as well as entry-level positions in the health services fields and the health care industry, especially in response to emerging challenges like COVID-19, community violence, opioid use, and mental illness.

This new AS degree is constructed as a generalized health degree with primarily introductory courses for students who want to explore different academic aspects of health as well as careers in health-related fields.

Students will have opportunities to transfer to several CUNY colleges, particularly CUNY School of Professional Studies (SPS), Brooklyn College, New York City College of Technology ("City Tech"), and York College, and other non-CUNY colleges. A special feature of the degree will be the inclusion of courses that, when successfully completed, will grant students opportunities to receive microcredentials, specifically a certificate in *Health Coaching* and sitting for certifying exams for *Basic Life Support* and *First Aid*. These microcredentials will afford students the ability to apply for more specialized jobs in health services. This degree will become a viable alternative for students not in clinical, those who seek upskilling in their current health-related jobs, as well as students looking to explore health careers but have not committed to a specific health specialization/area of focus. Current support by KCC Flex and the Health & STEM Advisement Academy will help recruit and retain students who take online, hybrid, and/or in-person courses in this degree.

EXECUTIVE SUMMARY

The Department of Health, Physical Education, and Recreation (HPER) at Kingsborough Community College (KCC) is proposing an Associate of Science (AS) degree in Health Sciences to prepare students to enter health services fields by providing them with courses that will help them attain foundational knowledge and skills in health information, health education, and health care. The degree will also provide various paths for transfer to 4-year degree programs in health sciences and other related majors in CUNY and beyond. Opportunities to attain microcredentials in *Health Coaching*, *Basic Life Support,* and *First Aid* will be embedded within the degree requirements to provide each student with industry-recognized credentials that will facilitate employment in health-related fields.

Kingsborough offers many ways for students to attain degrees in health-related fields, namely in community and public health, emergency medical services, mental health and human services, polysomnography, among others. However, most of the students who are enrolled in these programs have decided to specialize in these areas and are attracted to more specialized careers. Other students are not completely aware of multiple career paths to health services - it is these students we aim to recruit with the proposed degree.

This proposed AS degree will consist of 60 credits, 30-credit Common Core and 30-credits of major courses focused on offering academic and practical opportunities to students who:

- would like to pursue a college degree in the health field, but do not want to specialize in a specific area of the field (e.g., community health, mental health, emergency medical services) or who have not selected a health specialization/area of focus;
- wish to begin a career in an entry-level position in health care or related field (e.g., health coaches, health care/medical office assistants) immediately after graduating from college;
- are incumbent workers in the health field and want to advance from their current positions;
- were not successful in completing requirements for clinical health/licensed health-profession programs, such as Nursing, and want an option to study and enter the various health fields that can use their academic, professional, and personal skills; and
- have prior learning or work experience that can be reviewed for credit equivalencies to the competencies met in the course learning outcomes of various courses in the proposed degree (via CPL policies).

The Program Learning Outcomes (PLOs) are demonstrative of how the proposed degree provides the breadth of foundational knowledge and skills required within the health field.

1) demonstrate fundamental knowledge in health care services related to individual health behaviors, health communication, psychology, and/or sociology;
2) explain how health is affected by substance use, unhealthy sexual behavior, improper nutrition, and lack of physical activity;
3) practice basic communication skills related to helping individuals enhance their sexual health, reduce substance use, manage better nutrition, adhere to medical advice, engage in health coaching, and navigate health care systems;
4) identify their personal values and the ethical standards of practice related to health care services;

5) demonstrate technological and communication skills in health care services (reading, writing, and/or speaking);
6) explain basic concepts related to human anatomy, women's health, and American health care system;
7) employ critical thinking skills when explaining basic health concepts and demonstrating the application of health care practices; and,
8) apply basic life support and first aid skills to ensure patient and client safety.

Students will be able to transfer to related 4-year (baccalaureate) programs in several CUNY schools including, CUNY School of Professional Studies (SPS), Brooklyn College, New York City College of Technology ("City Tech"), and York College. Examples of programs that students can transfer to with this AS degree are SPS's BS Health Services Administration, Brooklyn's BA in Health and Nutrition Sciences, City Tech's BS in Health Care Management and Policy, and York's BS programs in Health Sciences and in Public Health.

This proposed degree provides an opportunity to study in a flexible manner (i.e., online, hybrid, and/or in-person). Our online courses are taught in both synchronous and asynchronous modes to meet students' needs. Support from our KCC Flex program, launched in Fall 2019 to offer adult, non-traditional and stop-out students a combination of alternative and accelerated scheduling, expedited application and admission processes, and dedicated enrollment and academic coaches can assist students with choosing the right courses in the format (online, hybrid, and/or in-person) that best meet the students' needs.

KCC offers a free 1-credit seminar ("Emerging Trends in Health Careers") for students who are curious about entering a health-related career. The College also offers opportunities for students to explore health-related career interests in Pathways Flexible Core courses [e.g., *Global Health Issues (HS 4100), Human Sexuality (HS 5200), Drugs & Society (HS 4000)*], as well as courses in our HPER department [e.g., *Concepts of Health & Wellness (HPE 1200)*], and various other departments [e.g., *Health Communications (SPE 1800)*]. However, some students who take these courses may not be fully matriculated and are not participating in the health-related degree programs offered. In addition, there are students who may fail out of clinical programs due to academic performance and who are not accepted due to space limitations and are unsure about other degree options to pursue that can still help them get into health-related careers.

When you reflect upon KCC's success as a student-centered institution, with multiple programs to support their learning and their life needs (e.g., Learning Communities, the KCC Learning Center, Academic Advisement Academies [Health & STEM Academy], Veterans and Military Services, Women's Center, Men's Resource Center, Safe Zone for LGBTQ+ student, faculty, and staff), KCC is ready to use established resources at the College in order to implement, support, and evaluate the proposed AS degree.

In 2021, KCC, with Brooklyn College and Medgar Evers College, is launching the Healthcare Career Hub of Central and South Brooklyn. Some major advantages for students who participate in the Hub will be participating in training programs in collaboration with health care employers in the area as well as matching graduates with employment opportunities with those employers. This opportunity will help students earning this degree, as well as students in other health-related majors, to gain practical knowledge and skills that are in

demand in the industry. Because of Medicaid restructuring[1], aging populations[2], as well as COVID-related service interruptions and increases[3], these employers are in need of staff members who can learn institution-specific policies, procedures, and practices in order to offer effective services to clients and patients.

The U.S. Bureau of Labor Statistics (via the Occupational Outlook Handbook 2020) forecasts many increases in jobs in the health services field, in non-clinical as well as clinical areas; some of the jobs that may be of interest to our students that require an Associate's or Bachelor's degree for entry-level positions are community health workers (median salary, $42K), medical and health services managers (median salary, $104K), and dietitians/nutritionists (median salary, $63K), among others[4].

Sectors of the health care industry are looking to hire individuals as community health workers (and similar roles) with at least a high school diploma or an Associate's degree[5]. In addition, employment forecasts reveal that "[e]mployment in healthcare occupations is projected to grow 15 percent from 2019 to 2029, much faster than the average for all occupations, adding about 2.4 million new jobs. Healthcare occupations are projected to add more jobs than any of the other occupational groups."[6]

The proposed degree will also provide a path to multiple baccalaureate degrees and entry/middle-level positions in health. When students take required courses in Pathways that are also requirements in the major, the degree provides the flexibility to allow them to select elective courses to optimize entry into specific 4-year degree programs at several schools. Graduates will be eligible to transfer more easily into the following degree programs:
--Health Services Administration at CUNY SPS
--Health Care Management and Policy at City Tech
--Health and Nutrition Sciences at Brooklyn College
--Health Sciences at York College
--Public Health at York College

Therefore, this proposed AS in Health Sciences will provide an academic credential that encompasses the various areas of health studies many students may want to explore for further studies in a baccalaureate program as well as a career in the field. The degree will 1) provide KCC students with a degree option that assists them in exploring various aspects of health and health services (i.e., health education, basic life support and first aid, health coaching, among others); 2) grant various opportunities to engage with faculty and other experts in their respective fields and to participate in activities that are part of the Healthcare Career Hub of Central and South Brooklyn; 3) provide opportunities for microcredentials in *Health Coaching*, *Basic Life Support, and First Aid,* which can assist in gaining employment more expeditiously; and 4) be offered to novice students as well as incumbent professionals seeking a degree.

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[1] Information retrieved from https://www.health.ny.gov/health_care/medicaid/redesign/
[2] Information retrieved from. https://www.bls.gov/ooh/healthcare/home.htm .
[3] Information retrieved from https://www.ny1.com/nyc/all-boroughs/coronavirus/2021/07/30/bill-clinton-says-next-nyc-mayor-should-focus-on-housing?cid=app_share .
[4] Information retrieved from https://www.bls.gov/ooh/healthcare/home.htm .
[5] Information retrieved from https://mcusercontent.com/760aea3c07df7a33b39b8b811/files/f8734991-ebbe-1424-d15f-75e5a009027b/CHW_Workforce_Snapshot_2019_April_2021.pdf .
[6] Information retrieved from https://www.bls.gov/ooh/healthcare/home.htm .

PURPOSE AND GOALS

Kingsborough's mission states that the College "responds to the needs of its diverse community by offering high quality, affordable, innovative, student-centered programs of study that prepare graduates for *transfer* and the *workforce*. The college strives for equity and seeks to provide each student with the appropriate resources and supports to foster success." *[emphasis added]*[7]

This proposed degree will advance the College's mission by offering another academic pipeline for students to enter the health services field and preparing these students for emerging professions that respond to the biopsychosocial health needs of various communities in New York City, New York State, and beyond.

As an institution, KCC has been on the forefront of innovation in academics and student support, as evidenced by successful programs (e.g., Learning Communities) and innovative degree programs in Emergency Medical Services and Sleep Technology, the latter two related to emerging needs in modern health care. KCC has also been offering courses and certificates in health-related careers through its Department of Continuing Education and Workforce Development (CEWD), namely in Medical Assistant training, as well as Health Coaching. Most recently, KCC, Brooklyn College, and Medgar Evers College were awarded over $9 million to launch the Healthcare Career Hub of Central and South Brooklyn, a new workforce ecosystem made possible under Gov. Cuomo's Workforce Development Initiative (WDI).[8] This Hub will have three main objectives:

- Expand and enhance the healthcare workforce in Central and South Brooklyn;
- Build a healthcare high school to career pipeline for students; and,
- Match well-prepared college graduates with excellent healthcare employment opportunities.

Aligning with the College's recent offerings of these new health-related degrees and the receipt of this new grant, this new AS degree program in Health Sciences will be a welcome addition to the portfolio of degree offerings related to health and health services. The degree is being proposed as a way to assist students to gain marketable academic and practical skills and to attain necessary foundational knowledge and skills in various areas of health, health services, and health research. Students will find this new degree useful for entry-level health-related jobs, as well as transfer to 4-year programs in health and nutrition services, public health, health education, and other areas that require a foundation in health. Incumbent health service workers may also find this degree helpful in gaining new knowledge and skills that can lead to job promotions and better pay.

This proposed degree will give students opportunities to learn the essential elements of health and health services, including current and emerging diseases and negative health conditions, disease prevention, patient care, health communications, and other relevant skills. Many newcomers to the health field, especially liberal arts students who want to consider a career in health but are not committed to a specific major, will find this degree useful in starting careers in these fields.

With the introduction of a Central and South Brooklyn Health Hub, Kingsborough will be in a valuable position to introduce potential, incoming, and returning students to various health careers that currently exist and are also

[7] Information retrieved from https://www.kbcc.cuny.edu/administration/PresOffice/missionstatement.html .
[8] Information retrieved from https://www1.cuny.edu/mu/forum/2021/07/29/kcc-wdi/ .

emerging. Kingsborough has a free 1-credit seminar course ("Emerging Trends in Health Careers")[9] that serves as an introduction to these careers and the academic pathways that exist at KCC for them. These students will be advised about our current health-related academic programs in Community Health, Mental Health and Human Services, Emergency Medical Services, among others, as well as this new AS in Health Sciences, once it is available.

In addition, many past and current students, especially those who have some college credits and/or relevant work experience, will have opportunities to return to KCC to earn an AS degree. They will be able to obtain an academic credential that will enhance their earning potential and upward mobility in various entry-level health care professions (e.g, medical/clinical assistants, home health aides, office assistants at medical facilities, community health workers, entry-level health educators, and outreach workers). Recently, former President Bill Clinton, in a NY1 News interview, emphasized the importance of community health workers in assisting with reducing COVID-19 in New York City: *"[W]e're going to need to train and employ more personal community health workers to create the kind of system that will enable us to respond to things like this."*[10] Therefore, this proposed degree will be very valuable since it provides the opportunity to achieve a practical college degree with the opportunities to gain microcredentials in *Basic Life Support, First Aid, and Health Coaching*. These credentials can help students gain entry-level or higher-level employment in health services while they pursue this degree.

Health Coaching, as mentioned above, is an important component of this degree. The credential is earned upon passing the courses, *Patient Engagement (COH 1600*) and *Concepts of Wellness (HPE 1200)*. These courses have been packaged by the Community Health (COH) Program and the KCC Continuing Education and Workforce Development (CEWD) department as a 90-hour training for incumbent medical assistants who are members of the 1199 SEIU health workers' union. *(See the link to the training manual in Appendix E.)* The training has been very well received since it began in Spring 2016 and has already produced 15 cohorts of graduates who are currently working as health coaches in various health care settings. It has provided an avenue for medical assistants to gain valuable skills in health coaching which enhances their current work experiences and makes them more marketable in the health care industry, which needs more individuals with these upgraded skills.

The health care industry has been changing dramatically and will continue to require increased skill sets from its employees. The traditional model of health care is not as effective as it used to be since disease management has become more complicated. There are fewer primary care physicians in existence, and for those who are still providing health care, the 15-minute patient visit is not sufficient to properly help patients understand and treat their conditions[11].

The proposed degree offers a more practical option for students who may need to balance the needs of a career with academic pursuits in health. The inclusion of three micro-credentials (in *Basic Life Support, First Aid* and

[9] Information retrieved from https://www.kbcc.cuny.edu/_nosearch/bridgesalliedhealth/ .
[10] Information retrieved from https://www.ny1.com/nyc/all-boroughs/coronavirus/2021/07/30/bill-clinton-says-next-nyc-mayor-should-focus-on-housing?cid=app_share .
[11] Information retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2000308/ .

Health Coaching) allows students to prepare for the emerging roles of care coordinators and other related careers within the industry.

Institutional Impact

This AS in Health Sciences will have the following positive impacts:

1. It will provide KCC students with a degree option that assists them in exploring various aspects of health and health services (i.e., health education, basic life support, first aid, health coaching, among others);
2. KCC students will have opportunities to engage with faculty and other experts in their respective fields and to participate in activities that are part of the Healthcare Career Hub of Central and South Brooklyn;
3. Upon successful completion of related courses, KCC students will be eligible for microcredentials in *Health Coaching*, *Basic Life Support,* and *First Aid*, further expanding KCC's ability to produce well-trained emerging professionals that can have positive impacts in their communities and in the health service industries; and,
4. KCC will be able to offer this degree to students who are new to the field, as well as incumbent professionals seeking a degree. This, in turn, will help the College establish more credibility within NYC communities and with industry leaders.

This proposed degree will be invaluable to helping students start or enhance a career in a health-related field. In addition, the degree will support the mission and broaden the scope of the Department of Health, Physical Education, and Recreation (HPER). More leaders in the industry will be seeking options for hiring students to become potential employees in their health service facilities AND look for opportunities to send incumbent employees for more advanced training. They will look to KCC and the HPER department for assistance in these matters.

NEED AND JUSTIFICATION

This new AS degree will positively respond to the needs of the health services industry as well as our current society which continues to deal with the negative impacts of the COVID-19 pandemic and other current and emerging health disparities. As we know, the health services industry is an extremely dynamic field, with many aspects of the industry (i.e., clinical services, educational services, laboratory services, informational technologies, among others) working together to ensure effective, efficient, and streamlined service delivery to optimize the public's health. The collection of clinical services provided by many clinics and medical centers are now including services from medical assistants, health coaches, and other *non-medical/non-clinical staff* in addition to direct medical providers. Furthermore, many facilities are promoting themselves as part of *health homes* (or *medical homes*), a group of health-focused organizations that work closely together to provide comprehensive physical and mental health services with a focus on keeping patients out of emergency rooms for their routine health care. These health homes focus on patients with co-morbid behavioral and medical conditions (i.e., one behavioral health issue and two or more Chronic Medical Conditions, including substance abuse and HIV)[12]. This degree can help prepare students for many employment opportunities as shown in Appendix C.

Labor Market Information

New York City Labor Market Information Services (LMIS) at the CUNY Graduate Center's Center for Urban Research produced a report to support our efforts in developing new degree options in health careers *(Refer to Appendix B for the report).* At the time the report was produced (2017), the College was planning on offering an AAS in Coordinated Care that would have been useful for students as well as the health services industry. However, based on ongoing research and discussions with industry leaders, we believe this proposed AS in Health Sciences would better meet the needs of students and the health services industry. Completing this degree directly contributes to the health services field by preparing students to acquire foundational knowledge and skills for several job positions recognized by the New York State Department of Labor (NYS DOL). These positions include a) Community Health Workers (including Health Outreach Workers) and b) Medical Assistants (including Patient Care Technicians), among others. Entry-level wages in 2016 for these job positions ranged from $25,770 to $40,680; experienced individuals in these positions earned anywhere between $40,000 to $67,650.

Furthermore, the U.S. Bureau of Labor Statistics states that "[e]mployment in healthcare occupations is projected to grow 16 percent from 2020 to 2030, much faster than the average for all occupations, adding about 2.6 million new jobs."[13] It has become more important to be educated and trained in healthcare and related occupations since these jobs have become more essential to the economy than any other. Jobs requiring a minimum of an Associate's degree can earn an employee anywhere between $36,260 (for veterinary technologists and technicians) to $86,850 (radiation therapists). Lastly, as many health care workers leave their professions because of the pressures brought on by the COVID pandemic and other negative factors (e.g.,

[12] Information retrieved from https://nycwell.cityofnewyork.us/en/providers/health-homes/ .
[13] Information retrieved from https://www.bls.gov/ooh/healthcare/home.htm .

underfunding, long work hours, mental health issues)[14], health care institutions will be seeking individuals to take on restructured job positions that will be more cost-effective to serve clients and patients better.

The proposed AS degree will help increase the earnings potential of the student who acquires an entry level job, as well as the incumbent worker returning to receive a degree and who can have prior learning credits applied to the degree. The latter is an issue consistently addressed in meetings between Academic Affairs and the HPER department since many of our students seek academic credentials and enhanced skills to complement their current job duties. Receiving an Associate's degree, especially *en route* towards a Bachelor's degree, helps incumbent workers make gains in the health services field. Fortunately, CUNY, as an institution, has launched initiatives to address Credit for Prior Learning (CPL), which align with the needs of students and goals of this new degree[15].

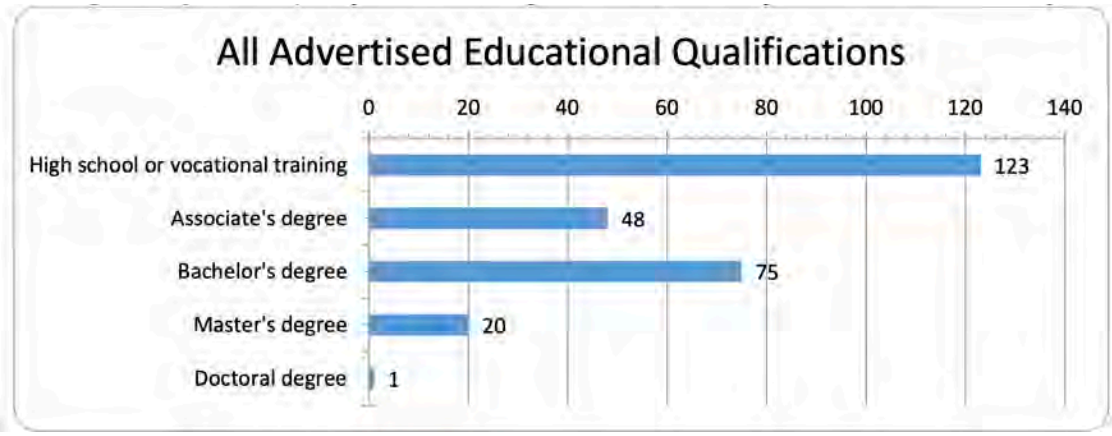
An internally produced document (*included in Appendix C*), from 2016 and updated in 2020, identified over 80 health care agencies and facilities in the New York City area that currently have job openings for Patient Representatives, Care Coordinators, and other relevant positions. These include Columbia University Medical Center (Manhattan), Mount Sinai Hospital, Visiting Nurse Services of New York, NYU Langone Medical Center, Kingsbridge Jewish Medical Center, Quest Diagnostics (Laboratories), United Health Group, SUNY Downstate Medical Center, Gay Men's Health Crisis, CAMBA (Brooklyn), Hospital for Special Surgery, American Red Cross, and Northwell Health. *(Updated information on career and employment opportunities is provided in the next section, "Post-graduation Employment Opportunities.")*

As a result of earning an AS in Health Sciences, students will have a plethora of job postings that they can review, respond to, receive invitations to interview for, and hopefully, fill. This, in itself, will be very helpful for so many of our students who come from disadvantaged communities and who need opportunities for academic and professional success. Providing such gains and upward mobility, via quality, accessible education, regardless of background or means, has been the CUNY mission since 1847,

Post-graduation Employment Opportunities

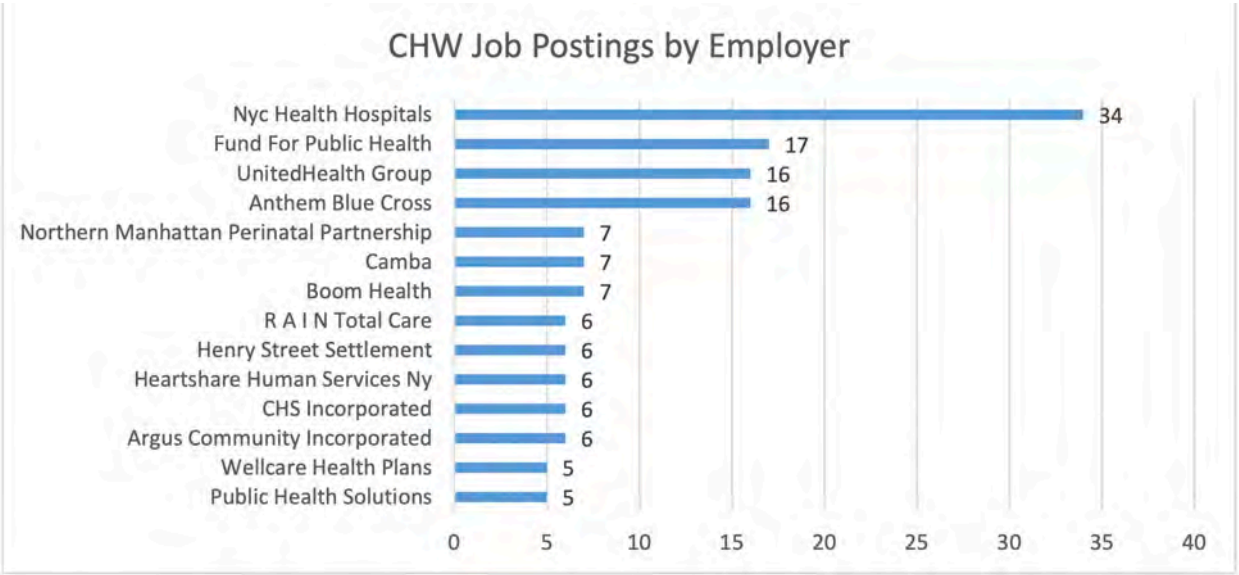
This degree will be helpful to students to gain employment in entry-level health care positions that require foundational knowledge of health and health services. A recent report by the NYC Peer & CHW Workforce Consortium (2020) revealed that a significant proportion of the health care sector is seeking to hire individuals as community health workers (CHWs) and similar roles with at least a high school diploma or an Associate's degree, as shown in the table below[16]:

[14] Information retrieved from https://www.cnbc.com/2021/05/31/covid-is-driving-an-exodus-among-health-care-workers.html .
[15] Information retrieved from https://www.cuny.edu/academics/academic-policy/credit-prior-learning/ .
[16] Information and graph retrieved from https://mcusercontent.com/760aea3c07df7a33b39b8b811/files/f8734991-ebbe-1424-d15f-75e5a009027b/CHW_Workforce_Snapshot_2019_April_2021.pdf . *Per the author: "This table provides information on both the preferred and minimum/required education levels listed in job postings. For this reason, a job posting may be counted in more than one of the educational categories [shown]."*



This information is important because it provides the academic sector some guidance as to how to create curricula that respond to industry needs.

Regarding the employers recruiting CHWs, we see major players in the NYC health services industry (e.g., NYC Health & Hospitals, CAMBA in Brooklyn, Fund for Public Health) are involved[17]:



[17] Information and graph retrieved from https://mcusercontent.com/760aea3c07df7a33b39b8b811/files/f8734991-ebbe-1424-d15f-75e5a009027b/CHW_Workforce_Snapshot_2019_April_2021.pdf .

When we investigate further and see the types of jobs that are being recruited for, we see the following[18]:

Community Health Worker	Fund For Public Health In New York Inc	Feb. 18, 2021
Community Health Worker-Alzheimer's's Link Program	R A I N Total Care	Feb. 16, 2021
Community Health Liaison	Doral Health & Wellness	Feb. 15, 2021
Community Liaison-Outreach Worker	Heartshare Human Services Ny	Feb. 02, 2021
Community Health Worker, Uhf Infant And Maternal Health	Camba	Jan. 29, 2021
Borough Outreach Coordinator Community Liaison Worker Level III , Test & Trace Corps */Grant Funded - Nyc Residency *	Nyc Health Hospitals	Jan. 29, 2021
Community Liaison Worker - L II	Nyc Health Hospitals	Jan. 06, 2021

This information from 2020, along with previous information reported from 2017, provides a holistic picture of the increased demand for health-related workers in New York City. The proposed degree is perfectly poised to respond to this need for trained and qualified professionals.

Post-graduation Academic Transfer Opportunities

We have discussed the transfer of courses from this degree with several CUNY schools, including CUNY SPS, Brooklyn College, and City Tech, which are three schools many of our students transfer to with their Community Health degrees. York College is another opportunity for transfer that we will be investigating since York does offer a BS in Heath Science[19] as well as Public Health[20].

Similar Programs at CUNY

Queensborough Community College has an AS in Health Sciences that is a pre-clinical training program[21]. This program prepares students well for nursing-related careers and others that are more clinical in nature. Additionally we would not expect to be in competition based on geographical distance. The majority of our students are Brooklyn based.

One of CUNY's 4-year colleges, New York City College of Technology ("City Tech"), recently started offering an AS in Health Sciences degree[22]. This degree is specifically created as a paraprofessional program to help students to enter clinical aspects of health services. It also serves as a direct pipeline into their new BS in Health Care Management[23]. We have reached out to them during this process, and they do not feel we are in conflict with their program. We are actively pursuing an articulation agreement that will allow graduates from Kingsborough's A.S. in Health Science to continue their studies at City Tech.

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[18] Ibid.
[19] Information retrieved from https://www.york.cuny.edu/produce-and-print/contents/bulletin/school-of-health-and-behavioral-sciences/health-professions/health-science-bs-bs .
[20] Information retrieved from https://www.york.cuny.edu/produce-and-print/contents/bulletin/school-of-health-and-behavioral-sciences/health-and-physical-education/public-health-bs .
[21] Information retrieved from https://www.qcc.cuny.edu/academics/degree-programs/as-health-sciences.html .
[22] Information retrieved from https://www.citytech.cuny.edu/health-sciences/health-science-as.aspx .
[23] Information retrieved from https://www.citytech.cuny.edu/health-sciences/ .

Other programs in CUNY exist but are more career-specific than the proposed degree: Hostos CC[24] and Kingsborough CC[25] offer Community Health AS degrees that are aimed at helping students become entry-level community and public health professionals. Bronx CC[26] and Queensborough CC[27] offer the AS in Public Health, which are great transfer options to baccalaureate public health programs at York[28], Brooklyn[29], Hunter[30], and Lehman[31].

Other degrees offered at CUNY include:

- AA in Human Services (offered at La Guardia CC);
- AS in Human Services (offered at BMCC and KCC);
- AAS in Medical Office Assistant (offered at BMCC, BCC, and QCC); and,
- AAS in Health Care Information Technology (offered at BMCC).

Similar Programs outside of CUNY

There are also several non-CUNY schools that offer comparable degrees to what we are proposing. Westchester Community College offers AS and AAS degrees in Human Services. Nassau Community College offers an AS in Health Studies. SUNY schools are also responsible for graduating students in the field by offering degrees such as the AS in Health Sciences/Health Studies at Cobleskill, Morrisville, Alfred State, Broome CC, Cayuga CC, Niagara CC, among a few others.[32]

As far as for-profit/private colleges, Plaza College offers an AS in Allied Health Science[33] and ASA College offers the AS in Health Information Technology[34]. More importantly, we must note that many colleges are offering similar online AS degrees such as Casper College (WY)[35], Riverland Community College (MN)[36], and

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[24] Information retrieved from https://www.hostos.cuny.edu/Administrative-Offices/Office-of-Academic-Affairs/Departments/Education/Programs/Community-Health/Description .
[25] Information retrieved from https://www.kbcc.cuny.edu/academicdepartments/hper/com.html .
[26] Information retrieved from http://www.bcc.cuny.edu/academics/academic-departments/health-physical-education-and-recreation-department/degree-certificate-courses/public-health-as/ .
[27] Information retrieved from https://www.qcc.cuny.edu/academics/degree-programs/as-public-health.html .
[28] Information retrieved from https://www.york.cuny.edu/produce-and-print/contents/bulletin/school-of-health-and-behavioral-sciences/health-and-physical-education/public-health-bs .
[29] Information retrieved from https://www.brooklyn.cuny.edu/web/academics/student-learning-outcomes/bs-health-nutrition-public.php .
[30] Information retrieved from http://www.hunter.cuny.edu/publichealth .
[31] Information retrieved from https://lehman.edu/academics/health-human-services-nursing/health-sciences/public-health.php .
[32] Information retrieved from https://www.suny.edu/media/suny/content-assets/documents/guides-to-majors/Health-and-Wellness-printer-friendly.pdf .
[33] Information retrieved from https://www.plazacollege.edu/academics/school-of-allied-health/allied-health-science/ .
[34] Information retrieved from https://www.asa.edu/health-inform/?utm_source=reachlocal&utm_medium=ppc&utm_campaign=healthit&scid=3877504&kw=33103053&pub_cr_id=532218051720&device=c&network=g&targetid=kwd-904194560841&loc_interest_ms=&loc_physical_ms=9067609&tc=CjwKCAjwmK6IBhBqEiwAocMc8nlJszp6nnLz1WaDzErMMIGYzHc9NewpptW8BBJdSn5sxrVTBMuE9BoCUtgQAvD_BwE&rl_key=820d917d641acf71d283d6079e04691b .
[35] Information retrieved from https://www.caspercollege.edu/program/health-science/ .

Northwest Technical College (MN)[37], as well as baccalaureate online degrees from South University (GA)[38], Southern New Hampshire University[39], and University of Phoenix[40].

The benefit of the proposed degree at KCC is that we can offer the degree with options for in-person, hybrid, and fully online learning through our KCC Flex Program[41], which has been articulated with CUNY SPS and their BS Health Services Administration, which is offered fully online.

Articulations and Transfer Programs

This degree intends to facilitate transitioning into well-recognized baccalaureate degree programs that will accept most or all of the students' credits for course equivalencies within the selected major, depending on course grades, or in meeting the credit requirements for completion of the baccalaureate degree.

An articulation agreement has been established between KCC's AS Health Sciences and CUNY SPS's BS Health Services Administration[42] *(included in Appendix F).* With CUNY SPS, our degree may be extra attractive to students who wish to study fully online; they can earn their degree at KCC online and continue on to CUNY SPS for their fully online BS.

This degree will articulate relatively well with the BA in Health and Nutrition Sciences at Brooklyn College[43]. Our past and current work with Brooklyn College has resulted in their support for our AS degree proposal. Dr. Michele Greene, Professor and Deputy Chair for Undergraduate Health in the Department of Health and Nutrition Sciences at Brooklyn College, expressed support for our degree proposal and stated that the majority of the required courses (7 out of 10) can be transferred easily from KCC to Brooklyn's direct program requirements, with additional courses meeting required elective credit for baccalaureate completion. She and her colleagues welcome additional discussions to facilitate transfer of the remaining courses.

This is the same situation with other schools. Some of those programs include Health Care Management at City Tech[44] and the programs in Health Sciences[45] and Public Health[46] at York College. With assistance from Dr. Josef Bohm, Coordinator of City Tech's Health Service Administration BS program, we had discussions with Professor Noemi Rodriguez, Coordinator of City Tech's new BS in Healthcare Management and Policy (HMP) degree. They have agreed to work with us to better enable graduates of our AS in Health Sciences program to transfer to their BS HMP degree program. This will allow City Tech faculty to provide more enhanced lessons

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[36] Information retrieved from https://www.riverland.edu/academics/programs/health-sciences-broad-field-as/description/ .
[37] Information retrieved from https://www.ntcmn.edu/career-paths/health-care/health-sciences/degrees-credentials/as-health-sciences-broad-field/ .
[38] Information retrieved from https://www.southuniversity.edu/online/degrees-programs/healthcare/allied-health-science-as .
[39] Information retrieved from https://degrees.snhu.edu/programs/bs-in-health-sciences .
[40] Information retrieved from https://www.phoenix.edu/degrees/healthcare.html .
[41] Information retrieved from https://www.kbcc.cuny.edu/kccflex/index.html .
[42] Information retrieved from https://sps.cuny.edu/academics/undergraduate/bachelor-science-health-services-administration .
[43] Information retrieved from http://www.brooklyn.cuny.edu/web/academics/student-learning-outcomes/ba-health-nutrition.php
[44] Information retrieved from https://www.citytech.cuny.edu/health-sciences/ .
[45] Information retrieved from https://www.york.cuny.edu/produce-and-print/contents/bulletin/school-of-health-and-behavioral-sciences/health-professions/health-science-bs-bs .
[46] Information retrieved from https://www.york.cuny.edu/produce-and-print/contents/bulletin/school-of-health-and-behavioral-sciences/health-and-physical-education/public-health-bs .

and higher-level training experiences for slightly more "advanced" students, which, in turn, would produce more professionally prepared graduates. Regarding York College, we received support from Dr. Nicholas Grosskopf, Professor and Coordinator of York College's Public Health (PH) Program, stating that 18 credits of the Health Sciences major would be transferable to York's PH degree, keeping in mind that "since [the] public health program is built on a cohort model, students would not be able to enter the program (at York) without taking 12 credits of sequential prerequisites."

Other potential transfer opportunities for students exist at several CUNY schools with proper advisement. Lehman College offers a BS degree in Dietetics, Foods, and Nutrition[47], as well as Health Education and Promotion[48], and Health Services Administration[49]. Hunter College offers BS degrees in Public Health as well as Nutrition & Food Sciences[50]. Tables showing all of CUNY's health and human services degree and certificate programs are available online[51] [52] and in Appendix A.

KCC intends on exploring all possible avenues to establish course equivalencies and articulation agreements to ensure students in this degree program have as many options as possible for them to choose the right academic path for themselves. In addition to the support we have received from the CUNY schools mentioned above, we are also being supported by a non-CUNY school, George Washington University's Milken Institute School of Public Health. Dr. Carlos-Rodriguez-Diaz, professor in the graduate program in Prevention and Community Health, states that this "degree will offer students, especially Black, Latinx, and other students of color, an entry into a world full of opportunities to work in health care, and [health care] agencies need them to provide better services to their communities."

[47] Information retrieved from https://lehman.edu/academics/health-human-services-nursing/health-sciences/dietetics-foods-nutrition.php .
[48] Information retrieved from http://lehman.smartcatalogiq.com/en/2019-2021/Undergraduate-Bulletin/Academic-Departments-and-Programs/Health-Sciences/Health-Education-and-Promotion-B-S .
[49] Information retrieved from http://lehman.smartcatalogiq.com/2019-2021/Undergraduate-Bulletin/Academic-Departments-and-Programs/Health-Sciences/Health-Services-Administration-B-S .
[50] Information retrieved from http://www.hunter.cuny.edu/uph .
[51] Information retrieved from https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/health-human-services/HHS-Degree-Grid_March2021.pdf .
[52] Information retrieved from https://www.cuny.edu/wp-content/uploads/sites/4/page-assets/about/administration/offices/health-human-services/HHS-Certificate-Grid_March2021.pdf .

STUDENT INTEREST AND ENROLLMENT

In developing this degree, we focused on specific students to recruit and to support. KCC has a number of students that enter or transfer into their first semester as Liberal Arts students but with an undeclared interest in health. In addition, liberal arts students and students within Nursing, EMS, and other clinical programs may become ineligible to advance into clinical studies. These cadres of students will be important to focus on for recruitment into this degree. We want to provide hope and a pathway for students who are altruistic, willing to and interested in learning about health careers, and motivated to get into them because of their passion and concern for their loved ones and their communities.

One of the benefits that KCC has is its' Advisement Academies in which students can interface with advisors who can help them consider next steps when disappointing setbacks occur (like those noted above). These advisors, like those in the Health & STEM Academy, have close relationships with the students as well as with professors in their designated departments. We expect this collaboration will assist students who need further guidance on which directions they should take academically and professionally to continue in the health fields.

This AS in Health Sciences can be marketed to 1st year students who are already interested in health topics and health careers that are not necessarily clinical in nature. This degree can also serve as another option for current students who are not matriculated but want to explore the various areas that health sciences can cover.

In addition to the internal mechanisms for recruitment mentioned above, we expect many potential students for this new degree program will be recruited directly from entry-level jobs in the industry, identifying incumbent workers who currently serve as medical assistants and other entry-level workers seeking professional and academic advancement.

We will also be working with our Enrollment Management team, Dr. Johana Rivera, VP for Enrollment Management and Communications; Dr. Wayne Harewood, Executive Director of Enrollment Management; and Erica Levy, Director of Admissions, to inform current and recent high school graduates about the benefits of obtaining this degree in order to enter these fields more prepared.

We also plan on using these other recruitment strategies to direct students into this new program:

- Through an established collaboration with Kingsborough's Continuing Education (CE) department, 1199SEIU United Healthcare Workers, and Community Care of Brooklyn, we are currently training medical assistants in various private practices to become health coaches using the curriculum attached to degree proposal *(see Appendix E)*.
- As we mentioned previously, Kingsborough has a course ("Emerging Trends in Health Careers"), a no-cost 1-credit seminar that serves as an overview of health careers and the academic pathways that exist at KCC to help them start these careers. Students in this course will be advised about this AS in Health Sciences once it is approved and available.
- We will be working with several CUNY colleagues who we have collaborated with on the university-wide CPL initiative to develop a competency-based assessment for advanced standing. This method will allow incumbent workers in health services, especially from underemployed communities who have current experience and credentials (e.g., health care certifications and licenses, non-English language skill), to attain credits equivalent to the competencies covered in relevant college-level courses.

- Lastly, we will be recruiting students in KCC Continuing Education who are completing or have completed their Certified Clinical Medical Assistant (CCMA) certificate and other health-related trainings. We will also be tapping into the trainee populations of special non-degree health career programs at College of Staten Island, LaGuardia Community College/Bronx-Lebanon Hospital, Northwell Health, and New York City Health & Hospitals.

We will work with academic advisors in the Health & STEM Academy, KCC Flex, and special student support programs like ASAP, CUNY EDGE, and College Discovery to educate the advisors about our new degree and to identify students in their programs that may be interested and eligible to enter the new degree program. We also plan to work with Sinu Jacob, Director of Financial Aid, part of the Enrollment Management team, to assess ways in which our students can benefit from various financial aid and student support programs.

Students who seek admission into the program must apply through CUNY First (if new to the college) or complete a change of major form (if a current student is enrolled in the college).

CUNY requires that all incoming degree-seeking students, as well as students entering the upper division, demonstrate proficiency in English (reading and writing) and Math in order to enroll in credit-bearing courses in the associated subject.[53] Students may establish proficiency in a variety of ways, including, but not limited to, meeting benchmark scores on the SAT, ACT, and New York State Regents exams, or demonstrating proficiency through Exemption. Beginning Spring 2020, students who do not meet benchmark scores will no longer be administered a placement test; rather, CUNY will use a Proficiency Index to determine developmental education assignment. The Proficiency Index combines overall high school grade point average with SAT and/or Regents exam scores. There are separate Proficiency Indexes for English and Math.

Beginning Fall 2022, CUNY has moved to a corequisite model for developmental course work and is removing standalone developmental courses. The corequisite model incorporates the college-credit course with the built in supports that were typically found in standalone courses. It is expected that this approach will provide the necessary contextualized developmental information to be successful within the college-level course while ensuring students maintain academic momentum. KCC has met this CUNY mandate and, in turn, students will be able to enroll into our proposed degree program maintaining academic momentum toward degree completion.

Effective marketing of this degree and accurate advisement will be crucial to the success of the proposed AS in Health Sciences. We will work closely with the Communications and Marketing team lead by VP Cheryl Todmann. Infographics, brochures, and degree Map will be used during marketing and advisement to help students enter the program and increase retention.

[53] Information retrieved from https://www.cuny.edu/academics/testing/testing-faqs/ .

CURRICULUM

Degree Overview

We developed a curriculum that reflects not only students' interests in health issues and health care, but also one that will be flexible enough to serve as a viable transfer degree to 4-year colleges. The required courses in this degree are all introductory- and secondary-level courses with seamless transfer to 4-year colleges. The structure of the degree also gives students the ability to more easily complete the degree in 2 years. The curriculum addresses certain issues that are inherent in any degree addressing health issues and health careers:

- The degree program, to be successful, needs to have robust recruitment efforts, effective advisement from KCC Flex and the Health & STEM Advisement Academy (and other support programs), strong leadership from its Program Director, and an organized degree map.
- This degree needs to serve as a foundation for students who wish to continue to clinical careers (e.g., nursing) as well as non-clinical ones (e.g., health education).
- Enrollment into this degree program is still based on students showing academic merit and understanding that they must succeed in this degree in order to properly transfer to other schools. Even though some students will be coming from clinical programs, they will be educated about the alternative careers in health services that exist in which they can be successful.
- The degree curriculum will need constant and consistent review to reflect what the industry needs, as well as student requirements for transfer to colleges and entering the workforce.

With this AS degree, the curriculum is designed to help students develop competencies in related fields, such as general health education, health care terminology, public health, health coaching, basic life support and first aid, medical assistant, community health work, among others.

Learning Outcomes

The Program Learning Outcomes (PLOs) for this proposed AS in Health Sciences are demonstrative of how the proposed degree provides the breadth of foundational knowledge and skills required within the health field.

Upon successful completion of Health Sciences degree program requirements, graduates will:

1. demonstrate fundamental knowledge in health care services related to individual health behaviors, health communication, psychology, and/or sociology;
2. explain how health is affected by substance use, unhealthy sexual behavior, improper nutrition, and lack of physical activity;
3. practice basic communication skills related to helping individuals enhance their sexual health, reduce substance use, manage better nutrition, adhere to medical advice, engage in health coaching, and navigate health care systems;
4. identify their personal values and the ethical standards of practice related to health care services;
5. demonstrate technological and communication skills in health care services (reading, writing, and/or speaking);
6. explain basic concepts related to human anatomy, women's health, and American health care system;
7. employ critical thinking skills when explaining basic health concepts and demonstrating the application of health care practices; and,
8. apply basic life support and first aid skills to ensure patient and client safety.

Degree Architecture

General Education: CUNY Common Core	Credits
Required Core: (4 Courses, 12 Credits)	**12**
ENG 1200 – Composition I	3
ENG 2400 – Composition II	3
Mathematical and Quantitative Reasoning	3
Life and Physical Sciences	3
Flexible Core: (6 Courses, 18 Credits)	**18**
One course from each Group A-E and one (1) additional course from any Group. No more than two courses can be selected from the same discipline.	
A. World Cultures and Global Issues	3
B. U.S. Experience in its Diversity	3
C. Creative Expression	3
D. Individual and Society	3
E. Scientific World	3
Plus another course selected from any Group A-E	3
Major Requirements: (10 Courses, 30 Credits)	**30**
COH 1500 – Health Care in the United States	3
COH 1600 – Patient Engagement^^^	3
HPE 1200 – Concepts of Wellness^^^	3
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid**	3
HE 3800 – Women's Health Issues	3
HE 4200 – Health and Nutrition	3
*HS 4000 – Drugs and Society**	*3*
*HS 5200 – Human Sexuality**	*3*
*BIO 1800 – The Biology of the Human Body**[+]	*3*
*PSY 1100 – General Psychology** **or**	*3*
*SOC 3100 – Introduction to Sociology** **or**	
*SPE 1800 – Health Communication**	
Electives:	**0 – 12**
0 to 12 credits sufficient to meet the required total of 60 credits	
The following courses are recommended if not taken to fulfill Pathways Flexible Core:	
HS 4100 – Global Health Issues (Group A)	
PHI 7600 – Ethics and Morality in the Health Professions (Group D)	
Total Credits	**60**

** New Course
^^^ Health Coach Certificate is granted after successful completion of HPE 1200 AND COH 1600 (HPE 1200 is a corequisite of COH 1600)
[+] BIO 1100 – Human Anatomy and Physiology I, can be substituted for BIO 1800 if the former course has already been completed

*Students have the opportunity to take *Major Requirements* that will also meet their *Pathways Common Core Requirements* (referred to as "double dipping"). This expands potential Elective credits from 0 up to 12 credits.

Students will work with the Program Director and Academic Advisor to select Electives that will best serve them at their intended four-year transfer college or best prepare them for entry-level positions within the field. The following major requirements are also Pathways approved.

Course	Pathways Category
*HS 4000 – Drugs and Society**	Flexible Core: Individual and Society (Group D)
*HS 5200 – Human Sexuality**	Flexible Core: Individual and Society (Group D)
*BIO 1800 – The Biology of the Human Body**+	Required Core: Life and Physical Sciences
*PSY 1100 – General Psychology** ***or***	Flexible Core: Scientific World (Group E)
*SOC 3100 – Introduction to Sociology** ***or***	Flexible Core: Individual and Society (Group D)
*SPE 1800 – Health Communication**	Flexible Core: Individual and Society (Group D)

Microcredentials

This degree will be unique in our department in that it will have no concentrations, but it will give students the ability to earn three microcredentials. First, upon passing *HPE 1200* and *COH 1600*, students will receive a certificate in *Health Coaching*, a micro-credential recognized by industry leaders in New York City and supported by Local 1199SEIU, New York Alliance for Careers in Healthcare, and Community Care of Brooklyn[54]. In addition, upon passing *HE 2200*, students will be eligible to apply for the *BLS for Healthcare Provider,* as well as *Heartsaver First Aid* certifications from the American Heart Association.

Course Descriptions

The following required courses are proposed for this degree. They are offered in the HPER and other departments to all interested students as introductory exposure to the various areas of health sciences, including psychology, sociology, health communications, health education, anatomy and physiology, nutrition, health coaching, and patient safety (i.e., basic life support and first aid).

The 30 credits in the Health Sciences major will be appealing to four-year schools to accept the majority of or all credits for transfer. As previously mentioned, these offerings are all introductory-level courses (except *COH 1600*, which has a co-requisite of *HPE 1200*). They cover many topics preferred by health services employers and 4-year colleges.

COH 1500 - Healthcare in the United States
3 Credit(s) Hours: *3 hrs.*
Students will examine the context of the U.S. healthcare system, including patient care. Students will gain an understanding of patient care coordination and care management in today's changing and challenging healthcare industry. Students will critically examine the history of the U.S. healthcare system, healthcare models used in the U.S., and trends in the healthcare industry.
Department: Health, Physical Education and Recreation

[54] See page 7 of the KCC Annual Report (2018) at https://kingsborough.edu/aboutkcc/annual_report/documents/FY18AnnualReport.pdf .

COH 1600 - Patient Engagement Techniques in Community Health
3 Credit(s) Hours: *3 hrs.*
This course will provide students the opportunity to learn and practice techniques in self-management support and motivational interviewing strategies to facilitate behavior change in patients with chronic conditions. Students will gain an understanding of chronic disease management, wellness and disease prevention, and the basic skills used in health coaching. At course completion, students will have acquired skills to educate, engage, and support individual patients to improve the patient's health outcomes.
Corequisite: HPE 1200
Department: Health, Physical Education and Recreation

HPE 1200 - Concepts of Wellness
3 Credit(s) Hours: *3 hrs.*
This fundamental course covers a broad spectrum of health-related topics to make students aware of the causes of mental and physical illnesses and their prevention, and demonstrates how lifestyle, perceptions, and decisions affect health. Guidelines and criteria presented to determine good mental, emotional, and physical health. Opportunities for personal assessment.
Department: Health, Physical Education and Recreation

HE 2200 - Basic Life Support for the Healthcare Provider and First Aid
(New Course Syllabus Included in Appendix D)
3 Credit(s) Hours: *3 hrs.*
Basic Life support for the Health care Provider and First Aid will provide students with necessary lifesaving skills to work in a variety of healthcare settings. Students will learn to recognize and respond to a variety of life-threatening emergencies such as cardiac arrest, heart attack, stroke, diabetic emergencies, opioid associated emergencies. Students will employ high-quality CPR in multi-rescuer BLS team response scenarios, effectively demonstrate the use of SED, provide ventilations using a pocket mask and bag valve mask (BVM), and removal of foreign-body airway obstructions during choking emergencies for adults, children, and infants. Effective communication, teamwork, critical thinking, and problem-solving skills will be emphasized. Upon completion of course and certification requirements, students will have the ability to apply for the BLS for Healthcare Provider as well as a Heartsaver First Aid certification from the American Heart Associate.
Department: Health, Physical Education and Recreation

HE 3800 - Women's Health Issues
3 Credit(s) Hours: *3 hrs.*
A comprehensive exploration of current health issues and their specific impact on women. The health concerns for each developmental phase of a woman's life are covered, with an emphasis on behaviors that can enhance wellness.
Department: Health, Physical Education and Recreation

HE 4200 - Health and Nutrition
3 Credit(s) Hours: *3 hrs.*
The role of nutrition in disease prevention and health promotion as outlined in the Surgeon General's report to the nation, Healthy People 2010. Students analyze the research linking foods, nutrients, phytochemicals, supplements, and herbs to the leading causes of morbidity in the United States. Students will design an optimal nutritional plan for lifelong wellness.
Department: Health, Physical Education and Recreation

HS 4000 - Drugs: The Individual and Society
3 Credit(s) Hours: *3 hrs.*
Provides students with an opportunity to gain a deeper perspective into the psychology of the dependent personality, reasons for drug use, misuse, abuse, and possible solutions.
Flexible Core: Individual and Society (Group D)
Department: Health, Physical Education and Recreation

HS 5200 - Human Sexuality
3 Credit(s) Hours: *3 hrs.*
Information on the biological basis of sex, sexual behavior, attitudes and values, sexual problems, sex therapy, and the social, cultural and ethical aspects of sexuality.
Flexible Core: Individual and Society (Group D)
Department: Health, Physical Education and Recreation

BIO 1800 - The Biology of the Human Body
3 Credit(s) Hours: *4 hrs. (2 hrs. lecture, 2 hrs. laboratory)*
For non-science majors and those who plan to transfer to senior colleges within CUNY. This course will offer a one-semester overview of anatomy and physiology of all organ systems of the human body. The interrelationships between organ systems will be emphasized to provide a holistic view, practical applications to healthcare and reinforcement of health literacy skills. Through lecture and discussion, the processes of the human body will be explored. For each topic, interactive computerized lab experiences involving application of the process of scientific inquiry will be conducted. In addition, current ethical issues in medicine and healthcare will be studied.
Required Core: Life and Physical Sciences
Department: Biological Sciences

PSY 1100 - General Psychology
3 Credit(s) Hours: *3 hrs.*
Introduction to psychology as a science. Topics covered in this survey course include: historical background, fields and divisions, scientific methods, biological underpinnings of thought and behavior, learning and memory.
Flexible Core: Scientific World (Group E)
Department: Behavioral Sciences

SOC 3100 - Introduction to Sociology
3 Credit(s) Hours: *3 hrs.*
An introduction to the scientific study of society and social interactions. This course covers social theories, methods, culture, deviance, social inequities (including race, class, and gender) and social situations (such as the family, education, and religion). Students learn to analyze, evaluate, and critique social structures and to understand social change.
Flexible Core: Individual and Society (Group D)
Department: Behavioral Sciences

SPE 1800 - Health Communication
3 Credit(s) Hours: *3 hrs.*
Health communication is a field of study that encompasses theories, research, and applications of the symbolic processes by which people, both individually and collectively, understand, share ideas about, and accommodate to health and illness. This course is designed to introduce students to a wide range of scholarship in health communication beginning with a basic introduction to the field of health communication and then moving through the key topics, definitions, theories and perspectives. The course will examine how individuals' health behavior is framed by the contexts and modes in which we communicate including narratives, individual, interpersonal, art, organizational, community, media, cultural and public policies. Students will learn the basics of clear, purposeful and compassionate communication across multiple channels, strengthening their health literacy skills and by becoming more informed health citizens.
Flexible Core: Individual and Society (Group D)
Department: Communications and Performing Arts

Recommended for Electives/Flexible Core:
HS 4100 - Global Health Issues
3 Credit(s) Hours: *3 hrs.*
This course takes a comprehensive look at global health issues. The assessment of health issues will be analyzed from many different perspectives including geographic, ethnic, religious, human rights, socioeconomic, social, cultural, and political influences. Students will learn about global environmental causes and consequences of infectious diseases, major diseases, mental illness, natural disasters, malnutrition, drug and alcohol addiction, violence, and injuries.
Flexible Core: World Cultures and Global Issues (Group A)
Department: Health, Physical Education and Recreation

PHI 7600 - Ethics and Morality in the Health Professions
3 Credit(s) Hours: *3 hrs.*
The range of moral dilemmas associated with health care and biological research includes an in-depth study of the major ethical theories that determine the content of our moral concepts.
Flexible Core: Individual and Society (Group D)
Department: History, Philosophy and Political Science

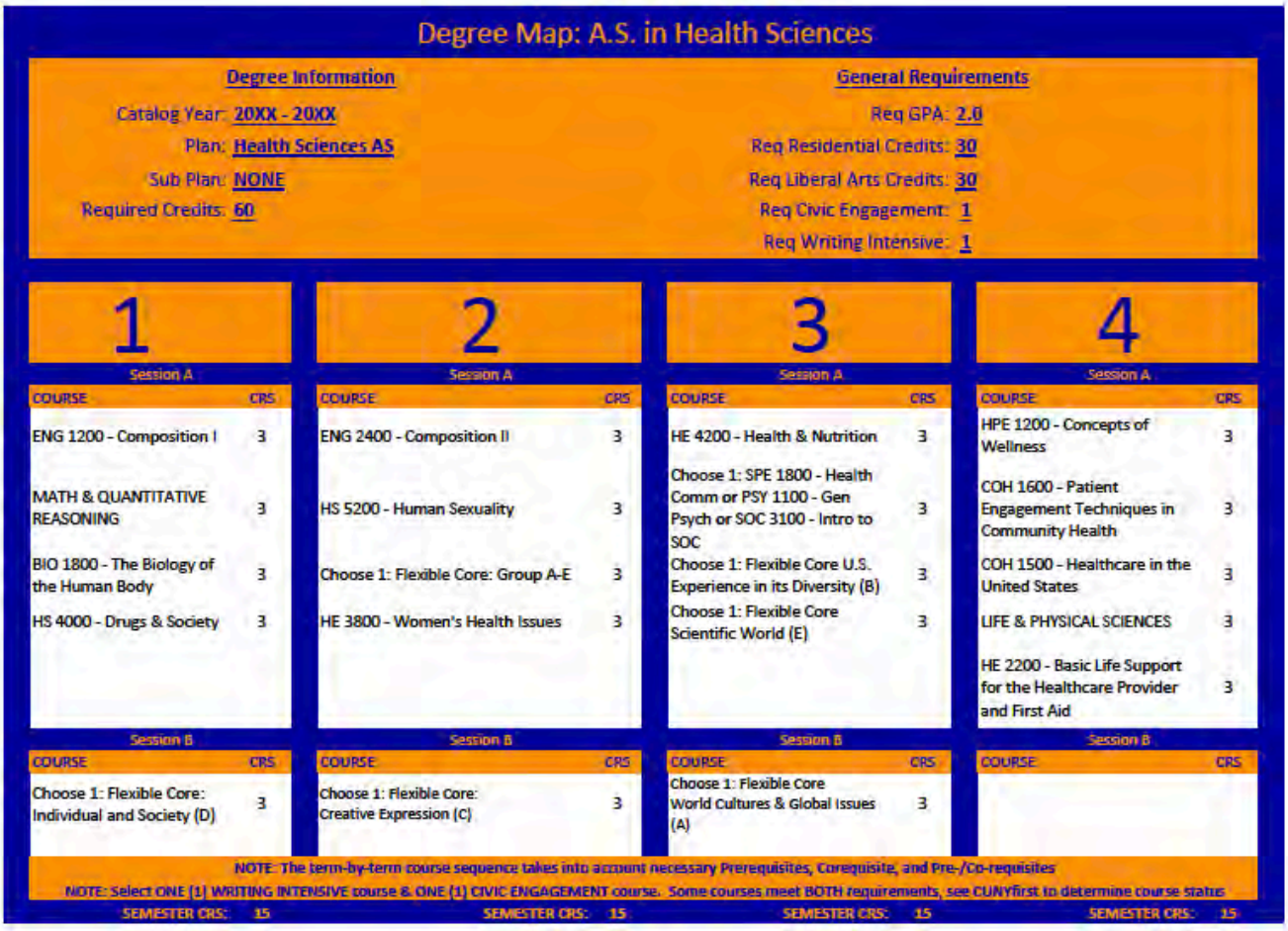
Curricular Map

	Meets Program Learning Outcomes (PLOs)							
Course Number and Title	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
COH 1500 – Health Care in the United States				X	X	X	X	
COH 1600 – Patient Engagement	X	X	X	X	X		X	
HPE 1200 – Concepts of Wellness	X	X	X	X	X		X	
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid				X	X		X	X
HE 3800 – Women's Health Issues	X	X	X	X	X	X		
HE 4200 – Health and Nutrition	X	X	X	X	X			
HS 4000 – Drugs and Society	X	X	X	X	X			
HS 5200 – Human Sexuality	X	X	X	X	X			
BIO 1800 – The Biology of the Human Body					X	X		
PSY 1100 – General Psychology*	X			X	X		X	
SOC 3100 – Introduction to Sociology*	X				X		X	
SPE 1800 – Health Communication*	X	X	X		X		X	

*Please note to meet major requirements, students select one from the following three courses PSY 1100, SOC 3100, or SPE 1800.

Degree Map

The following are two degree maps that can be used to advise students who are interested and/or registered in the Health Sciences AS degree. The first degree map depicts the four-semester course sequence if a student does **not** "double dip" their Pathways and Major Requirements.



Degree Map: A.S. in Health Sciences

Degree Information
Catalog Year: 20XX - 20XX
Plan: Health Sciences AS
Sub Plan: NONE
Required Credits: 60

General Requirements
Req GPA: 2.0
Req Residential Credits: 30
Req Liberal Arts Credits: 30
Req Civic Engagement: 1
Req Writing Intensive: 1

1 — Session A

COURSE	CRS
ENG 1200 - Composition I	3
MATH & QUANTITATIVE REASONING	3
BIO 1800 - The Biology of the Human Body	3
HS 4000 - Drugs & Society	3

Session B

COURSE	CRS
Choose 1: Flexible Core: Individual and Society (D)	3

2 — Session A

COURSE	CRS
ENG 2400 - Composition II	3
HS 5200 - Human Sexuality	3
Choose 1: Flexible Core: Group A-E	3
HE 3800 - Women's Health Issues	3

Session B

COURSE	CRS
Choose 1: Flexible Core: Creative Expression (C)	3

3 — Session A

COURSE	CRS
HE 4200 - Health & Nutrition	3
Choose 1: SPE 1800 - Health Comm or PSY 1100 - Gen Psych or SOC 3100 - Intro to SOC	3
Choose 1: Flexible Core U.S. Experience in its Diversity (B)	3
Choose 1: Flexible Core Scientific World (E)	3

Session B

COURSE	CRS
Choose 1: Flexible Core World Cultures & Global Issues (A)	3

4 — Session A

COURSE	CRS
HPE 1200 - Concepts of Wellness	3
COH 1600 - Patient Engagement Techniques in Community Health	3
COH 1500 - Healthcare in the United States	3
LIFE & PHYSICAL SCIENCES	3
HE 2200 - Basic Life Support for the Healthcare Provider and First Aid	3

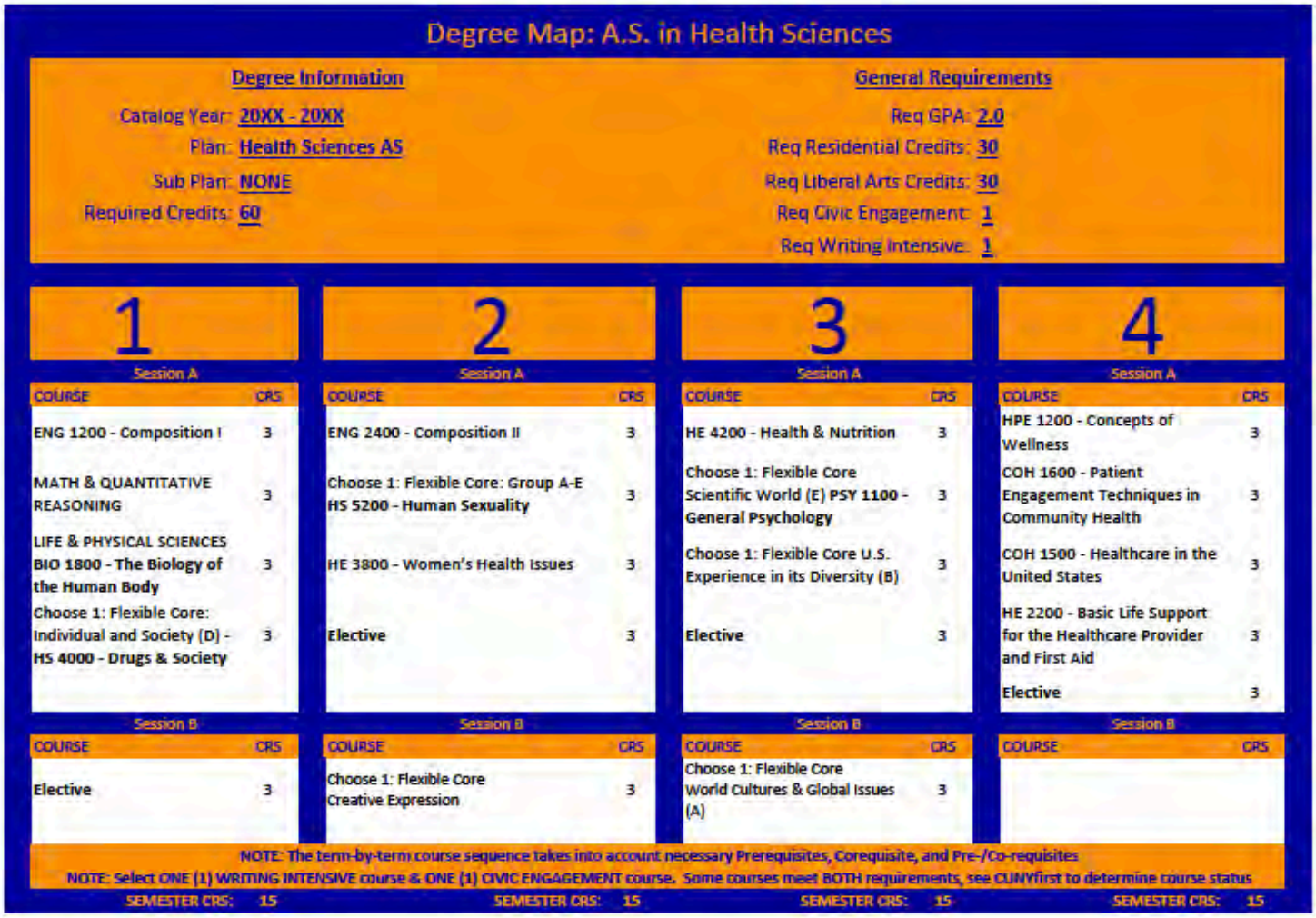
Session B

COURSE	CRS

NOTE: The term-by-term course sequence takes into account necessary Prerequisites, Corequisite, and Pre-/Co-requisites
NOTE: Select ONE (1) WRITING INTENSIVE course & ONE (1) CIVIC ENGAGEMENT course. Some courses meet BOTH requirements, see CUNYfirst to determine course status

SEMESTER CRS: 15 | SEMESTER CRS: 15 | SEMESTER CRS: 15 | SEMESTER CRS: 15

The second degree map depicts the four-semester course sequence if a student **does** "double dip" their Pathways and Major Requirements, which allows Elective credits to become available. It is recommended to work with an Academic Advisor and/or the Program Director in order to select Electives that will transfer well to the student's 4-year college of choice.



Degree Map: A.S. in Health Sciences

Degree Information

Catalog Year: 20XX - 20XX
Plan: Health Sciences AS
Sub Plan: NONE
Required Credits: 60

General Requirements

Req GPA: 2.0
Req Residential Credits: 30
Req Liberal Arts Credits: 30
Req Civic Engagement: 1
Req Writing Intensive: 1

1 — Session A

COURSE	CRS
ENG 1200 - Composition I	3
MATH & QUANTITATIVE REASONING	3
LIFE & PHYSICAL SCIENCES BIO 1800 - The Biology of the Human Body	3
Choose 1: Flexible Core: Individual and Society (D) - HS 4000 - Drugs & Society	3

1 — Session B

COURSE	CRS
Elective	3

2 — Session A

COURSE	CRS
ENG 2400 - Composition II	3
Choose 1: Flexible Core: Group A-E HS 5200 - Human Sexuality	3
HE 3800 - Women's Health Issues	3
Elective	3

2 — Session B

COURSE	CRS
Choose 1: Flexible Core Creative Expression	3

3 — Session A

COURSE	CRS
HE 4200 - Health & Nutrition	3
Choose 1: Flexible Core Scientific World (E) PSY 1100 - General Psychology	3
Choose 1: Flexible Core U.S. Experience in its Diversity (B)	3
Elective	3

3 — Session B

COURSE	CRS
Choose 1: Flexible Core World Cultures & Global Issues (A)	3

4 — Session A

COURSE	CRS
HPE 1200 - Concepts of Wellness	3
COH 1600 - Patient Engagement Techniques in Community Health	3
COH 1500 - Healthcare in the United States	3
HE 2200 - Basic Life Support for the Healthcare Provider and First Aid	3
Elective	3

4 — Session B

COURSE	CRS

NOTE: The term-by-term course sequence takes into account necessary Prerequisites, Corequisite, and Pre-/Co-requisites
NOTE: Select ONE (1) WRITING INTENSIVE course & ONE (1) CIVIC ENGAGEMENT course. Some courses meet BOTH requirements, see CUNYfirst to determine course status

SEMESTER CRS: 15 | SEMESTER CRS: 15 | SEMESTER CRS: 15 | SEMESTER CRS: 15

Important Notes:
Elective Credits become available when students select Pathways course that also meet their Major Requirements. If Electives are available, it is recommended to meet with an advisor to select Electives that will transfer well to the student's 4-year college of choice. *PHI 7600 - Ethics and Morality in the Health Professions is recommended for students looking to transfer to CUNY School of Profession Studies (SPS) BS in Heath Services Administration.*

Please note the program can also be completed on a part-time basis. NYSED Undergraduate Program Schedule Tables for Full-Time and Part-Time can be found in Appendix H.

Entrance Requirements

As with any of CUNY's community colleges, students who enroll in this degree must meet the standards established by KCC for first-year or transfer admission into associate degree programs.

Accreditation

The proposed degree has no program-level accreditation. As with other degrees at KCC, it will be delivered in a manner compliant with the college's accreditation from the Board of Regents of the University of the State of New York and Middle States Commission on Higher Education.

Fit Within the Department

HPER houses another program, the Associate of Science degree (A.S.) in Community Health[55], that prepares students to enter the fields of community and public health. However, the AS in Community Health is specifically structured for transfer to Bachelor's degree programs in community and public health, as well as for entry into occupations at community and public health sites (e.g., governmental entities, community-based organizations, non-governmental organizations, health policy institutions). Distinctions between the two AS degree programs are addressed in the following section.
In comparison, the AS in Community Health[56] incorporates the following PLOs:

Upon successful completion of the Community Health degree program requirements, graduates will:

1. identify individual and community level needs for health promotion and disease;
2. use population data and research methods to describe distributions and determinants of health disparities;
3. describe how to plan, implement, and administer community health interventions;
4. explain how to advocate for effective community health initiatives at the local, state and federal levels;
5. incorporate cultural competence within health promotion and disease prevention initiatives; and
6. analyze the psychosocial, economic, political, and professional factors that impact health services

The table below provides a side-by-side comparison:

PLO comparison for AS in Health Sciences vs. AS in Community Health

AS in Health Sciences	AS in Community Health
Upon successful completion of the Health Sciences degree program requirements, graduates will:	*Upon successful completion of the Community Health degree program requirements, graduates will:*
1. demonstrate fundamental knowledge in health care services related to individual health behaviors, health communication, psychology, and/or sociology;	1. identify individual and community level needs for health promotion and disease
2. explain how health is affected by substance use, unhealthy sexual behavior, and improper nutrition, and lack of physical activity;	2. use population data and research methods to describe distributions and determinants of health disparities
3. practice basic communication skills related to helping individuals enhance their sexual health, reduce substance use, manage better nutrition, adhere to medical advice, engage in health coaching, and navigate health care systems;	3. describe how to plan, implement and administer community health interventions
4. identify their personal values and the ethical standards of practice related to health care services;	4. explain how to advocate for effective community health initiatives at the local, state and federal levels
5. demonstrate technological and communication skills in health care services (reading, writing, and/or speaking);	5. incorporate cultural competence within health promotion and disease prevention initiatives

[55] Information retrieved from https://www.kbcc.cuny.edu/academicdepartments/hper/com.html .
[56] Current degree map and PLOs for the COH degree are available in the KCC College Catalog (2020-2021) online at http://catalog.kingsborough.edu/preview_program.php?catoid=9&poid=517&returnto=629 .

6. explain basic concepts related to human anatomy, women's health, and American health care system;	6. analyze the psychosocial, economic, political, and professional factors that impact health services
7. employ critical thinking skills when explaining basic health concepts and demonstrating the application of health care practices; and,	
8. apply basic life support and first aid skills to ensure patient and client safety.	

Student advisement (through our Advisement Academies and sessions augmented by faculty members) and effective marketing will be extremely helpful in informing students about the similarities and differences between the two degrees. Consequently, students will be able to choose the best degree for their career and educational needs

COST ASSESSMENT

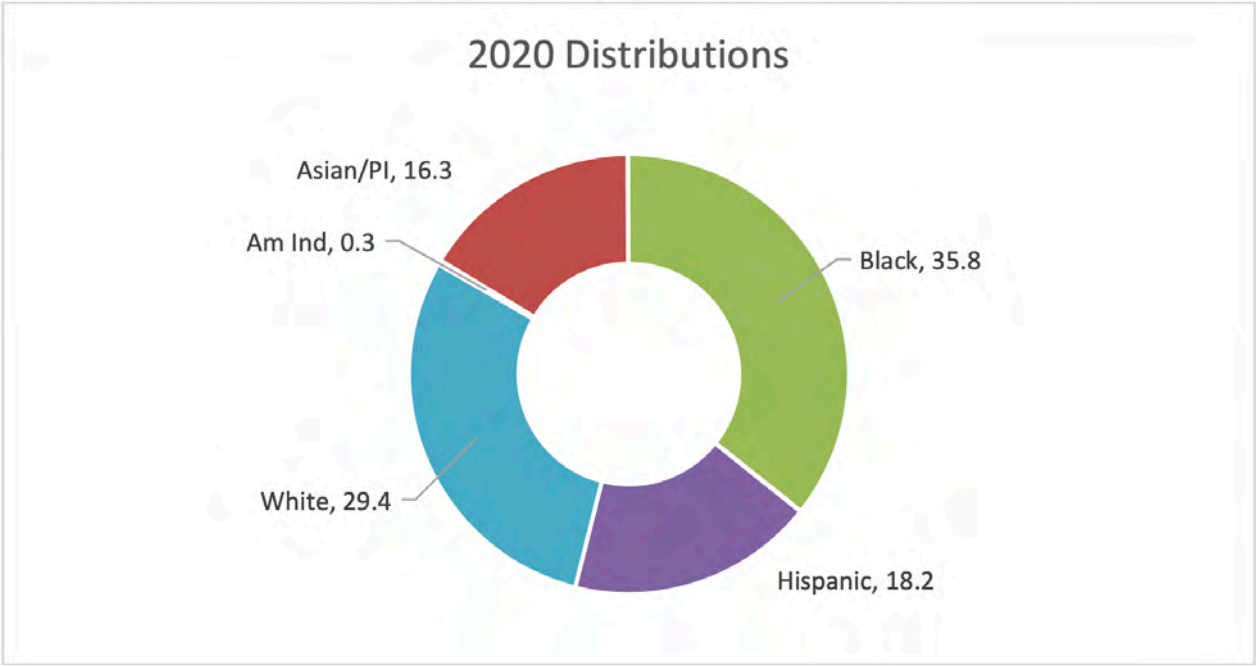
Impact of Student Enrollment and Retention

In our experience, students who would be attracted to this proposed degree, on a personal level, usually have dealt with experiences related to reduced access to health care and reduced or severe lack of a health service infrastructure. These disparities are usually experienced by them directly, by family members, or other loved ones. Usually these students are Black, Indigenous, and other people of color (BIPOC) as well as immigrants. The College has traditionally had a significant proportion of BIPOC and immigrants as part of the student population. This is important to note since many increases in health disparities have been among African Americans/Blacks and Latinx/Hispanics (e.g., COVID-19, diabetes, HIV/AIDS, obesity, asthma, among others)[57]. The HPER department attracts students who want to work in health services industries as educators, administrators, and service providers because of individual experiences with the health care system (either personally or through family members) and/or desire to develop a career and earn a living in health care.

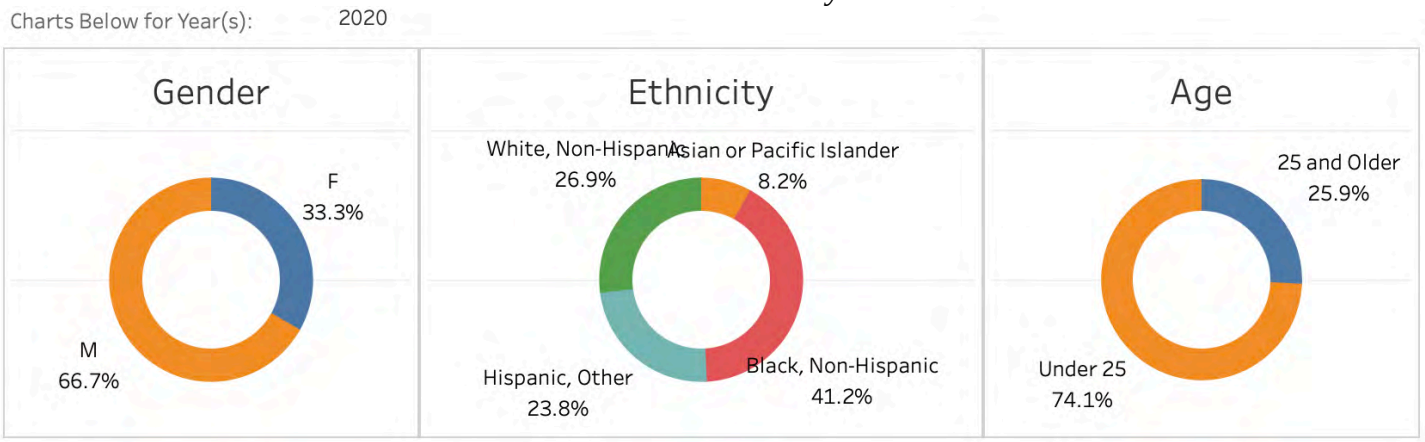
At Kingsborough, the racial/ethnic breakdown has stayed consistent over the past 5 years. In 2020, the racial/ethnic characteristics of all enrolled students were 35.8% Black/non-Hispanic, 18.2% Hispanic, 16.3% Asian/Pacific Islander, 0.3% Native American, and 29.4% White/non-Hispanic[58]. However, in the same year, in comparison to the college student body, the proportion of Black, non-Latinx/Hispanic students in HPER programs (collectively) is 41.2 % vs. 35.8%. The rate of Latinx/Hispanic students in HPER is 23.8% vs. 18.2%. This speaks to the attractiveness of our program to students who come from backgrounds that have been disproportionately affected by health disparities. In addition, HPER programs have a higher percentage of enrollment of male students versus female students in comparison to the KCC student body (66.7% vs. 33.3%, respectively). College-wide, females usually represent 54% versus males at 46%. Our proposed degree would do well in focusing on recruiting populations (e.g., Black, non-Latinx/Hispanic Males) that the College and CUNY is hoping to better serve to achieve educational equity *(Refer to the tables below).*

[57] Information retrieved from https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html .
[58] Information retrieved from http://www.kbcc.cuny.edu/irap/documents/EnrollmentData/PercentEnrollmentbyEthnicity.pdf .

KCC Student Body



HPER Student Body



Strength of Internal Collaborations

HPER is in a fortunate situation, collaborating with Continuing Education and Workforce Development (CEWD) program on several educational programs, as in Health Coach, Northeast Resiliency Consortium[59], and Health Path[60]. This work has led to several internal articulation agreements with CEWD to facilitate transfer from non-credit to the credit degree programs. KCC's Office of Academic Affairs and CEWD are working in collaboration to support non-credit to credit relationships. In addition to these efforts, CUNY's recent work on

[59] Information retrieved from http://cewdkbcc.com/category/northeast-resiliency-consortium/ .
[60] Information retrieved from http://cewdkbcc.com/healthcare-training-programs/healthpath/ .

establishing Credit for Prior Learning (CPL) policies and practices also assist with progress towards educational equity.

Recently, Continuing Education offered non-credit versions of two of our newest courses, and enrollment in those courses indicate significant interest in Health Sciences. As previously noted, *Health Care in the United States (COH 1500) and Patient Engagement (COH 1600)* are required in the Health Sciences major. The Continuing Education version of *COH 1500* resulted with 40 enrolled students (20 in Spring session 2021 and 20 in Summer session 2021); the Continuing Educaiton version of *COH 1600* had an enrollment of 20 students in the Summer session 2021.

We've also discussed how our Health Coach training program consists of a combined offering of *HPE 1200* and *COH 1600*, a successful collaboration among HPER, CEWD, and Local 1199SEIU, the health care workers' union. Over the past 5+ years, it has seen steady enrollment of union-affiliated incumbent health care workers. We started this training course with 13 students enrolled; all students successfully completed the training. As of the end of Spring 2021, we enrolled a total of 254 students, with 241 completing the training.

We can use the above data as indicators for potential enrollment of Health Science degree students. Using the enrollment numbers from one section of each of the Continuing Education versions of the courses mentioned, we could infer that potential enrollment in these required courses would be the following:

	Year 1	Year 2	Year 3	Year 4	Year 5
Health Care in the United States (COH 1500)	20	20	25	25	25
Health Coach (HPE 1200 + COH 1600)	20	20	25	25	25

We must also highlight a special program at KCC. The College offers a free, one credit-equivalent seminar course through Continuing Education called *Emerging Trends in Health Careers*[61]. This course serves as a primer of information on health careers and various academic pathways at the college to give students a jump-start into these careers. Information about current health-related academic programs in Emergency Medical Services, Community Health, Mental Health, Human Services, and others is provided. Students can meet staff and faculty from these programs to further discuss their options. Since 2020, this course has been useful in generating interest in health-related studies among ESL and other students who could potentially enroll in the Health Sciences major.

To summarize, there is a "healthy" amount of interest in an AS degree in Health Sciences for many types of students: a) those who are unsure about which degree to get but know that they are interested in health; b) students who have been working in health-related fields but need the credentials for upward professional

[61] Information retrieved from https://www.kbcc.cuny.edu/calendar/index.php?eID=1062 .

mobility and economic security; c) those who are unaware of the vast potential of health-related careers; and, d) those who are not able to complete requirements for clinical programs.

Given the effectiveness of the work conducted in our Advisement Academies, Admissions, and KCC Flex, enrollment in this degree is expected to be strong. We anticipate the first year to start off slowly as faculty, staff, and students get acquainted with the new degree offering; however, subsequent years should see substantial increases to the enrollment cap due to robust marketing and advisement efforts by faculty and staff.

Programmatic Financial Assessments

Faculty Resources

The HPER department is privileged to have very capable professionals, with diverse backgrounds, perspectives, and life experiences. These faculty members traditionally have taught courses that overlap across majors in the HPER department. For the purposes of implementing and administering the proposed AS in Health Sciences, several faculty members from the department will be involved.

Dr. Jose Nanin, Full Professor (tenured) and Coordinator of Community Health Workforce Initiatives, will serve as Program Director of Health Sciences, responsible for coordinating the courses and activities in the Health Sciences AS program. In addition to teaching courses in the program, he will direct curriculum development, mentor less-seasoned faculty, prepare program reports, and continue to serve as the department liaison for assessment, Having served on the CUNY Credit for Prior Learning (CPL) Committee, he is well situated to facilitate CPL assessment to enable students to receive their degrees in a more fair and expeditious manner.

Other faculty members who will teach in the program will include Dr. Silvea Thomas, Full Professor (tenured) and Program Director of Community Health; Dr. Kevicha Echols, Doctoral Lecturer (CCE) and Community Health Fieldwork Coordinator; Prof. Shannon Caravello, Adjunct Lecturer, KCC Urban Farm Coordinator, and developer of *COH 1500* and *HS 2200*; Prof. Nancy Nemorin, full-time Lecturer and co-developer of the Health Coach curriculum; and, Prof. Gloria Moore, Adjunct Lecturer. We anticipate hiring additional adjunct instructors as the program grows.

These highly qualified, dedicated, and experienced faculty members are the foundations of this degree's mission and will work towards its successful implementation. The COH program faculty, in particular, has been at the forefront of programmatic initiatives that responded to student's educational and career needs, and industry demands. They have documented expertise in educational interventions, health education, health needs assessments, health risk behaviors, and health research. All full-time faculty members have master's or doctoral degrees in Health Education or related areas, along with certifications or state licensure in their areas of expertise (e.g., MCHES, RN, American Red Cross). Areas of professional expertise include basic life support and first aid (via the American Red Cross and American Heart Association), global health, sexuality education, nutrition, stress management, drug addiction and rehabilitation, men's health, and women's health issues.

Several members of the faculty have also developed grant proposals to bring research funds into the

college and university, and have conducted presentations at professional meetings, and published articles in leading journals in the field. Our faculty members are also dedicated to academic advisement, collaborating with staff members of the Health & STEM Academic Advisement Academy[62] to properly advise students, including experience in CPL initiatives on campus, and academic/continuing education/workforce program coordination.

At this moment, we currently have sufficient full-time and part-time faculty to teach the courses proposed in this degree. However, as enrollment numbers increase, we will add sections of each course and embark on a search to hire one (1) additional faculty person for HPER to teach courses across the Health Sciences major. In accordance with our union's collective bargaining agreement, we expect to hire a lecturer or tenure-track faculty who can assist in academic advisement and assessment tasks for this degree. The tenure-track faculty member will also participate in scholarship and diversity, equity, and inclusion activities related to areas in health sciences. Recent salaries for a lecturer have ranged between **$48,550-$87,771** annually; a tenure-track Assistant Professor can earn between **$50,238-$95,667** annually[63]. NYSED Faculty Information for Existing Core Faculty and Faculty to be Hired can by found in Appendix H.

All of the courses in this major have been offered as in-person, hybrid, and fully online options. We expect to continue offering the courses through these delivery modalities. For in-person and hybrid courses, HPER has assigned classroom space either in the T4, T2, or the V (Academic Village) buildings. All the classrooms in the T2/T4 building feature computers and smartboards for faculty use. In addition, the Academic Village (V) building, features modern, classroom space with computers and smartboards also. Each professor can now teach more confidently in well-equipped classrooms. Faculty have no need to order audiovisual equipment in advance from through the Media Center for use in the classroom as the presence of the computers and smartboards now give the professors greater control and autonomy in their classroom instruction. In addition, these improvements have served to improve the flexibility of the teaching methods of the faculty.

As a result of multiple professional development opportunities and the necessity to teach only online courses because of the COVID-19 pandemic, HPER professors are all capable of teaching online courses as hybrid or fully online and through asynchronous or synchronous delivery. Every course under departmental control is offered either partially or fully online, giving faculty and students more flexibility in executing class assignments, quizzes, tests, and other activities. In Fall 2019, HPER was one of the first departments at KCC with a fully online degree offering when the Community Health AS degree became certified by the New York State Department of Education (NYSED) as a fully online option under the KCC Flex Program. We will be applying for the same certification for the AS in Health Sciences degree.

Facilities and Equipment

KCC, Brooklyn College, and Medgar Evers College were recently awarded over $9 million to launch the Healthcare Career Hub of Central and South Brooklyn, a new workforce ecosystem made possible under New York State's Workforce Development Initiative (WDI).[64] This Hub will have three main objectives: a)

[62] Information retrieved from http://www.kbcc.cuny.edu/AdvisementAcademies/HealthSciencesandSTEMAcademy/index.html .
[63] Information retrieved from https://www.psc-cuny.org/content/salary-schedules-full-time-faculty-and-research-series .
[64] Information retrieved from https://www1.cuny.edu/mu/forum/2021/07/29/kcc-wdi/ .

expand and enhance the healthcare workforce in Central and South Brooklyn; b) build a healthcare high school to career pipeline for students; and, c) match well-prepared college graduates with excellent healthcare employment opportunities.

This opportunity will help students earning a Health Sciences degree as well as students in other health-related majors, to gain practical knowledge and skills that are in demand in the industry. Some major advantages for students who participate in the Hub will be participating in training programs in collaboration with health service employers in Brooklyn as well as matching graduates with employment opportunities not only in their filed of study, but in their own neighborhoods. Because of several factors related to the changing healthcare landscape, especially reorganization of services due to rising COVID cases and other health disparities [65] [66] [67], health service employers are in need of well-educated, well-trained workers to quickly learn institution-specific policies, procedures, and practices. Students in our Health Sciences program can easily enter careers in various health-related fields.

For the most part, the existing facilities and equipment at KCC are adequate for teaching courses in this degree. If we hire an additional faculty member, an office space would need to be identified and provided. Instructors of the Basic Life Support and First Aid course (HE 2200) have access to equipment (e.g., CPR manikins, bag-valve masks, automated external defibrillators) that are located and securely stored in the designated CPR course training room, G-213.

Support Staff and Related Resources

Kingsborough Community College continues to offer a variety of support services designed to help students achieve academic success and to manage daily living. These programs include:

- the Kingsborough Learning Center (KLC)[68], where students have access to comprehensive tutoring program that empowers students to cultivate the skills, strategies and behaviors of confident independent lifelong learners. Tutoring is available in almost all KCC courses;
- the Student Wellness Services, where students receive support for engaging in healthier behaviors and can receive free psychological counseling to resolve or cope with life stresses;
- the Women's Center, where students take advantage of support group meetings, referrals, and counseling for women of all backgrounds;
- the Men's Resource Center, where male students of color receive peer and mentoring support;
- the Center for Career Development and Experiential Learning, where staff members help students choose a career path, and find jobs;
- the Access Resource Center (ARC), where students receive financial consultation, tax preparation, benefit screening, legal consultation, and food distribution and pantry;
- CUNY EDGE, which enables students on public assistance to focus on their studies and

[65] Information retrieved from https://www.health.ny.gov/health_care/medicaid/redesign/
[66] Information retrieved from. https://www.bls.gov/ooh/healthcare/home.htm .
[67] Information retrieved from https://www.ny1.com/nyc/all-boroughs/coronavirus/2021/07/30/bill-clinton-says-next-nyc-mayor-should-focus-on-housing?cid=app_share .
[68] Information retrieved from http://catalog.kingsborough.edu/content.php?catoid=10&navoid=771#academic-assistance .

complete their program in a year;

- College Discovery[69], is a CUNY Higher Education Opportunity Program for students who demonstrate college potential, but who might otherwise be excluded because of academic or economic circumstances. Students receive financial assistance, academic and career counseling, and tutorial services. The program offers students a unique opportunity to continue to a baccalaureate program by transferring to CUNY (SEEK), SUNY (EOP), and private college (HEOP) programs in 96 colleges across the New York State area, where they continue to receive financial and academic assistance.
- the Accelerated Studies in Associate Programs (ASAP), which supports students with special advisers and incentives for retention and graduation;
- the Access-Ability Services, which supports students with disabilities equal opportunities through academic accommodations;
- the KCC Urban Farm, an important resource for HPER students to learn about trends in farming and food systems, and their effects on local and global communities;
- Safe Zone, a faculty/staff-led initiative whose goal is to address the issues faced by lesbian, gay, bisexual, transgender, and queer/questioning (LGBTQ+) students, faculty and staff by providing training and support services to foster a thriving and safe, supportive community;
- Office of Military and Veteran Affairs (MAVA), which serves the needs of prospective and enrolled, active military personnel, reservists, veterans, and their dependents, spouses and survivors and facilitates transition and reintegration into the college community; and,
- TRiO, which assists students with disabilities or who are first generation or low-income, by providing advisement, counseling, technology and academic workshops, transfer assistance, and other initiatives such as academic coaching.

Library Resources

One extremely helpful resource for faculty and students alike are the College Librarians. HPER has one librarian, Professor Carlos Arguelles, assigned to conduct special sessions for most of our courses. Because of his assistance (as well as the assistance of his colleagues), faculty members have been able to arrange for computer laboratory time within the college library in order to teach our students how to navigate online databases and evaluate information from journal articles, books, and web sites to be used in course assignments. Professor Arguelles has also been able to conduct these workshops online via Zoom for fully online courses.

In addition, librarians have provided guidance and instruction to students in the preparation of citations for papers that accompany students' presentations. The librarians have developed excellent lesson plans for our classes, prepared written guidelines for students to use when navigating databases and citing sources and have served as a valuable resource for both faculty and students. The HPER program is very grateful to the College Librarians for their continued support.

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[69] Information retrieved from http://catalog.kingsborough.edu/content.php?catoid=10&navoid=771#programs-for-new-students .

EVALUATION

Efforts to evaluate this new degree will be consistent with those of other programs in HPER. The PLOs for this proposed degree will be assessed on a regular basis each semester in line with common practice. Faculty select one specific outcome before the start of the semester and work together to assess this outcome in the upcoming semester. At semester's end, each faculty member evaluates their students' work based on a standard measure established by the group (e.g., common rubric, common exam questions). Usually items on the final exam or final assignment are used to assess learning over the semester. Data are collected by the department's Assessment Liaison with guidance from the Department Chairperson and organized into a table (on MS Word or MS Excel) showing the assessment results. The information is shared during a faculty meeting before or around the beginning of the following semester. We review the data and discuss the findings. We also use this meeting to discuss other issues of relevance. The Assessment Liaison then completes a document that summarizes the findings and our plans for addressing changes we identified as necessary.

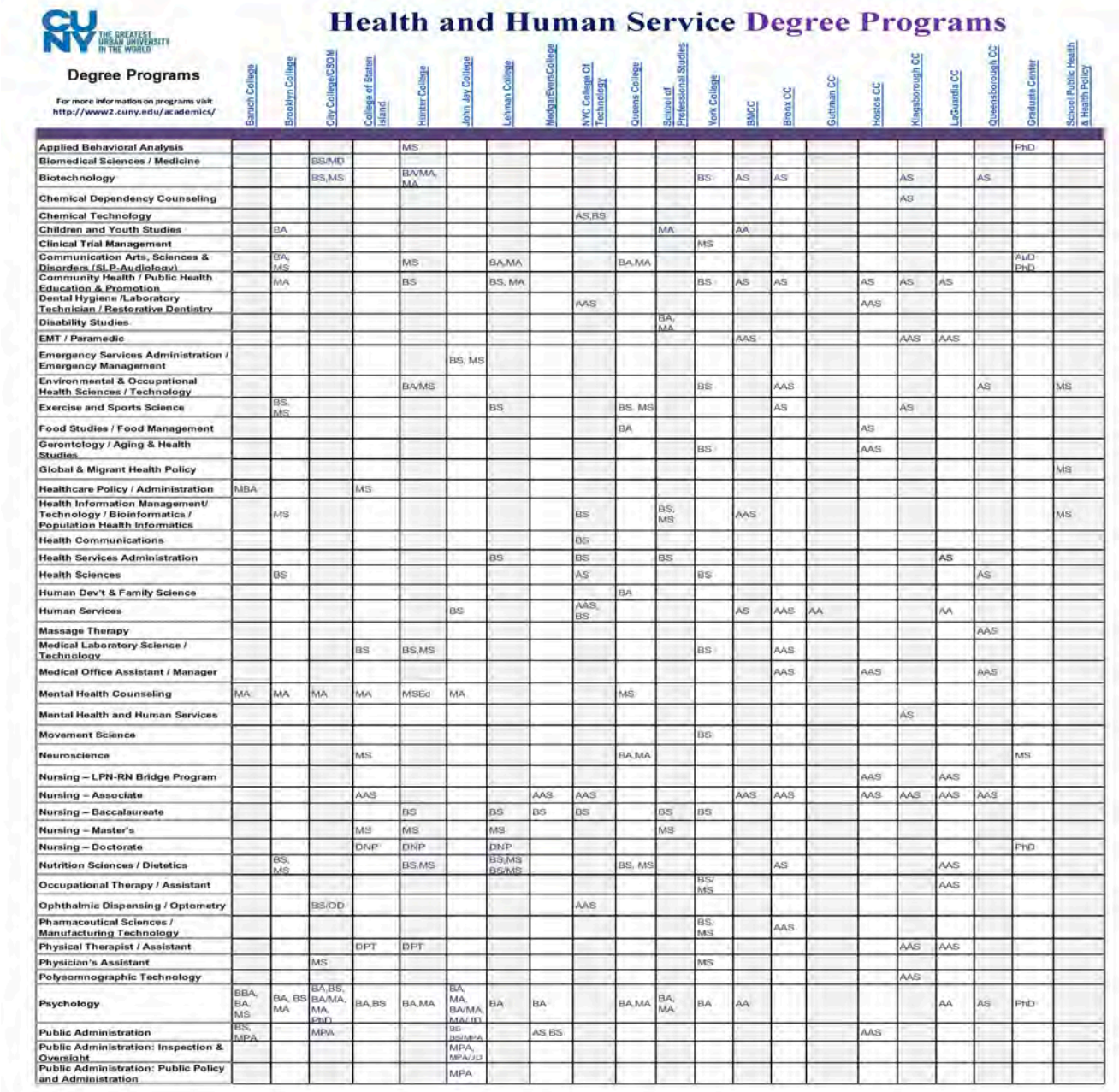
In addition to these assessment plans, junior faculty (new and current) will be mentored by the Program Director with assistance from all full-time faculty members and support staff. A formal peer review will be conducted each semester.

Lastly, every 6 years, academic programs undergo an Annual Program Review (APR), that consists of a Self-Study and a visit by an external evaluator who conducts an objective review of academic programs in the College. Feedback and recommendations from the external evaluator are used, in part, to make curricular and programming decisions. The AS in Health Sciences degree program will be reviewed in accordance with this cycle after the degree is approved for implementation.

ACKNOWLEDGEMENTS

The Department of Health, Physical Education, and Recreation would like to thank the Office of Academic Affairs, Department of Continuing Education, and the Center for Economic and Workforce Development for their support in the creation of this degree proposal.

APPENDIX A: Degrees and Certificates at CUNY



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Degree Programs	Baruch College	Brooklyn College	City College/CSOM	College of Staten Island	Hunter College	John Jay College	Lehman College	MedgarEvers College	NYC College Of Technology	Queens College	School of Professional Studies	York College	BMCC	Bronx CC	Guttman CC	Hostos CC	Kingsborough CC	LaGuardia CC	Queensborough CC	Graduate Center	School Public Health & Health Policy
Applied Behavioral Analysis					MS															PhD	
Biomedical Sciences / Medicine			BS/MD																		
Biotechnology			BS,MS		BA/MA, MA							BS	AS	AS			AS		AS		
Chemical Dependency Counseling																	AS				
Chemical Technology									AS,BS												
Children and Youth Studies		BA									MA		AA								
Clinical Trial Management												MS									
Communication Arts, Sciences & Disorders (SLP-Audiology)		BA, MS			MS		BA,MA			BA,MA										AuD PhD	
Community Health / Public Health Education & Promotion		MA			BS		BS, MA					BS	AS	AS		AS	AS	AS			
Dental Hygiene /Laboratory Technician / Restorative Dentistry									AAS							AAS					
Disability Studies											BA, MA										
EMT / Paramedic													AAS				AAS	AAS			
Emergency Services Administration / Emergency Management						BS, MS															
Environmental & Occupational Health Sciences / Technology					BA/MS							BS		AAS					AS		MS
Exercise and Sports Science		BS, MS					BS			BS, MS				AS			AS				
Food Studies / Food Management										BA						AS					
Gerontology / Aging & Health Studies												BS				AAS					
Global & Migrant Health Policy																					MS
Healthcare Policy / Administration	MBA			MS																	
Health Information Management/ Technology / Bioinformatics / Population Health Informatics		MS							BS		BS, MS		AAS								MS
Health Communications									BS												
Health Services Administration							BS		BS		BS							AS			
Health Sciences		BS							AS			BS							AS		
Human Dev't & Family Science										BA											
Human Services						BS			AAS, BS				AS	AAS	AA			AA			
Massage Therapy																			AAS		
Medical Laboratory Science / Technology				BS	BS,MS							BS		AAS							
Medical Office Assistant / Manager														AAS		AAS			AAS		
Mental Health Counseling	MA	MA	MA	MA	MSEd	MA				MS											
Mental Health and Human Services																	AS				
Movement Science												BS									
Neuroscience				MS						BA,MA										MS	
Nursing – LPN-RN Bridge Program																AAS		AAS			
Nursing – Associate				AAS				AAS	AAS				AAS	AAS		AAS	AAS	AAS	AAS		
Nursing – Baccalaureate					BS		BS	BS	BS		BS	BS									
Nursing – Master's				MS	MS		MS				MS										
Nursing – Doctorate				DNP	DNP		DNP													PhD	
Nutrition Sciences / Dietetics		BS, MS			BS,MS		BS,MS BS/MS			BS, MS				AS				AAS			
Occupational Therapy / Assistant												BS/ MS						AAS			
Ophthalmic Dispensing / Optometry			BS/OD						AAS												
Pharmaceutical Sciences / Manufacturing Technology												BS, MS		AAS							
Physical Therapist / Assistant				DPT	DPT												AAS	AAS			
Physician's Assistant			MS									MS									
Polysomnographic Technology																	AAS				
Psychology	BBA, BA, MS	BA, BS, MA	BA,BS, BA/MA, MA, PhD	BA,BS	BA,MA	BA, MA, BA/MA, MA/JD	BA	BA		BA,MA	BA, MA	BA	AA					AA	AS	PhD	
Public Administration	BS, MPA		MPA			BS, BS/MPA		AS,BS								AAS					
Public Administration: Inspection & Oversight						MPA, MPA/JD															
Public Administration: Public Policy and Administration						MPA															

Public / Urban Health		BS					BS					BS	AS	AS					AS		MPH, DPH, PhD
Radiologic / Nuclear Medicine Technology									AAS, BS					AAS		AAS		AAS			
Rehabilitation Counseling					MSEd																
Respiratory Therapy													AAS								
Science for Health Professions													AS								
Social Work / Social Welfare				BS, MSW	BSW, MSW		BA, MSW	BSSW				BS, MSW								PhD	
Surgical Technology																	AAS				
Therapeutic Recreation							BS							AS			AS	AS			
Toxicology						BS															
Translational Medicine			MS																		
Veterinary Technology																		AAS			

Key: AAS,AS=Associate Degree Programs|BA, BM,BS, BSW, BW=Baccalaureate Degree Programs|MA, MBA,MPA,MPH,MS, MSEd, MSW=Master's Degree Programs | AuD, DNP, DPH, DPT,MD, OD, PhD=Doctoral Degree Programs

March 3, 2021

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Alcoholism & Substance Abuse Counseling													C<30					
Applied Behavioral Analysis				AC-PB				AC-PB										
Animal Care and Management				AC-PB							C≥30							
Autism Spectrum Disorders	AC-PB		AC-PB															
CASAC-T (Credentialed Alcohol and Substance Abuse Counselor Trainee)		C≥30*			C<30													
Child Development Associate									C<30									
Community Health											C≥30							
Cytotechnology				AC- PB														
Disability Studies									AC-PB									
Emergency Management					AC-PB													
Geriatric Mental Health	AC-PM																	
Grief Counseling (Thanatology)	AC-PB																	
Health Care Inspection & Oversight					AC-PB													
Health Careers Preparation				C≥30														
Healthcare Office Administration															C≥30			
Healthcare Policy & Administration																	C<30 AC-PB	
Health Informatics										C≥30								
Industrial Hygiene																		AC-PB
Leadership									C<30									
Management									C<30 AC-PB									
Medical Assistant															C>30			
Medical Coding									C≥30									
Medical Laboratory Technician				AC-PB														
Nursing – Cultural Competence			AC- PB															
Nursing – Nursing Education									AC-PM									
Nursing – Nursing Informatics									AC-PM									
Nursing – Nursing Organizational Leadership									AC-PM									
Nursing – Family Nurse Practitioner						AC-PM												
Nursing - Gerontology: Clinical Nurse Specialist, Nurse Practitioner			AC-PM															
Nursing – Licensed Practical Nurse							C≥30				C≥30	C≥30		C≥30				
Nursing – Pediatric Nurse Practitioner						AC-PM												
Nursing - Psychiatric-Mental Health Nurse Practitioner				AC-PM														
Nutrition and Dietetic Internship (Credits toward MS degree)	AC-PB			AC-PB		AC-PB		AC-PB										AC-PB
Orientation and Mobility				AC-PB														
Play Therapy	AC-PM																	
Project Management									AC-PB									
Psychology					AC-PB AC-PM													
Public Health																		AC-PB
Public Policy / Administration				C<30													AC-PB AC-PM	
Research Administration									AC-PB									
Research Compliance									AC-PB									
Youth Studies									AC-PB									

Key: C<30=less than 30credits | C≥30=30 or more credits | AC-PB=Advanced Certificate-Post-Baccalaureate Degree | AC-PM= Advanced Certificate-Post-Master's Degree | CASAC-T* must be a psychology major

March 3, 2021

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APPENDIX B: New York City Labor Market Information Services (LMIS) Report

Final Report to Kingsborough Community College

Labor Market Information Support • Carroll and Milton Petrie Foundation Grant •August 2017

Summary

Kingsborough Community College (KCC) engaged the New York City Labor Market Information Service (NYCLMIS) at the City University of New York (CUNY) Graduate Center to conduct labor market research related to KCC's proposed Associate of Applied Science (A.A.S.) degree in Care Coordination and Community Health. This research is supported by a grant to KCC from the Carroll and Milton Petrie Foundation.

The research consisted of four activities:

1. A statistical overview of occupational employment, including current employment (number of jobs), wages, and projected growth for occupations for which this new degree track will prepare students.
2. An analysis of online job postings over the last 12 months in New York City advertising jobs for which the new degree track will prepare students.
3. Interviews with experts, including major employers, on career pathways related to this new degree program, particularly in the area of care coordination.
4. An educational scan of other associate degree programs and related bachelor's degree programs within KCC and elsewhere in CUNY to which students in the new A.A.S. program could articulate, depending on their area of interest.

This report contains the findings resulting from all four activities listed above and concludes with a section containing observations and recommendations.

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- Analysis of online job postings 3
- Interviews with industry experts and employers 7
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This report was prepared by

NYCLMIS • CUNY Graduate Center • New York, NY • www.gc.cuny.edu/lmis • nyclmis@gc.cuny.edu • 212.817.2031

NYC LMIS LABOR MARKET INFORMATION SERVICE

Findings

Occupations

Based on an examination of the proposed curriculum and discussions with KCC and industry experts, a preliminary list of occupations/jobs related to the proposed A.A.S. degree includes:

- Community Health Worker/ Health Outreach Worker
- Cardiovascular Technologists and Technicians
- Medical Assistant/Patient Care Technician
- Phlebotomist
- Patient Representative
- EKG/ECG Technician
- Health Coach
- Care Coordinator

Statistical overview of occupational employment

NYCLMIS secured data on New York City employment from the New York State Department of Labor (NYSDOL). **Table 1** below displays current employment (2016), projected employment growth, projected annual job openings, typical minimum education, most common attained education, and wages for **occupations** related to the proposed A.A.S. degree program. NYSDOL collects information only for occupations classified in the Standard Occupational Classification (SOC) system. These occupations are:

- Community Health Workers, which includes Health Outreach Workers
- Cardiovascular Technologists and Technicians, which includes EKG/EKG Technicians and other job titles
- Medical Assistant, which includes Patient Care Technician
- Phlebotomist

Table 1. Employment Data for Occupations Related to Proposed AAS in Coordinated Care and Community Health

	Community Health Workers (SOC 21-1094)	Cardiovascular Technologists & Technicians (SOC 29-2031)	Medical Assistants (SOC 31-9092)	Phlebotomists (SOC 31-9097)
Employment & Growth				
Current Employment	1,290	1,180	11,330	1,590
Average Annual Employment				
2012	670	840	9,280	1,790
2022	800	1,030	11,950	2,250
Change				
Number	130	190	2,670	460,25.7%
Percent	19.4%	22.6%	28.8%	
Annual Average Job Openings	30	30	450	80
From Growth	10	20	270	50
From Replacement	20	10	180	30

	Community Health Workers (SOC 21-1094)	Cardiovascular Technologists & Technicians (SOC 29-2031)	Medical Assistants (SOC 31-9092)	Phlebotomists (SOC 31-9097)
Education & Experience				
Typical Min. Ed.	High School Diploma or Equivalent	Associate Degree	Postsecondary non-degree award	Postsecondary non-degree award
Most Common Ed.	Bachelor's Degree	Associate Degree	Some college, no degree	Some college, no degree
2016 Wages				
Entry Annual	$27,470	$40,680	$25,770	$30,640
Median Annual	$38,600	$54,280	$34,860	$43,110
Experienced Annual	$53,280	$67,650	$40,000	$47,820

Sources | Long-Term Occupational Projections, New York State Department of Labor; NYCLMIS analysis of Ammerican Community Survey 1-year sample, 2015.

All data displayed in **Table 1** are for New York City. As shown, the occupation with the largest number of jobs by far is Medical Assistant, with 11,330 people currently employed in this occupation in New York City, a projected growth rate of 28.8 per cent, and 450 projected job openings per year. The typical minimum education for this occupation is a post-secondary non-degree award. The most common education for people in this occupation is some college, no degree. The starting wage in New York City is $25,770. The other three occupations examined each have between 1,100 and 1,600 jobs in New York City, with projected average annual openings of between 30 and 80 jobs.

Not all of the jobs related to the new A.A.S. degree neatly fit within the framework governments use to track, analyze and report labor market data. To capture the full range of jobs and to enhance the profile of labor market demand, the NYCLMIS examined online advertisements.

Analysis of online job postings.

The NYCLMIS subscribes to a proprietary service (Burning Glass Technologies' Labor Insight®), which collects millions of online job postings from more than 40,000 sources, and then mines and codes detailed data from each posting. In aggregate, these data reveal the number of job postings, and where specified in the ad, top advertising locations, top advertising employers, minimum advertised education, certifications, and skills and experience preferred or required for the job. These data are valuable because they are up-to-date and searchable by job title. Advertisements for jobs in healthcare tend to be well represented online.

The reports in **Attachment #1** summarize trends in online ad volume for the jobs identified related to the proposed A.A.S. degree in Care Coordination and Community Health. Because of the importance of the emerging Care Coordinator position, and the fact that the new A.A.S. degree program is designed to prepare students for this role, the NYCLMIS researched online job listings for this job in two ways: Care Coordinator online job listings that specified education below a bachelor's degree, and Care Coordinator online job listings that included all education levels.

Table 2 below provides the highlights of these data, organized by volume of ads, from highest volume of ads to lowest.

Table 2. Online Job Postings for Jobs Related to Proposed AAS in Care Coordination and Community Health

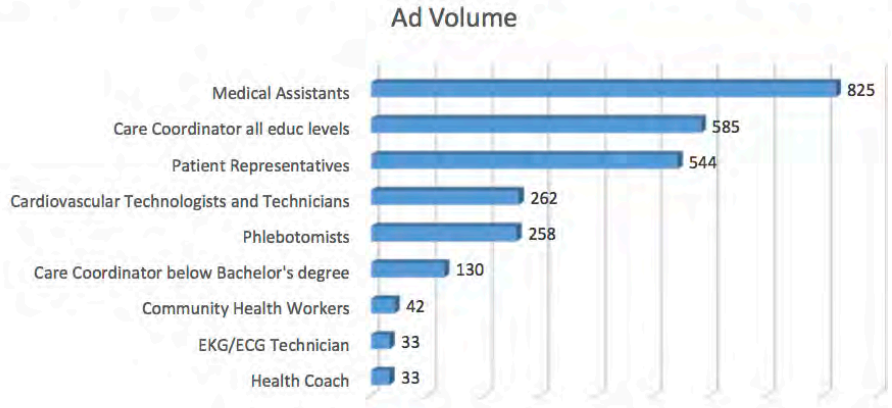
					Top Skills		
Job	**Ad Volume**	**Most Common Education**	**Second Most Common**	**Top Certification**	**Baseline**	**Specialized**	**Technology**
Medical Assistants	825	High School	Associate	Certified Medical Assistant (413)	Communication Skills (186)	Vital Signs Measurement (353)	Microsoft Excel (27) Microsoft Office (26)
Care Coordinator all educ levels	585	Bachelor's	High School + Experience	Registered Nurse (70)	Communication Skills (254)	Patient Care (130) Mental Health (124) Case Management (114)	Microsoft Excel (60) Microsoft Office (50)
Patient Representatives	544	High School	Bachelor's	Certified Tumor Registrar (18)	Communication Skills (231)	Scheduling (173)	Microsoft Office (106)
Cardiovascular Technologists and Technicians	262	High School	Associate/ Bachelor's	American Registry for Diagnostic Medical Sonography (ARDMS) (35)	Communication Skills (30)	Cardiology (48)	Microsoft Windows (21)
Phlebotomists	258	High School	Associate	Phlebotomist Certification (154)	Detail-Oriented (82)	Phlebotomy (216)	Microsoft Office (3)
Care Coordinator below Bachelor's degree	130	High School + Experience	Associate	Registered Nurse (13)	Bilingual (27)	Patient Care (15)	Microsoft Office (10) Microsoft Excel (9)
Community Health Workers	42	High School	Bachelor's	First Aid (CPR AED)(3)	Communication Skills (23)	Mental Health (11) Case Management (10)	Microsoft Excel (9) Microsoft Word (8)
EKG/ECG Technician	33	High School	Associate	Certified Medical Assistant (7)	Communication Skills (7)	EKG/ECG (29)	
Health Coach	33	Bachelor's	Associate/ Graduate	Patient Care Technician (2) Registered Nurse (2)	Communication Skills (11) Writing (10)	Behavioral Health (11)	Microsoft Excel (9)

Source: Burning Glass Technologies, www.laborinsight.burning-glass.com/jobs/us; May 1, 2016 – April 30, 2017

How many online job postings are there for these jobs?

The bar chart in **Figure 1** below displays the number of online ads in the 12-month period from May 2016 through April 2017.

Figure 1. Volume of Online Postings for Jobs Related to Proposed AAS in Care Coordination and Community Health



Source: Burning Glass Technologies®, www.laborinsight.burning-glass.com/jobs/us; May 1, 2016 – April 30, 2017.

As shown, the job with the highest volume of online job ads is Medical Assistant, with 825 advertised jobs in a recent 12-month period. This was followed by Care Coordinator (all education levels), with 585 advertised jobs, and Patient Representative, with 544. There were 262 online ads for Cardiovascular Technologists and Technicians, which takes in both EKG/ECG technicians as well as other similar types of jobs, and 258 ads for phlebotomists. There were 130 ads for Care Coordinator that specified education below a bachelor's degree.

The other three jobs – Community Health Worker, EKG/ECG Technician, and Health Coach – had relatively fewer online job listings. It appears that demand for Community Health Workers is modest at best. Health Coach is sometimes an internal promotion from Medical Assistant, which may partially explain why the number of online ads for it is low. Based on Kingsborough's previous experience with Health Coach training, this appears to be the case for Community Care of Brooklyn, the Maimonides-lead Performing Provider System (PPS). The small number of job postings for EKG/ECT Technician suggests that this function is part of another job, such as Medical Assistant. Medical Assistants are usually certified in EKG/ECG administration as part of their Medical Assistant training and perform this task, and EKG/ECG capability is often mentioned in online job postings for Medical Assistant jobs.

How much education do employers prefer?

With the exception of the Care Coordinator at all education levels and Health Coach, a high school diploma was the most common education among online job listings for the jobs searched, although many of these ads also required several years of related experience. While the associate degree is mentioned in some online ads, it is less common. It is possible that many employers placing online ads are less familiar with associate degrees than with bachelor's degrees and high school diplomas.

Some of the jobs appear to be almost schizophrenic in their education. For example, the most common education preference for Community Health Workers was a high school diploma, and the second most common was a bachelor's degree. For Health Coach, the most common education requested was a bachelor's degree, but the next most common preferences were either Associate degree or Graduate degree. Even for Care Coordinator at all education levels, while the most common education preference was a bachelor's degree, the next most common was high school plus related experience. This situation may reflect the fact that these jobs are evolving and their titles signify different things to different employers. Most of these jobs are not NYS licensed occupations, thus, they have more fluidity in their definition and functions.

Which certifications are in demand (top certifications)?

The two jobs in which certifications were mentioned most in online ads were Medical Assistant and Phlebotomist. For Medical Assistant, the top certification mentioned was Certified Medical Assistant. There are four different industry-recognized medical assistant certifications and it is not clear from most of the ads whether employers had one or another of these certifications in mind. For phlebotomist, the top certification was Phlebotomist Certification. There are a number of industry-recognized phlebotomist certifications, and it is not clear whether any is preferred over another.

None of the other jobs had significant numbers of certifications mentioned in online ads, indicating that certifications are not standard for any of these jobs. Of the few ads that mentioned certifications, most were for certifications and licenses required for other healthcare practitioners. It is possible that some healthcare practitioners, such as Registered Nurses, may be expected to also fulfill Care Coordinator or Health Coach roles.

Which skills are in demand (top skills)?

The skills needed to perform these jobs fall into three categories: baseline/ general skills, specialized/occupational skills, and technology skills.

- **Baseline skills**. For almost every job researched, the top baseline skill requested by employers was communication skills. Communication skills were more important than any other type of skill (baseline or other) for Care Coordinators (all levels of education), Patient Representatives, and Community Health Workers. The top baseline skill for Phlebotomists was detail-orientation. The most-mentioned baseline skill for Care Coordinators below the bachelor's degree was bilingual, suggesting that language abilities are important.

- **Specialized skills.** For Medical Assistants, Phlebotomists, EKG/ECG Technicians, and Cardiovascular Technologists and Technicians, specialized skills were mentioned more than any other type of skill, indicating that for these jobs, technical proficiency is most important. For Medical Assistants, the top specialized skill was vital signs measurement, signifying that the clinical side of this job is very important. For the others, the specialized skills mentioned are clearly related to the jobs, such as EKG/ECG for that Technician, and phlebotomy for Phlebotomists.
- **Technology skills.** For every job researched, technology skills were the least mentioned of the three types of skills. The job where these skills are mentioned most often is that of Patient Representative, which is the front desk/intake/reception position. The most-often mentioned technology skills, across-the-board, were Microsoft Excel and Microsoft Office.

Interviews with industry experts and employers.

The main purpose of the interviews was to understand more about how healthcare providers in New York City are handling the emerging care navigator and care coordination functions. KCC was especially interested in how federally qualified healthcare centers and the NYC Health + Hospitals Corporation were staffing these roles. To address this research objective, NYCLMIS interviewed the following individuals:

- Rosa Agosto, Chief Talent & Learning Officer, Urban Health Plan
- Michaela Frasier, Regional Director of Care Coordination, Institute for Family Health
- Maxine Golub, Senior Vice President, Planning and Development, Institute for Family Health
- Jennifer Melendez, OneCity Health Services, NYC Health + Hospitals Corporation
- Jose Nanin, Professor and Co-Director, Community Health Program, Kingsborough Community College

The major findings from these interviews are as follows:

The care coordination function is both evolving and being handled differently by different healthcare providers.

It is clear that care coordination is important, especially for individuals enrolled in Medicaid Health Homes. The purpose of care coordination is to make sure that high-risk cases are receiving and attending to the services they need. The role of a care coordinator is to make sure the patient stays connected. Medicaid Health Homes serve people who have complex medical and behavioral health needs. A Health Home is a care management service model that facilitates communication among an individual's caregivers. The intention is that all of a patient's needs are addressed in a comprehensive manner. The Health Home is a virtual construct, rather than a physical place. There are also care coordination models under Medicare (called chronic care management and transitional care management) and under some children's case management programs. Care coordination may also be provided to people who need this level of support regardless of funding source or even with no funding source.

Increasingly, primary care and behavioral health services are being provided in an integrated fashion.

This was true for all of the healthcare providers interviewed. This integration represents a change from just a few years ago.

There are care coordinators of varying stripes.

Some are Registered Nurses (RNs) or Social Workers (SWs). RNs handle the clinical aspects of health care; Social Workers handle behavioral health aspects. In healthcare settings where primary care and behavioral health are integrated, the RN and SW often function as a care management team. In addition to the RN and SW, there are Care/Patient Navigators who may report to the RN/SW team. Care/Patient Navigators are often the point of contact for the patient, and they pull in providers and others as necessary. They handle regular contact with the patient, but they do not make clinical judgments. The Care/Patient Navigator works closely with the RN or SW and may conduct joint visits or jointly develop the plan with the patient. One interviewee said that the Care Navigator carries a caseload of up to 50-55 patients. There may be several Care/Patient Navigators reporting to one RN/SW team. NYC Health + Hospitals is in the process of defining the care management team, which will likely include an RN, SW, Pharmacist, and some number of Community Liaisons, a function that is expected to be similar to the Care/Patient Navigator.

Care/Patient Navigators have varied educational backgrounds.

Because of NYS Department of Health requirements for certain programs, some Care Navigator jobs require a bachelor's degree and two years of experience. Other Care Navigator jobs may require no more than a high school education/equivalent and experience.

Care/Patient Navigator jobs can be a step up for a Medical Assistant.

One provider interviewed said that currently employed Medical Assistants are the most successful source for Care Navigators. This is a promotion with a pay increase in the $2,000 to $3,000 range.

Care/Patient Navigator is a very difficult job.

The diseases and issues patients present might be very complicated; patients might be rude. In order to do well, people must find joy in the work. What does this mean? It takes someone who:

- ✓ Thrives in an environment with less structure, in the sense that you may not always know exactly what you'll be doing at 9:00 am or any time of day.
- ✓ Can switch tasks easily to meet the demands of the day.
- ✓ Has a certain amount of flexibility, and likes to be flexible
- ✓ Can tread the delicate line of setting appropriate boundaries, even when visiting someone's home
- ✓ Is a "people person"
- ✓ Is confident and willing to be uncomfortable

A common entry-level job in healthcare is Patient Services Representative, which is the "front desk" administrative job.

In some cases, Patient Services Representatives can add clinical skills to their knowledge base, expand their responsibilities, and become Medical Assistants. With the administrative and clinical experience, some people become Assistant Practice Managers or Practice Managers in federally qualified healthcare centers. In other cases, Medical Assistants pursue licensed clinical occupations such as nursing.

The providers interviewed said they would welcome the type of A.A.S. degree program in Care Coordination and Community Health that Kingsborough is considering, and all had suggestions for what should be included in such a program.

One provider said that it would be good for staff to come in with a more formal understanding of such things as medical terminology, diagnostic technology, etc. This provider said that a combination of medical/behavioral health information and working in the community would be beneficial. Another provider said that everyone should understand value-based payments and measures, and chronic diseases and the performance measures related to these diseases. A third provider said that the following skills/courses would be important:

- ✓ Documentation skills, essentially writing skills, that concisely capture important information and communicate in a clear way what happened, the level of importance, etc.
- ✓ How health systems work, including the concept of the continuum of care, including Health Homes, Primary Care, Long-Term Care, and others, and the meanings of different terms.
- ✓ Behavioral health/mental health and chronic diseases, which are all increasingly important in care coordination.
- ✓ Understanding home visiting, including building rapport and trust, but also establishing professional boundary.
- ✓ Concepts such as cultural competence and health literacy should not be treated as stand-along courses but should be integrated into many courses. Students should learn techniques for communicating with people from different cultural backgrounds and/or with low literacy levels. These skills are important in many functions, from plan development to regular contacts.

Educational Scan.

NYCLMIS examined various programs within KCC and across the CUNY system to identify other similar associate degree programs as well as bachelor's degree programs to which students in the new A.A.S. program could articulate, depending on their backgrounds and areas of interest. A total of 36 programs were identified, 14 of which were nursing programs at the associate and bachelor's degree levels. Nursing programs were included because nursing is a common career path for Medical Assistants interested in pursuing a licensed clinical profession.

There are a few related associate degree programs, such as Hostos Community College's A.A.S. in Aging and Health Studies, and A.S. in Community Health, and Kingsborough's own A.S. in Community Health.

There are also a number of bachelor's degree programs into which students in the new A.A.S. in Care Coordination and Community Health could potentially articulate. These include social work, community health, health education and promotion, health services administration, public health, human services, disability studies, health information management, community health education, gerontological studies and services, and health promotion management. York College and Lehman College seemed to provide the most options.

Attachment #2 contains the full list of degree programs included in the Educational Scan.

Observations and recommendations.

Labor Market Demand.

The A.A.S. degree in Care Coordination and Community Health that Kingsborough Community College is developing appears to meet a labor market need.

- **It prepares students for occupations with many advertised job openings**. The program will prepare students to sit for the Certified Clinical Medical Assistant (CCMA) exam. As noted earlier, Medical Assistant is the top advertised job of all those examined. Care Coordinator is another large and growing job. While some employers might be willing to hire candidates with an associate degree that includes their key educational and skills criteria, many employers prefer at least a bachelor's degree.
- **The program would also be appropriate for people currently working as Patient Representatives who want to move into Medical Assisting or beyond**.
- **Care coordination appears to be a logical and actual next step for Medical Assistants**, especially in federally qualified healthcare centers and with NYC Health + Hospitals.
- **There do not appear to be any degree programs within CUNY at the associate degree level** in care coordination, and this is a growing and evolving field.
- **There appear to be both job opportunities and willing partners for Kingsborough to work with**, at NYC Health + Hospitals and also at federally qualified healthcare centers.

Curriculum.

Kingsborough Community College is in the process of reviewing and revising the tentative curriculum presented at the Industry Response Meeting in March 2017. As the college undertakes the further development of this curriculum, we recommend that the following issues be kept in mind:

- As originally proposed, the curriculum included six credits in Certified Electronic Health Records Specialist, which the industry representatives believed was not needed. It is our understanding that these courses have been removed in the revised curriculum.

- Industry representatives also recommended that Kingsborough develop an additional course specifically related to care coordination. It is our understanding that Kingsborough is developing such a course in consultation with some of the individuals interviewed as part of this labor market research project.
- It appears that behavioral health is becoming increasingly integrated with primary care, especially in a Health Home context, so it seems that a course in the basics of mental health and substance use disorders would be appropriate in this new degree program. We understand that these topics are integrated into the Patient Engagement course.
- Those interviewed also recommended that the new program include information about value-based payments and the relatively new metrics established for healthcare systems. We understand that this will be covered in the Health Care in the U.S. course.
- Virtually every healthcare employer and community organization employer interviewed, for this and related research, has pointed out the need for students to improve their writing skills. In care coordination, documentation skills that concisely capture important information and communicate in a clear way what happened and the level of importance are absolutely critical to success. This should be a focus in the new program. We understand that these skills will be emphasized in the Basic Patient Care Skills and Patient Engagement courses.
- Communication skills are also very important, especially being able to communicate effectively with people with low literacy levels and people who are not fluent in English. It is our understanding that, as part of the advisement process, Kingsborough will be recommending that students take Effective Public Speaking as a way of learning how to communicate with different types of audiences, including low literacy patients. In addition, Kingsborough will advise students who are not already bilingual in English and another language that potential employers value fluency in a second language, and that they might want to take a language course as an elective.
- The issue of home visitation and setting professional boundaries is another area to consider in training people in the healthcare field.

Articulation Agreements.

Kingsborough Community College should consider additional articulation agreements with the senior colleges within CUNY that offer bachelor's degree programs that would represent logical career advancement for students in this new A.A.S. program. Many of these programs are included in the Educational Scan (**Attachment #2**). This is especially important in care coordination because there are many more online job listings for care coordinator jobs that require at least a bachelor's degree than those that will accept less than a bachelor's degree. We understand that Kingsborough is already pursuing additional articulation agreements, both inside and outside of CUNY.

Also, a number of people who work as Medical Assistants choose to advance into a licensed healthcare profession, usually nursing, but also Physician Assistant and health technician occupations. Any work that could be done to facilitate the transfer of credits earned through this

new A.A.S. program into a program that leads to a NYS licensed healthcare profession would benefit students and shorten the time they need to complete the next degree.

Conclusion.

The new A.A.S. degree program in Care Coordination and Community Health is a promising direction for Kingsborough Community College. It addresses a labor market need, can help students prepare in an applied way to perform needed functions, and with the right articulation agreements, can launch students on their way to a variety of careers in healthcare.

Community Health Workers

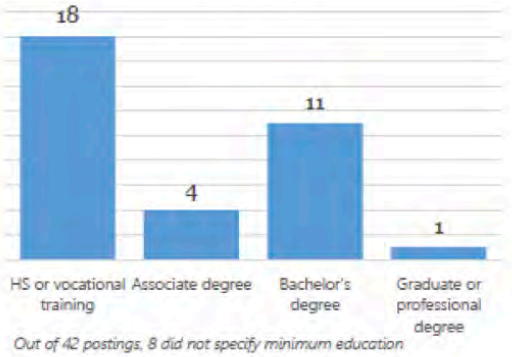
Real-Time Report
Kingsborough Community College
Search Period: April 2016-March 2017

Total Listings: 42

TOP TITLES ADVERTISED	# ADS
Health Navigator	7
Community Health Advocate	5
Prevention Navigator	3
Peer Navigator	3
Lead Peer Advocate	2

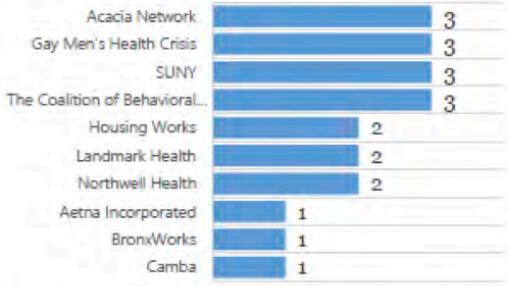
All 42 postings specified job title.

MIN. ADVERTISED EDUCATION



Out of 42 postings, 8 did not specify minimum education preferences.

TOP EMPLOYERS



Out of 42 postings, 9 did not specify employers.

TOP CERTIFICATIONS	# ADS
First Aid (CPR AED)	3
Licensed Master Social Worker	1
Nurse Practitioner	1
Social Work License	1
Pass Medications	1

Out of 42 postings, 36 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	23	Mental Health	11	Microsoft Excel	9
Bilingual	17	Case Management	10	Microsoft Word	8
English	15	Community Health	8	Microsoft Office	7
Spanish	14	Customer Service	6	Microsoft Outlook	5
Writing	12	Health Education	6	Microsoft Access	2
Organizational Skills	8	Public Speaking	6	Microsoft PowerPoint	2
Computer Skills	7	Treatment Planning	6	Word Processing	1
Multi-Tasking	7	Public Health & Safety	5		
Quality Assurance & Control	7	Scheduling	5		
Presentation Skills	6	Social Services	5		

Out of 42 postings, 4 did not specify skill preferences.

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Cardiovascular Techs

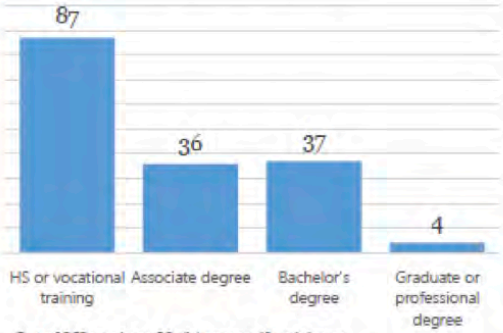
Real-Time Report
Kingsborough Community College
Search Period: April 2016-March 2017

Total Listings: 262

TOP TITLES ADVERTISED	# ADS
EKG/Echo Technician	62
Lead Pulmonary Function Tech	7
Cardiovascular Technologist	7
Cardiovascular Technician	7
Perfusionist	6

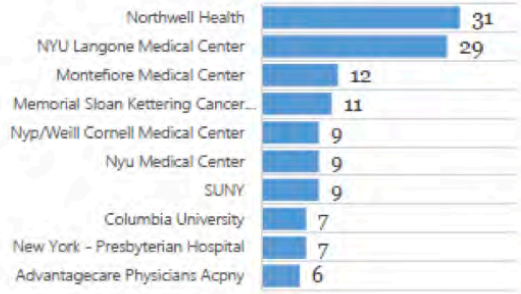
All 262 postings specified job title.

MIN. ADVERTISED EDUCATION



Out of 262 postings, 98 did not specify minimum education preferences.

TOP EMPLOYERS



Out of 262 postings, 51 did not specify employers.

TOP CERTIFICATIONS	# ADS
American Registry For Diagnostic Medical Sonography (ARDMS)	35
Certified Pulmonary Function Technologist	25
Registered Diagnostic Cardiac Sonographer	25
Registered Pulmonary Function Technologist	21
Registered Vascular Technologist	21

Out of 262 postings, 123 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	30	Cardiology	48	Microsoft Windows	21
Quality Assurance and Control	29	Ultrasound	45	Microsoft Excel	1
Research	28	Electrocardiogram (EKG / ECG)	42	SPSS	1
Writing	28	Patient Care	39	Salesforce	1
Physical Demand	14	Infection Control	33		
English	12	Pulmonary Function	26		
Planning	11	Medical Assistance	25		
Problem Solving	10	Surgery	24		
Multi-Tasking	8	Patient Preparation	23		
Team Work/ Collaboration	8	Acute Care	22		

Out of 262 postings, 63 did not specify skill preferences.

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Medical Assistants

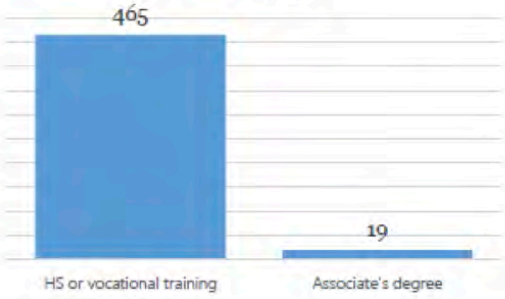
Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 825

TOP TITLES ADVERTISED	# ADS
Medical Assistant	428
Certified Medical Assistant	40
Bilingual Medical Assistant	38
Medical Office Assistant	25
Practice Medical Assistant	25

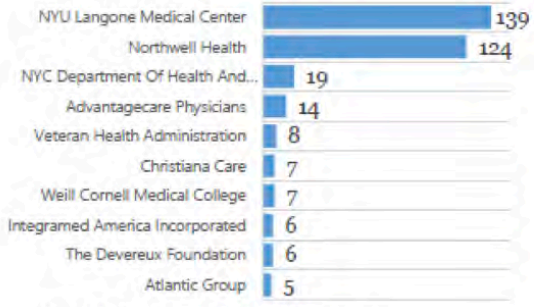
All 825 postings specified job title.

MIN. ADVERTISED EDUCATION



Out of 825 postings, 341 did not specify minimum education preferences.

TOP EMPLOYERS



Out of 825 postings, 219 did not specify employers.

TOP CERTIFICATIONS	# ADS
Certified Medical Assistant	407
First Aid (CPR AED)	29
Phlebotomy Certification	16
Basic Cardiac Life Support Certification	11
Security Clearance	10

All 825 posting specified certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	186	Vital Signs Measurement	353	Microsoft Excel	27
Telephone Skills	168	Medical Assistance	345	Microsoft Office	26
Organizational Skills	151	Patient Care	316	Microsoft Word	14
Bilingual	112	Phlebotomy	296	Word Processing	11
English	88	Patient Assistance	272	EPIC Software	9
Computer Skills	87	Scheduling	271	Hypertext Preprocessor (PHP)	5
Spanish	85	Electrocardiogram (EKG / ECG)	222	ICD-10	5
Physical Demand	57	Patient Preparation	192	Microsoft PowerPoint	5
Multi-Tasking	51	Patient Flow	188	Centricity	4
Writing	50	Data Entry	174	ICD-9-CM Coding	4

Out of 825 postings, 89 did not specify skill preferences.

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Phlebotomists

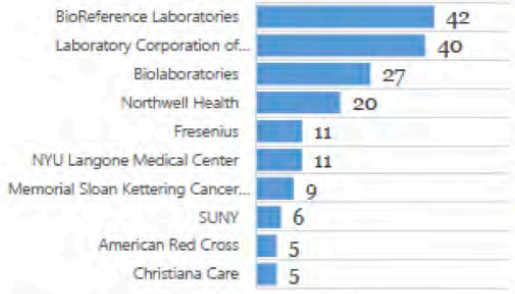
Real-Time Report
Kingsborough Community College
Search Period: April 2016-March 2017

Total Listings: 258

TOP TITLES ADVERTISED	# ADS
Phlebotomist	204
Phlebotomy	16
Phlebotomy Supervisor	11
Laboratory Aide-Phlebotomy	8
Phlebotomy Technician	6

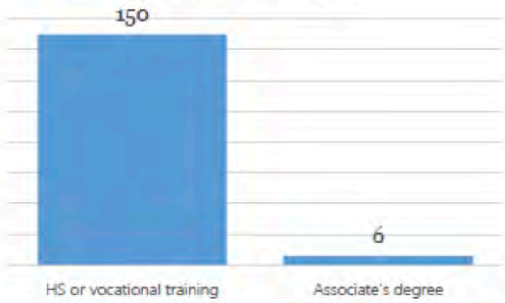
All 258 postings specified job title.

TOP EMPLOYERS



Out of 258 postings, 41 did not specify employers.

MIN. ADVERTISED EDUCATION



Out of 258 postings, 102 did not specify minimum education preferences.

TOP CERTIFICATIONS	# ADS
Phlebotomy Certification	154
Certified Medical Assistant	8
First Aid (CPR AED)	4
American Society for Clinical Pathology (ASCP) Certification	2
Certified Nursing Assistant	2

Out of 258 postings, 89 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Detail-Oriented	82	Phlebotomy	216	Microsoft Office	3
Telephone Skills	72	Labeling	124	EPIC software	1
Communication Skills	64	Venipuncture	114	Medical Software	1
Organizational Skills	30	Customer Service	81	Microsoft Excel	1
Computer Skills	28	Occupational Health & Safety	72		
Quality Assurance and Control	22	Medical Terminology	68		
Spanish	17	Blood Draws	56		
Physical Demand	16	Specimen Collection	56		
Bilingual	10	Blood Collection	47		
Work Area Maintenance	10	Blood Samples	35		

Out of 258 postings, 42 did not specify skill preferences.

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Patient Representative

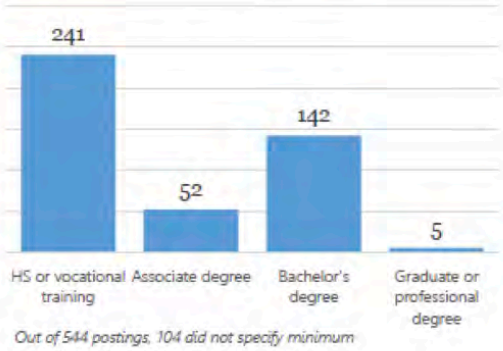
Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 544

TOP TITLES ADVERTISED	# ADS
Registrar	51
Patient Service Representative	49
Patient Navigator	37
Intake Specialist	21
Admitting Representative	19

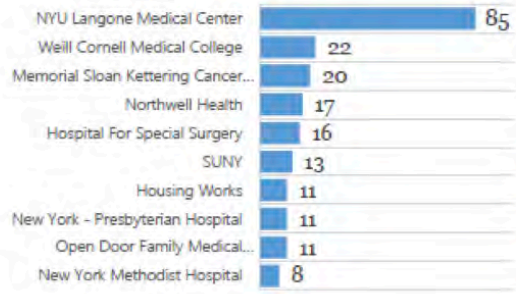
All 544 postings specified job title.

MIN. ADVERTISED EDUCATION



Out of 544 postings, 104 did not specify minimum education preferences.

TOP EMPLOYERS



Out of 544 postings, 86 did not specify employers.

TOP CERTIFICATIONS	# ADS
Certified Tumor Registrar	18
Registered Nurse	12
Certified Pharmacy Technician	5
First Aid (CPR AED)	4
Home Health Aide	3

Out of 544 postings, 497 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	231	Scheduling	173	Microsoft Office	106
Bilingual	148	Customer Billing	153	Microsoft Excel	101
Computer Skills	111	Appointment Setting	127	Microsoft Word	70
English	111	Customer Service	118	Microsoft PowerPoint	44
Organizational Skills	110	Data Entry	93	Word Processing	31
Spanish	105	Patient Care	86	Microsoft Access	19
Detail-Oriented	96	Medical Terminology	64	ICD-9-CM Coding	18
Team Work/ Collaboration	74	Patient Assistance	63	Microsoft Outlook	16
Writing	71	Managed Care	57	ICD-10	7
Typing	63	Medical Coding	50	Microsoft Windows	7

Out of 544 postings, 38 did not specify skill preferences.

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EKG/ECG Technicians

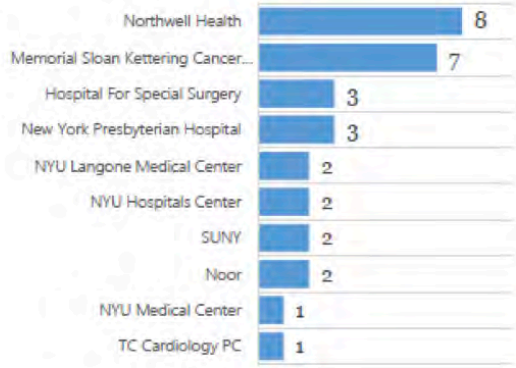
Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 33

TOP TITLES ADVERTISED	# ADS
EKG Technician	32
Certified EKG Technologist	1

All 33 postings specified title..

TOP EMPLOYERS



Out of 33 postings, 2 did not specify employers.

MIN. ADVERTISED EDUCATION

Out of 33 postings, 10 did not specify minimum education preferences.

TOP CERTIFICATIONS	# ADS
Certified Medical Assistant	7
EKG Certification	4

Out of 33 postings, 22 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS
Communication Skills	7	Electrocardiogram (EKG/ECG)	29
Preparing Reports	5	Cardiology	11
Troubleshooting	4	Patient Care	10
American Sign Language	3	Labeling	9
Team Work/ Collaboration	3	Patient Assistance	9
Multi-Tasking	2	Infection Control	8
Problem Solving	2	Medical Assistance	8
Bilingual	1	Clerical Duties	7
Chinese	1	Customer Service	7
Editing	1	EKG Equipment	7

Out of 33 postings, 4 did not specify skill preferences.

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Health Coach

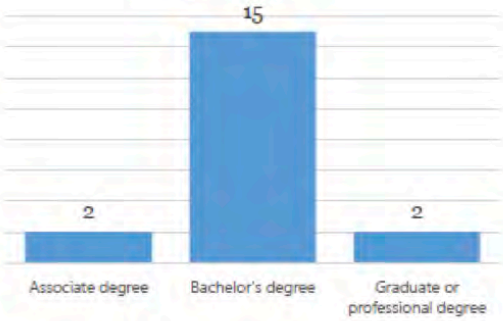
Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 33

TOP TITLES ADVERTISED	# ADS
Health Coach	15
Health Coach- Health Home/DSRIP	6
Managed Care Health Coach	3
Community Health Coach	1
Health Coach Coordinator	1

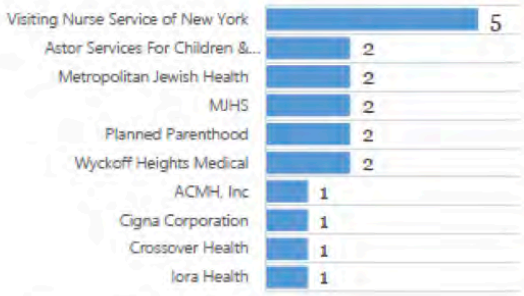
All 33 postings specified job title.

MIN. ADVERTISED EDUCATION



Out of 33 postings, 14 did not specify minimum education preferences.

TOP EMPLOYERS



Out of 33 postings, 9 did not specify employers.

TOP CERTIFICATIONS	# ADS
Patient Care Technician	2
Registered Nurse	2
Exercise Physiologist Certified	1
Registered Dietitian	1

Out of 33 postings, 28 did not specify certification preferences

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	11	Behavioral Health	11	Microsoft Excel	9
Writing	10	Patient Education & Instruction	9	Microsoft PowerPoint	6
English	8	Data Entry	8	Microsoft Word	6
Bilingual	7	Patient Advocacy	7		
Multi-Tasking	7	Patient Evaluation	7		
Critical Thinking	6	Primary Care	7		
Team Work/Collaboration	6	Customer Contact	6		
Spanish	5	Chronic Disease	5		
Computer Skills	3	Health Education	5		
Management	3	Health Promotion Programs	5		

Out of 33 postings, 6 did not specify skill preferences.

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New York City Labor Market Information Service
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NYC LMIS LABOR MARKET INFORMATION SERVICE

Care Coordinator
All Education Levels

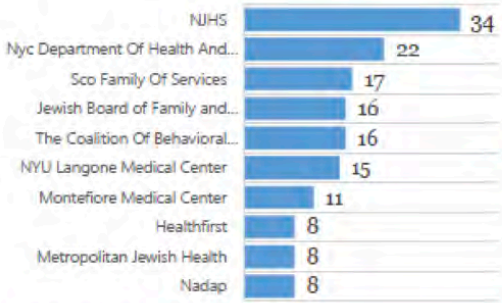
Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 585

TOP TITLES ADVERTISED	# ADS
Care Coordinator	75
Patient Care Coordinator	73
Coordinator of Care	17
Clinical Care Coordinator	13
Managed Care Coordinator	11

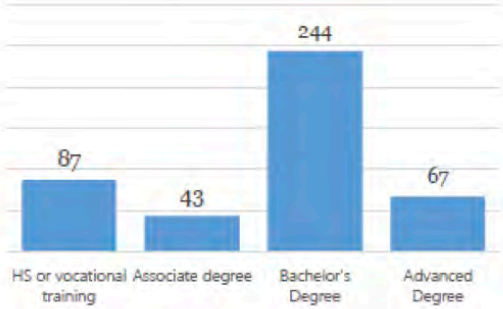
All 585 postings specified job title.

TOP EMPLOYERS



Out of 585 postings, 125 did not specify employers.

MIN. ADVERTISED EDUCATION



Out of 585 postings, 144 did not specify minimum education preferences.

TOP CERTIFICATIONS	# ADS
Registered Nurse	70
Home Health Aide	29
Home Care Certificate	10
Certified Case Manager	10
Nursing Administration	9

Out of 585 postings, 425 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Communication Skills	254	Patient Care	130	Microsoft Excel	60
Spanish	167	Mental Health	124	Microsoft Office	50
Bilingual	163	Case Management	114	Microsoft Word	33
Writing	115	Scheduling	97	Microsoft PowerPoint	18
Team Work/ Collaboration	101	Supervisory Skills	85	Microsoft Outlook	17
Problem Solving	91	Home Care	81	Microsoft Access	12
Planning	78	Behavioral Health	80	Microsoft Visio	6
English	71	Mental Illness	70	ICD-9-CM Coding	5
Organizational Skills	68	Home Health	66	Microsoft Windows	4
Time Management	62	Psychology	64	Word Processing	4

Out of 585 postings, 63 did not specify skill preferences.

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Care Coordinator sub-BA

Real-Time Report
Kingsborough Community College
Search Period: May 2016-April 2017

Total Listings: 130*

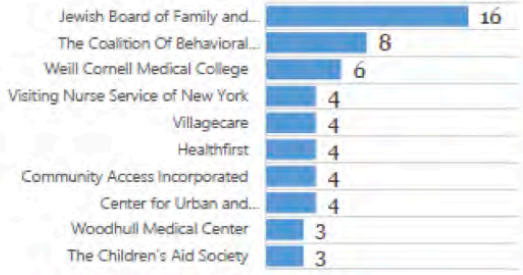
TOP TITLES ADVERTISED	# ADS
Care Coordinator	27
Patient Care Coordinator	24
Home Care Coordinator	5
Medical Manager Care Coordinator	4
Managed Care Coordinator	3

All 130 postings specified job title.

MIN. ADVERTISED EDUCATION

All 130 postings specified minimum education preferences.

TOP EMPLOYERS



Out of 130 postings, 13 did not specify employers.

TOP CERTIFICATIONS	# ADS
Registered Nurse	13
Home Care Certificate	7
Home Health Aide	6
Certified Pharmacy Technician	3
First Aid (CPR AED)	3

Out of 130 postings, 90 did not specify certification preferences.

TOP SKILLS REQUESTED

BASELINE	# ADS	SPECIALIZED	#ADS	TECHNOLOGY	# ADS
Spanish	61	Patient Care	33	Microsoft Excel	19
Communication Skills	58	Customer Service	31	Microsoft Office	16
Bilingual	53	Home Health	31	Microsoft Word	12
Writing	34	Scheduling	28	Microsoft Access	4
Russian	24	Case Management	27	Adobe Acrobat	3
English	19	Psychology	25	Clinical Management Software	3
Problem Solving	19	Managed Care	23	ICD-9-CM Coding	3
Organizational Skills	16	Behavioral Health	22	Microsoft PowerPoint	3
Multi-Tasking	15	Chronic Illness	20	Virtual Private Networking (VPN)	3
Telephone Skills	14	Appointment Setting	18	Voice over IP (VoIP)	3

Out of 130 postings, 10 did not specify skill preferences.

*Includes only listings that specify High School Education + Experience or Associate degree. Excludes Bachelor's degree and higher requirement.

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APPENDIX C: Potential Employers and Fieldwork Sites AND Sample Job Postings

Potential Employment and Fieldwork Sites

COMMUNITY HEALTH WORKERS

SUNY Downstate Medical Center

Department of Human Resources
450 Clarkson Avenue, MSC#1194, Brooklyn, NY 11203
E-mail Address: careers@downstate.edu
Telephone: (718) 270-2411
Fax: (718) 270-1815
Website: www.downstate.edu

NYU Langone Medical Center

550 First Avenue, New York, NY 10016
Telephone: (646) 929-7870
Human Resources
Telephone: (212) 404-3618
Website: www.nyulangone.org

Health Leads

National Headquarters
24 School Street, 6th Floor, Boston, MA 02108
E-mail: info@healthleadsusa.org
Telephone: (617) 391-3633
Website: www.healthleadsusa.org

NYU Lutheran Medical Center

Department of Human Resources
5800 3rd Avenue, Brooklyn, NY 11220
Telephone: (718) 630-7280
Fax: (718) 630-7281
Website: www.lutheranhealthcare.org

Gay Men's Health Crisis (GMHC)

GMHC Main Offices
446 West 33rd Street New York, NY 10001-2601
E-mail Address: webmaster@gmhc.org
Telephone: (212) 367-1000
Website: www.gmhc.org

Long Island FQHC, INC

1600 Stewart Avenue
Westbury NY 11590, Suite 300
E-mail Address: hr-lifqhc@numc.edu

Telephone: 516-296-3742
Website: www.llfqhc.com

CAMBA
Main Administration Office
1720 Church Avenue 2nd FL, Brooklyn, NY 11226
E-mail: info@camba.org /
submitresumes@camba.org
Telephone: 718-287- 2600
Fax: 718-287-0857
Website: www.camba.org

Landmark Health
3000 Marcus Ave., Suite 2W15
New Hyde Park, NY 11042
Tel: (855) 201-4988
Fax: (844) 832-6320
Website: www.landmarkhealth.org

Bronx Works
Administration Office
60 E. Tremont Ave.
Bronx, NY 10453
Telephone: (646) 393-4000
E-mail: info@bronxworks.org
Website: www.bronxworks.org

The Coalition of Behavioral Health
Mailing & Office Address
123 William Street, 19th floor
New York, NY 10038
Phone: (212) 742-1600
Fax: (212) 742-2080
Website: www.coalitionny.org

MEDICAL ASSISTANTS and PATIENT REPRESENTATIVES

Columbia University Medical Center
CUMC Human Resources Center
650 West 168th Street
New York, NY 10032
Telephone: (212) 305-3819
Fax (212) 305-5728

E-mail: cumchr@columbia.edu
Website: www.cumc.columbia.edu

Mount Sinai Hospital
150 East 42nd Street, 4th Floor
New York, NY 10017
Telephone: 646-605-4600
www.mountsinai.org

Weill Cornell Medicine
1300 York Avenue
New York, NY 10021
www.weillcornell.edu

NYU Langone Medical Center
550 First Avenue,
New York, NY 10016
Telephone: (646) 929-7870
Human Resources
Telephone: (212) 404-3618
Website: www.nyulangone.org

New York-Presbyterian Brooklyn Methodist Hospital
506 Sixth Street
Brooklyn, NY 11215
Phone: 718-780-3000
www.nyp.org

ProHEALTH Medical Management
Human Resources
ProHEALTH Care
1 ProHEALTH Plaza, 1
Dakota Drive Suite 320
Lake Success, NY 11042
Fax: (516) 622-6068
E-mail: careers@prohealthcare.com
www.prohealth.com

CityMD
Telephone: 1-844-824-8963
Website: www.citymd.com

The Allure Group
691 92nd Street |

Brooklyn, NY 11228
Telephone: (718) 567-1000 ext. 1583
Website: www.allurecare.com

SUNY Downstate Medical Center
Department of Human Resources
450 Clarkson Avenue, MSC#1194,
Brooklyn, NY 11203
E-mail Address: careers@downstate.edu
Telephone: (718) 270-2411
Fax: (718) 270-1815
Website: www.downstate.edu

Northern Westchester Hospital
400 East Main Street
Mount Kisco, NY 10549
Human Resources
Telephone: 914.666.1290
Website: www.nwhc.net

HEALTH COACH

Visiting Nurse Services of New York
VNSNY Corporate Office
1250 Broadway,
New York, NY 10001
VNSNY Career Inquiries: 1-212-609-7900
Partners in Care Career Inquiries: 1-212-609-7750
Website: www.vnsny.org

Kingsbrook Jewish Medical Center
585 Schenectady Avenue
Brooklyn, NY 11203
Telephone: 718.604.5000
Website: www.kingsbrook.org

Aetna Inc.
151 Farmington Avenue
Hartford, CT 06156
Telephone: 1-800-558-0860
1-800-AetnaHR (1-800-238-6247)
Website: www.aetna.com

Services for the Underserved

305 Seventh Avenue, 10th Floor
New York, NY 1000
Telephone: 1 212-633-6900
E-mail: info@sus.org / services@sus.org
Website: www.sus.org

NYU Langone Health

550 First Avenue,
New York, NY 10016
Human Resources
Telephone: (212) 404-3618
Website: www.nyulangone.org

AHRC New York City

83 Maiden Lane
New York, NY 10038
General Inquiries:
212-780-2500
Website: www.ahrcnyc.org

Lexington Center for the Deaf

25-26 75th Street
East Elmhurst, NY 11370
Telephone (718) 350-3300
Fax (718) 899-9846
Website: www.lexnyc.org

ACMH Inc.

Corporate Offices
254 W. 31st Street, 9th Floor
New York, NY 10001
E-mail: jobs@acmhnyc.org
Website: www.acmhnyc.org

Planned Parenthood

123 William Street, 10th Floor
New York, NY 10038
Telephone: 212-541-7800
Website: www.plannedparenthood.org

Community Healthcare Network

60 Madison Ave, 5th Floor
New York, NY 10010
Main Number: (212) 545-2400
E-mail: Resumes@chnnyc.org
Website: www.chnnyc.org

CARE COORDINATOR

NYU Langone Medical Center
Family Health Center
550 First Avenue, New York, NY 10016
Telephone: (646) 929-7870
Human Resources
Telephone: (212) 404-3618
Website: www.nyulangone.org

CAMBA
Main Administration Office
1720 Church Avenue 2nd FL, Brooklyn, NY 11226
E-mail: info@camba.org / submitresumes@camba.org
Telephone: 718-287- 2600
Fax: 718-287-0857
Website: www.camba.org

Services for the Underserved
305 Seventh Avenue, 10th Floor New York, NY 1000
Telephone: 1 212-633-6900
E-mail: info@sus.org / services@sus.org
Website: www.sus.org

AHRC New York City
83 Maiden Lane
New York, NY 10038
General Inquiries:
212-780-2500
Website: www.ahrcnyc.org

Hospital for Special Surgery
535 East 70th Street
New York, NY 10021

Telephone: (212) 606-1000
Website: www.hss.edu

HeartShare Human Services of New York
12 MetroTech Center, 29th Floor
Brooklyn, NY 11201
Telephone: 718-422-3350
E-mail: info@heartshare.org.
Website: www.heartshare.org

Visiting Nurse Services of New York
VNSNY Corporate Office
1250 Broadway, New York, NY 10001
VNSNY Career Inquiries: 1-212-609-7900
Partners in Care Career Inquiries: 1-212-609-7750
Website: www.vnsny.org

Community Healthcare Network
60 Madison Ave, 5th Floor
New York, NY 10010
Main Number: (212) 545-2400
E-mail: Resumes@chnnyc.org
Website: www.chnnyc.org

Montefiore Medical Center
111 E 210th St
Bronx, NY 10467
Telephone: (718) 920-4321
Website: www.montefiore.org

Selfhelp Community Center
419 Church Ave, Brooklyn, NY 11218
Telephone: (718) 633-1300
Website: www.selfhelp.net

The Children's Aid Society
711 Third Avenue, Suite 700
New York, NY 10017
Telephone: 212-949-4800
Website: www.childrensaidsociety.org

VillageCare
120 Broadway, Suite 2840
New York, NY 10271

Telephone: 212.337.5600
E-mail: info@villagecare.org
Website: www.villagecare.org

NADAP

355 Lexington Ave,
New York, NY 10017
Telephone: 212-986-1170
212) 390-5583
Website: www.nadap.org

SAMPLE JOB LISTINGS

(Note: Formatting may differ across postings because they were cut and pasted into the document as-is directly from employer and job posting websites.)

Community Health Worker (CHW)

NYU School of Medicine

Part-time
We are looking for bright and compassionate individuals to provide weekly individual psych education sessions to improve elders' mental health. Individuals hired will be thoroughly trained on an evidence-based curriculum grounded in cognitive behavioral therapy to help elders' better deal with stress, depression, and anxiety as part of the Positive Minds – Strong Bodies research project.

The part-time community health worker will provide the weekly sessions at Chinese-American Planning Council – Brooklyn Branch (CPC) - located in Sunset Park area of Brooklyn, NY.

Position Summary & Responsibilities:

The goal of the Positive Minds – Strong Bodies research project is to improve the ability of community-based organizations to address physical disability and mental health among minority elders. The project will evaluate the effectiveness of a cognitive behavior and physical activity intervention to reduce the risk of depression among minority elders. The project is led by research partners at the Massachusetts General Hospital and the NYU Center for the Study of Asian American Health (CSAAH), in partnership with community-based organizations such as Chinese-American Planning Council – Brooklyn Branch.

The Community Health Worker (CHW) will be required to conduct the following activities:

- Assist Chinese-American Planning Council – Brooklyn Branch (CPC) to:

- Coordinate and implement psych education pilot and intervention sessions
- Participate in 1-2-day study training and weekly 1.5 hour supervisor check-ins
- Conduct 10hrs of role play sessions with supervisor & 10hrs of audio recorded practice sessions
- Participate in CPC meetings for study staff and weekly CHW support calls
- The position will require a minimum of 2 days per week, approximately 5-10 hours per week (sessions occur during center open hours: Monday to Friday between 9 AM and 6 PM) * Report directly to the CPC Director and NYU CSAAH Project Coordinator on the progress and accomplishments of the recruitment process.
- Complete and upload materials as needed for tracking progress
- Communication responsibilities include: contacting participants to schedule sessions, responding to research staff and CPC staff in a timely manner

Qualifications:

Candidates for the position should have the following qualifications:

- Due to the part-time nature of this position, individuals with flexible schedules preferred;
- Fluency in reading and speaking Mandarin Chinese;
- Familiarity with the Sunset Park, Brooklyn community, community-based organizations,

community leaders, and resources;
- Experience in building relationships and working with community members;
- Strong desire and commitment to work on research on minority elders and disability;
- Knowledge of minority communities in New York City;
- Ability to work well with academic partners and community-based organizations;
- Student of Social Work or graduate with a Masters in Social Work a plus
- Travel to Chinese-American Planning Council in Sunset Park area of Brooklyn, NY.

Job Type: Part-time

Job Location:

- New York, NY

Required language:

Mandarin Chinese

****

Family Support Worker

Job ID: 1038823_RR00017669
Area of Talent: Allied Health
Position Type: Full-Time/Regular
Location: Family Health Centers at NYU Langone

NYU Lutheran Family Health Centers, a designated Level 3 Medical Home, is the largest federally qualified health center network in New York State, and the second largest in the nation. It includes nine primary care sites, 33 school-based health centers and dental clinics, four day care centers, the nation's largest dental residency program, and New York State's largest behavioral health program. The network also includes 12 community medicine sites providing care to disenfranchised New Yorkers, comprehensive HIV services, chemical dependency programs, and a family support center that offers educational, vocational, and other social support programs. Learn more about NYU Lutheran Family Health Centers.

Position Summary:

We have an exciting opportunity to join our team as a Family Support Worker.
In this role, the successful candidate is responsible for engaging high risk families in regular home visits. This home visiting program engages pregnant or newly parenting caregivers with the goal of supporting positive parent-child bonding, promoting child and family heath and development, enhancing family resilience, etc. Reporting to the Program Supervisor, this program will be delivered within the context of a health care system in collaboration with internal and external stakeholders.
Overall responsibilities include conducting regular assessments of family strengths and needs, engaging family participants in activities based on the assigned curriculum, providing case management and advocacy, and working with community partners to provide appropriate referrals when needed.

Job Responsibilities:

- Initiating and maintain regular contact with families, primarily in their homes.
- Establishing a trusting relationship with families.
- Providing prenatal and other health education.
- Assisting to strengthen parent-child relationships.
- Assisting parents to improve their skills to optimize the home environment for the child's well-being and safety.
- Assisting in making and attending health and human service appointments, including activities related to employment and educational goals.
- Timely reporting and case documentation in an electronic database management system
- Performs other related duties as assigned.

Minimum Qualifications:

To qualify, you must be bilingual Spanish and/or Mandarin.
A high school diploma/GED with experience working with, or assisting at-risk children and families in a community setting required.

Preferred Qualifications:

Knowledge of infant and child development.
Strong listening skills.
Ability to identify family strengths and foster self-sufficiency and independence in families.
Ability to observe and report accurately on the functioning of individuals and families.
Ability to establish trusting relationships and work effectively with mothers, fathers, and extended family.
Successful parenting and/or child care experience.
Ability to handle stressful situations.
Emotionally mature and capable of exercising judgment.
Respect for and sensitivity to the needs and rights of others, including those with differing cultural, racial, sexual, or ethnic identities.
Qualified candidates must be able to effectively communicate with all levels of the organization.

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Community Health Worker

Dominican Women's Development Center

The Health Promotion Programs of the Dominican Women's Development Center aims to serve as a resource for community members to make conscious health and wellness decisions for themselves and their families.

Together, we strive to create solutions in addressing health disparities in the New York City area. Our dynamic programming offers access to care, counseling and education, and drop-in-center activities.

Under the supervision of the Outreach Manager and Community Health Worker Manager of New York Presbyterian Hospital, the Community Health Worker is responsible for performing outreach, education, testing and referral services within the scope and goals of New York's End the Epidemic Campaign.

Position Description:

- Conduct street outreach in Northern Manhattan and the Bronx in order to reach MSM, sex workers and other communities at high risk for HIV/STI/HCV with the support of peers and staff
- Identify locations and settings such as after hour parties to provide outreach and dissemination of safer sex kits and resources; requiring late evenings and weekend hours
- Lead HIV/HCV rapid testing, including pre and post testing counseling, at program site or in outreach settings as appropriate
- Elicit individual's HIV/HCV risk history, including, but not limited to demographic information, sex history, drug and alcohol use, and past STI infections
- Collect and process specimen samples in accordance with policies and procedures
- Provide health education and referrals as necessary
- Document all required information for reporting purposes
- Assist Outreach Manager in evaluating program materials, outreach strategies, and client satisfaction for quality assurance
- Participate in biweekly and monthly team meetings

Other duties as assigned

Knowledge and Skill Requirements

- Must be fluent in both English and Spanish
- Must be available to work late evenings and weekends
- Experience working with sex workers, drug users, formerly incarcerated, MSM, LGBTQ, and HIV+ populations, additional preferable work experience includes working with volunteers
- Must have over 2+ years' experience in community outreach and/or HIV/STI/HCV testing
- Must have experience working in Northern Manhattan and the Bronx, specifically with Latinx communities
- Experience and commitment in working with harm reduction and human rights frameworks
- Dynamic, approachable, and centered on the needs of the community engaged
- Ability to communicate effectively both verbal and written
- Strong commitment to the mission and vision of DWDC is a must

Job Type: Full-time

Salary: $36,000.00 /year

Required education:

- High school or equivalent

Required experience:

- community outreach: 2 years

Required language:

Spanish

****

Health Coach

Northwell Health

Qualifications

* Bachelor's Degree in Health Studies, required. Degree in Social Work, Nursing or related clinical field, preferred.
* Minimum of two (2) years' work experience in substance abuse counseling, health coaching, motivational interviewing or related field, required.
* Working knowledge of Microsoft applications (Excel, Word), required. Knowledge of statistical analysis software (SAS, SPSS), preferred.
* Knowledge of IRB and HIPPA regulations, preferred.
* Ability to communicate and interact effectively with patients and families of diverse cultural backgrounds. Bilingual, preferred.

Job Description

Provides interventional coaching through implementation of sustainable Screening Brief Intervention and Referral Treatment (SBIRT), for patients facing alcohol and substance abuse problems. Collaborates with management and team members to ensure delivery of high-quality health coaching services.

1. Provides direct patient support services according to SBIRT protocols.

* Screens patients who are potentially facing alcohol and substance abuse problems.
* Delivers initial motivational intervention and brief counseling services to patients that screen positive for problematic substance abuse.
* Provides decision aids, worksheets, questionnaires and other related tools to patients.
* Collaborates with case management team in developing appropriate referral and intervention plans for patients.
* Assesses patient behaviors, social needs, and related factors that may increase risk for other health problems.
* Maintains contact with patients, their families, and clinical teams to foster strong partnerships with patients.

2. Participates in the development and implementation of patient coaching processes with clinical and non-clinical team members.

* Assists in planning and developing outreach strategies to notify clinicians and patients of the goals and objectives of the SBIRT program.
* Evaluates ongoing coaching strategies to identify potential improvement areas and recommends alternative approaches.
* Collaborates with team members to ensure patient identification, referral and coaching delivery processes are well integrated into clinical workflow.
* Ensures appropriate referrals are made to SBIRT program following standardized algorithms.

3. Documents patient screening, intervention and coaching activities according to program policies and procedures. Reviews and identifies deficiencies (ineligible participant, missed follow-ups, potential medical problems, etc.) and takes corrective action, as required.
4. Prepares qualitative and quantitative reports related to program activities.
5. Participates in related training and professional development to develop competencies in patient intervention, counseling, and referral activities.
6. Assists with special administrative tasks and projects to facilitate better patient care and program evaluation, as required.
7. Performs related duties, as required.

*ADA Essential Functions

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Health Coach

Kingsbrook Jewish Medical Center

Summary/Description:

The Health Coach will report to a licensed Registered Nurse on the practice's staff and have primary responsibility for implementing a collaborative process of assessment for the Health Home At-Risk project and Health Home eligibility, care planning, facilitation of population health management, coordination of care for patients on caseload, patient education, patient advocacy, and regular evaluation of patients on caseload.

Duties and responsibilities include but are NOT limited to:

Uses registries to identify patients with newly diagnosed, undiagnosed or poorly controlled chronic conditions and schedules follow-up appointments

Conducts outreach to patients with overdue screenings or upcoming appointments

Performs intake and assessment of patients with newly diagnosed or poorly controlled chronic conditions, screens for Health Home eligibility, and checks Health Home enrollment

Screens for behavioral health and substance use problems, including depression (PHQ), alcohol abuse (AUDIT), substance abuse (DAST) and smoking status.

Reinforces education provided by PCP or nurse on management of the chronic disease, provides self-management tools, and reviews how to use those tools

establishes goals and creates a care plan with the patient,

Works with patient to mitigate impacts of social factors on health and functional status, e.g. by arranging transportation for patients

Conducts post-visit review of next steps with patient

Coordinates care, assists with referral management, and conducts between-visit monitoring & outreach

Tracks and follows up on test results to ensure patient and caregiver take appropriate next steps as needed

Serves as primary care practice's first point of contact during post-discharge care transition from hospital or emergency department

Documents activities in EHRIGSI Health Dashboard

Works with DSRIP Coordinator and practice's performance improvement team

Assists in scheduling huddles and other internal team meetings

Skills/Qualifications:

MA/LPN/PCT, or other clinical support staff member.

Trained in measuring vital signs, the use of standardized assessments of basic medical and substance use history and symptoms, and Motivational Interviewing, including goal setting.

****

Patient Representative

AdvantageCare

The Patient Representative is responsible for intakes of new patients, scheduling of patient appointments, updating Health Insurance plans and making “cases” as needed, checking Dental managed care insurance to make sure Advantage Care is the dental home, answering phones and triaging calls in phone notes, inputting financial information to determine Sliding Fee, Collecting and posting payments, Ordering supplies for health Center, and other responsibilities as required by supervisor.

• enters/updates demographic information in required field of EMR and obtains photographs for EMR registration panel, e-mail addresses as needed;

• Greet each patient professionally and make sure they sign in and are marked as arrived on schedule.
• obtains signed documents (e.g. consents, financial, advance directives, etc.) from patient and scans in medical record;
• Inputs financial information to determine level in Sliding Fee Scale.
• completes purchase requisitions, scans document, picks up and distributes mail;
• Checks and calling as needed; all insurances as to the patient's eligibility including but not limited to Medicaid, Medicare and third party insurance.
• Verbally ask at each appointment regarding changes in insurance coverage, address, and phone numbers.
• clears/monitors copier, shredder and fax folder;
• answers phone and documents in telephone note what is needed which is sent to Medical Assistant folder
• faxes EMR documents as needed;
• Receiving payments by cash, charge and check and posting
• checks all frontend portal folders;
• Receives incoming calls from patients and scheduling appointments.
• Confirms appointments for all new patients with personal phone call.
• ensures that the appointment master scheduler is accurately maintained and updated as necessary;
• Blocks in appointment schedules vacation/personal/meeting/etc. dates/times for providers;
• Retrieve dental history from Dental insurance website and note what dental procedures have been complete with DOS and forward to dental staff.
• Performs all duties as requested by supervisor.

Requirements
• High School Diploma required
• Basic Life Support/AED certification
• Strong oral, written and organizational skills required
• Prior experience coordinating activities of a busy medical office or health care center, preferred
• Proficient in computer applications (i.e. Microsoft Office - Word, Outlook, etc.)
• Knowledge of Electronic Medical Record (EMR), preferred
• Excellent client /customer service orientation
• Ability to deal effectively with a variety of people and work in a team environment.

****

Patient Representative

Harlem Hospital Center

Job Description

Under direction, serves as representative of hospital administration and provides a centralized complaint mechanism for patients, families and visitors to achieve a satisfactory resolution of problems. Focuses on potential problem areas to minimize the risk of health hazards to patient and to hospital and potential liability and consequent litigation processes. Humanizes patient's hospital experience by interpreting and clarifying hospital policies, procedures, philosophy and routines to patient for better understanding.

Examples of Typical Tasks:

1. Acquaints patients with the purpose and philosophy of the hospital and the patient representative program. Interprets hospital policies and procedures to patients, families and visitors.

2. Communicates and demonstrates to the patient and his family, staff and the community, the concern and responsiveness of the institution in meeting the health needs of the individual.
3. Uncovers patient's feelings and concerns through direct interviews with patients and families, correspondence forwarded to hospital, staff referrals and telephone.
4. Documents all complaints, requests and compliments concerning the institution, its staff and services.
5. Analyzes and evaluates data to determine appropriate action and refers to cognizant resource person and/or agency for resolution.
6. Consults with appropriate staff as part of resolution process to ascertain corrective measures to be taken to resolve complaint for timely and effective response action.

Minimum Qualifications

1. A Baccalaureate Degree from an accredited college or university in Business Administration or Social Sciences, Health Care Specialization or related programs; and,
2. A minimum of one year responsible experience in an administrative, supervisory or consultative capacity in hospital administration/organization in the coordination and delivery of patient care services; or,
3. A Master's Degree from an accredited college or university in Public Health, Public or Hospital Administration, Health Care Specialization, Business Administration or related disciplines.
4. or a satisfactory equivalent combination of training, education and experience

****

Patient Service Representative

Mount Sinai Beth Israel

What You'll Do:

- Responsible for effectively and efficiently providing patient procedures as ordered by the physician under the guidance of licensed medical staff (LPN, RN, NP or MD)
- Provides clerical support necessary for efficient and effective functioning of the office
- Performs EKGs as ordered by the physician
- Performs lab testing as ordered by the physician
- Performs PFT as ordered by the physician
- Performs audiometry as ordered by the physician
- Admits patient to the exam room and takes vital signs, height and weight, medical history, medication history and allergy history

What You'll Bring:
High school diploma or general education diploma (GED).
Certification as a Medical Assistant or two (2) years relevant work experience preferred. Excellent phone manners, flexibility, knowledge of computer data entry and excellent interpersonal skills.
Ability to handle diversified responsibility in fast-paced environment

List of Employer Websites

AdvantageCare Physicians
www.acpny.com

Allied Health Group
www.alliedhealth.com

BioReference Laboratories, Inc.
www.bioreference.com

Brookdale Hospital Medical Center
www.brookdalehospital.org

Dominican Women's Development Center
www.dwdc.org

Go Health Urgent Care
www.gohealthuc.com

Harlem Hospital Center
www.nychealthandhospitals.org/harlem

Gramercy Surgery Center
www.gramercysurgery.com

Kingsbrook Jewish Hospital
www.kingsbrook.org

LabCorp
www.labcorp.com

Lexington Center for the Deaf
www.lexnyc.org

Montefiore Medical Center
www.montefiore.org

Mount Sinai Hospital
www.mountsinai.org

New York-Presbyterian Brooklyn Methodist Hospital
www.nyp.org

Northwell Health
www.northwell.edu

NU Homecare
www.nucare.com

NYU Langone Medical Center
www.nyulangone.org

People Care Inc
www.peoplecare.com

The Bridge Inc
www.thebridgeny.org

Visiting Nurse Services of New York
www.vnsny.org

APPENDIX D: Syllabus for New Course – HE 2200: Basic Life Support for the Healthcare Provider and First Aid

COURSE SYLLABUS

Basic Life Support
for Healthcare Provider and First Aid
HE 2200 - Course Syllabus
Semester, Year

Instructor: TBD
Office: TBD
E-mail: TBD

Course Description

Basic Life support for the Healthcare Provider and First Aid will provide students with necessary lifesaving skills to work in a variety of healthcare settings. Students will learn to recognize and respond to a variety of life-threatening emergencies such as cardiac arrest, heart attack, stroke, diabetic emergencies, opioid associated emergencies, and other injury and environmental emergencies. Students will employ high-quality CPR in multi-rescuer BLS team response scenarios, effectively demonstrate the use of AED, provide ventilations using a pocket mask and bag valve mask (BVM), and removal of foreign-body airway obstructions during choking emergencies for adults, children, and infants. Effective communication, teamwork, critical thinking, and problem-solving skills will be emphasized. Upon effective completion of course and certification requirements, students will have the ability to apply for the BLS for Healthcare Provider as well as a Heartsaver First Aid certification from the American Heart Association.

Course Student Learning Outcomes (SLOs)

By the end of this course, you (the student) will be able to:

1. Utilize a systematic, continuous approach to recognize, assess, and provide care for adult and pediatric patients experiencing life-threatening breathing and cardiac emergencies in both individual and team-based, multi-rescuer scenarios
2. Describe all the steps of adult and pediatric Cardiac Chain of Survival for both in and out of a hospital facility
3. Demonstrate proper assessment and high-quality CPR skills including pulse check, chest compressions and ventilations for adults, Infants, and children
4. Deliver ventilations to adult and pediatric patients using both a pocket mask and a bag-valve mask (BVM) resuscitator
5. Explain the basic concepts of an automated external defibrillator (AED), including the associated science, universal steps of operation, and safety precautions and effectively demonstrate the appropriate use of an AED for adult and pediatric patients
6. Identify and respond to both conscious and unconscious breathing emergencies, including foreign body airway obstructions, for adult and pediatric patients
7. Recognize and respond to a variety of medical emergencies including heart attack, stroke, fainting, diabetic emergency, seizure, and shock
8. Identify and respond to a variety of injury emergencies including bleeding, wounds, head, neck, and spine injuries, broken bones, sprains, burns, and electrical injuries

9. Recognize and respond to a variety of environmental emergencies including anaphylaxis, heat and cold related emergencies, bites and stings, poison emergencies, and anaphylaxis, including proper administration of an epinephrine auto-injector
10. Identify and respond to an opioid-associated life-threatening emergency using the Opioid-Associated Life-Threatening Emergency Response Sequence, including proper use of naloxone

Required Materials

- One Laerdal CPR Breathing Barrier (purchase at KBCC bookstore by asking at counter)
- One large box of non-latex surgical gloves (available at drugstores, pharmacies, and online)
- AHA BLS Provider Manual digital (ISBN: 978-1-61669-799-0) or print (978-1-61669-768-6)
- AHA Heartsaver First Aid Student Workbook digital (ISBN: 978-1-61669-817-1) or print (ISBN: 978-1-61669-829-4)

Student Assessment Methods		**Percentage**	**Dates**
Practical Assessment #1	CPR and Rescue Breathing Skill Adult	10%	Week 4
Practical Assessment #2	CPR and Rescue Breathing Skill Child	10%	Week 5
Practical Assessment #3	CPR and Rescue Breathing Skill Infant	10%	Week 6
Practical Assessment #4	AED skill(adult and pediatric)	10%	Week 7
Midterm Exam (Written)	All skills up to week 7	10%	Week 7
Practical Assessment #5	Multi-rescuer BLS team response	10%	Week 8
Practical Assessment #6	Choking relief adults and pediatric	10%	Week 9
Practical Assessment #7	Naloxone and Epinephrine	10%	Week 10
Practical Assessment #8	Bleeding and bandaging	10%	Week 11
Final Exam (Written)		10%	TBD
		100%	

Evaluation

Grades will be calculated according to college policy as follows:

A+	A	A-	B+	B	B-	C+	C	C-	D+	D	F
97-100	**93-96**	**90-92**	**87-89**	**83-86**	**80-82**	**78-79**	**75-77**	**70-74**	**66-69**	**60-65**	**0-59**

W Withdrew without penalty
WU Unofficial withdrawal (counts as failure)
INC Doing passing work, but missing an assignment or an examination; changes to a "FIN" if work is not made up by the 10th week of the next 12-week session
FIN Failure as a result of an Incomplete

Expectations of students in HE 2200

Students are expected to attend every session and bring their personal protective equipment (fresh non-latex gloves, and Laerdal breathing barriers), login to Blackboard to access digital materials, watch all videos and read all materials in book and slides, and be prepared to engage in constructive conversations during classroom discussions and skills practice. Please come with enthusiasm and be ready to learn. You are expected to be engaged and fully participate in every class. Cell phones and other electronic devices must be silenced and cannot be used during class. Any disruptions by electronic devices may result in your being asked to leave for the session. Dress in clothing appropriate for physical activity. You will be working on a mat and bending over No food or beverages aside from water are allowed in the training room. No high heels permitted on mats.

Practical Assessments

There will be practical skill assessments in each of the skills area. For each practical assessment, students will demonstrate required skill accurately and effectively as per American Heart Association protocol. Practical assessments are a critical part of the course. It is extremely important that YOU DO NOT miss any portion of the skills session and practical assessments as they are required for certification qualification and failure to attend will result in a 0 for that skill and inability to apply for certification. No exceptions are made to this policy as certifying body has strict training requirements that must be adhered to.

Exams

Exams will be based on American Heart Association manual readings and videos, slides posted on Blackboard, and classroom discussions. There will be a midterm exam and a final exam, and each will be 40 multiple choice questions and each exam is worth 10% of final grade. Practical assessments and written exam make ups are rare and are only given for documented, extenuating circumstances for which you will need approval from instructor. Work schedule, childcare issues, and travel/ vacation does not qualify as an extenuating circumstance. You are expected to have a work schedule that accommodates your full participation in college courses and to not schedule vacations during class time.

Certification

This course offers the opportunity to apply for two certifications, Basic Life Support for the Healthcare Provider certification (valid 2 years) and the Heartsaver First Aid certification (valid 2 years) from the American Heart Association. Certification is not required for this course and is not guaranteed. Students will be required to obtain an 84% or more for both exams and successfully pass every practical assessment exam to qualify. There are no exceptions to this policy as the certifying body has strict certification requirements that must be adhered to.

Attendance Policy

More than 6 hours of absence from class will result in a significant lowering of your grade as this will affect your skill grades and participation (Lateness= 1/2 absence. Four lateness =2 absences). Missing more than 8 hours of class may result in a WU grade. If you need to withdraw from the class due to absences or other issues, please do so immediately with the Registrar. Be aware that withdrawing/dropping MAY AFFECT your full-time status and financial aid if applicable. Consult your Financial Aid counselor if you have any questions.

Access-Ability Services (AAS)

Serves as a liaison and resource to the KCC community regarding disability issues, promotes equal access to all KCC programs and activities, and makes every reasonable effort to provide appropriate accommodations and assistance to students with disabilities. Your instructor will make the accommodations you need once you provide documentation from the Access-Ability office (D-205). Please contact AAS for assistance. Please do so in a timely manner and well in advance of when accommodations are needed. Please contact Accessibility Services by clicking on this link and request that your accommodation be emailed directly to instructor: https://www.kbcc.cuny.edu/access-ability/homepage.html

Preferred Gender Pronoun and Name

I affirm all forms of gender expressions and identities. If you prefer to be called a different name than what is on the class roster, please inform me. Please inform me on your preferred gender pronoun or if you do not have a pronoun. The gender-neutral bathrooms are in the following places on campus: A117, A119, L303, L504, M436, T4 154, T8 108B, V211, and V212. If you have any questions or concerns, please do not hesitate to ask your instructor. For more information, please visit: http://www2.cuny.edu/about/administration/offices/legal-affairs/policies-procedures/equal-opportunity-and-non-discrimination-policy
and https://www1.cuny.edu/mu/forum/2017/02/24/protecting-the-rights-of-transgender-and-gender-nonconforming-students/

Access Resource Center

The Access Resource Center (ARC) office offers a variety of support services for students, including a campus food pantry, a benefits screening for government resources (such as SNAP food benefits, child-care and public

assistance), legal and financial consultations, and tax preparation support. More information, please visit: http://www.kbcc.cuny.edu/arc/Homepage.html

HE 2200 – Basic Life Support for Healthcare Provider and First Aid
Semester, Year

Week	Date	Topic for Discussion	Skills Based Activity
1	TBD	**Introduction to Course** • Review syllabus and student expectations • Importance of Basic Life Support (BLS) for the Healthcare Provider • Understanding certification requirements • Historical background of BLS, importance of American Heart Association • Recognizing and responding to emergencies	1. Navigate Blackboard and Yuja to locate course materials 2. Purchase required Laerdal breathing barrier from campus bookstore
2	TBD	**Introduction to BLS** • Identify the universal precautions for disease prevention and properly utilize personal protective equipment (PPE) • Review of the cardiovascular system • Understanding checking for breathing and pulse and identifying signs of poor perfusion • - Basic concepts of rapid assessment, including location of pulse, and understanding what skill to perform	*** MUST BRING CPR BREATHING BARRIER AND GLOVES! Failure to bring PPE will result in inability to attain potential BLS certification** 1. Perform an accurate and rapid assessment for responsive and unresponsive adults, children, and infants and identify correct response skill 2. Demonstrate appropriate removal and disposal of gloves.
3	TBD	• Cardiac Chain of Survival for adults within and outside of a hospital setting • Introduction to adult CPR skills including chest compression technique, and ventilations with head tilt-chin lift method (1 person BLS response) • Jaw thrust technique for suspected spinal injury	1. Correctly locate and identify pulse using carotid artery for adult 2. Demonstrate effective use of breathing barrier for adult 3. Provide high-quality CPR for Adults

4	**TBD**	• Continuation of adult CPR skills practice • CPR variations (pregnancy, obesity, soft surfaces) • Rescue Breathing for adults • 2 person BLS response for adults using BVM • Hands only CPR	1. Demonstrate effective rescue breathing for adults using BVM 2. Practice 2 person BLS response for adults **3. Adult CPR and Rescue Breathing Practical Assessment #1**
5	**TBD**	• Cardiac Chain of Survival for pediatric patients within and outside of a hospital setting • Introduction to Pediatric CPR, using both one and two hands • Rescue Breathing for children using BVM • 2 person BLS response for children using BVM	1. Correctly locate and identify pulse using carotid or femoral artery for child 2. Demonstrate effective use of breathing barrier and BVM for child 3. Provide high-quality CPR for child **4. Child CPR and Rescue Breathing Practical Assessment #2**
6	**TBD**	• Cardiac Chain of Survival for pediatric patients within and outside of a hospital setting • Discussion of Sudden Infant Death Syndrome (SIDS) • Introduction to Infant CPR, 2 finger technique and 2 thumb-encircling hands technique • Rescue Breathing for infants using BVM • 2 person BLS for children using BVM and encircling thumb method	1. Correctly locate and identify pulse using brachial artery for infant 2. Demonstrate effective use of breathing barrier and BVM for infant 3. Provide high-quality CPR for infant using 2 techniques **4. Infant CPR and Rescue Breathing Practical Assessment #3**
7	**TBD**	• Basic concepts of Automated external Defibrillator (AED) including associated science, universal steps of operation, and safety precautions. • AED differences for adult, child, and infant	1. Effectively demonstrate the use of an automated external defibrillator (AED) for adult and pediatric patients **2. AED Practical Assessment #4** **3. Midterm:** Complete on Blackboard

8	**TBD**	• Multi-Rescuer Team Response including elements of effective team dynamics, roles and responsibilities, effective communication, and coaching and debriefing	1. Practice multi-rescuer BLS team response with peers while rotating positions, and practicing effective communication including coaching, and debriefing 2. **Multi-rescuer BLS team response Practical Assessment #5**
9	**TBD**	• Techniques for removal of foreign-body airway obstruction during choking emergencies for both responsive and unresponsive adult and pediatric patients	1. Practice choking relief techniques for adult and pediatric patients **2. Choking relief for adults, children, and infants Practical Assessment #6**
10	**TBD**	**Introduction to First Aid** • Recognize and respond to a variety of medical emergencies including fainting, diabetic emergency, anaphylaxis, seizure, and shock • Recognize and respond to an opioid-associated life-threatening emergency using the Opioid-Associated Life-Threatening Emergency Response Sequence	1. Perform rapid assessment of conscious adult 2. Demonstrate the use of Naloxone administration according to package directions 3. Identify when to use an Epinephrine autoinjector and demonstrate correct administration and safe disposal **4. Naloxone and Epinephrine autoinjector Practical Assessment #7**
11	**TBD**	• Injury emergencies including bleeding, wounds, head, neck, and spine injuries, broken bones, sprains, burns, and electrical injuries	1. Practice application of direct pressure to stop bleeding and bandaging **2. Bleeding and bandaging Practical Assessment #8**
12	**TBD**	• Environmental emergencies including bites and stings, heat and cold related emergencies, and poison emergencies • Course wrap-up	1. Final Exam Review 2. Certification wrap-up
	TBD	**FINAL EXAM**	

Please note that Kingsborough Community College has a non-traditional 12-week semester. The College utilizes the Carnegie Unit to defined one semester credit. The Carnegie semester credit is equivalent to a minimum of one hour (defined as 50 minutes) of instructional work plus two hours (100 minutes) of individual work per week per semester. This is based on a 15-week semester. Based on the 12-week semester, Kingsborough Community College defines a credit hour as 60 minutes per week plus a session (typically two hours) for a final exam in the 13th week.

APPENDIX E: Health Coach Training Overview and Link to Complete Manual

Health Coach

Training Program Curriculum Overview

The curriculum described in this document was created by Kingsborough Community College of the City University of New York, supported by the New York City Department of Small Business Services and the New York Alliance for Careers in Healthcare.

Kingsborough Community College
Babette Audant, Ph.D.
Director, Center for Economic & Workforce Development
Jose Nanin, EdD, MCHES
Co-director, Community Health Program, Dept. of Health, Physical Education, & Recreation

Introduction

Kingsborough Community College's Health Coach Curriculum is a two-part, 90-hour training intended for health care workers who are looking to enhance their communication and relationship building skills. The training can be delivered to incumbent workers seeking a skill upgrade, such as medical assistants and community health workers.

Health care workers will learn how to provide patients with resources in general education on chronic diseases, in the areas of prevention and wellness. They will learn how to assess for cultural competency and health literacy while supporting and encouraging patients in becoming informed and active participants in managing their health and making lifestyle changes.

Training Program Overview

The activities in this training course are designed for affective, behavioral, and cognitive learning. Participants can learn through relating, sharing, and listening among professional colleagues that express similar concerns in the field. By working collaboratively, participants will have the opportunity to compare styles, approaches, and ideas with colleagues. Experiential learning is beneficial in that it allows the participants of the course to explore their own feelings and take charge of their own learning. Participants practice skills through the simulation of role plays. Participant will also have opportunities to discuss values and biases, providing them with chances to discuss opposing viewpoints with classmates and colleagues in their field.

The Health Coach Curriculum consists of the following courses:

Introduction to Health Coaching	45 hours	Credit transfer for COH 8202 – Patient Engagement, 3 credits
Chronic Diseases	45 hours	Credit transfer for HPE 1200 – Concepts of Health and Wellness, 3 credits
Total	**90 hours**	

To review the complete manual of this training curriculum, please go to this link .

APPENDIX F: Articulation Agreement

KINGSBOROUGH COMMUNITY COLLEGE
DREAMS BEGIN HERE

CUNY School of Professional Studies

ARTICULATION AGREEMENT

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: Kingsborough Community College (KCC)
Department: Health, Physical Education and Recreation
Program: Health Sciences
Degree: A.S.

Receiving College: CUNY School of Professional Studies (CUNY SPS)
Department: Health Information Programs
Program: Health Services Administration
Degree: B.S.

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

Graduates of the KCC A.S. in Health Sciences will qualify for admission into the CUNY SPS Bachelor of Science degree in Health Services Administration if they have maintained a minimum overall GPA of 2.5 and are in good academic standing at KCC. Applicants will follow the standard admissions process, which includes completing a transfer application.

Total transfer credits granted toward the baccalaureate degree: 60

Total additional credits required at the senior college to complete baccalaureate degree: 60

Total credits required for the B.S. in Health Services Administration: 120

C. **Course Equivalences and / Transfer Credit Awarded**

KCC graduates who complete the A.S. in Health Sciences will receive 60 credits toward the B.S in Health Services Administration at CUNY SPS.

Transferred credits will be applied to the Baccalaureate degree as professional credits, course specific transfer credits and electives. Students will meet with an SPS advisor who will review their transcripts to ensure appropriate placement within the program. Taking recommended flexible core courses will assure that students need only 60 additional credits for their bachelor's degree at SPS.

General Education Requirements	
Required Core	**12**
ENG 1200: English Composition I	3
ENG 2400: English Composition II	3
Mathematical and Quantitative Reasoning – Selected by the student	3
Life and Physical Sciences: BIO 1800 – The Biology of the Human Body*	3
Flexible Core	**18**
World Cultures and Global Issues: HS 4100 – Global Health Issues (Recommended)*	3
U.S. Experience in Its Diversity – Selected by the student	3
Creative Expression – Selected by the student	3
Individual and Society: SOC 3100 – Introduction to Sociology* OR SPE 1800 – Health Communication*	3
Scientific World: PSY 1100 – Introduction to Psychology*	3
Three additional credits from the flexible core category: PHI 7600 – Ethics and Morality in Health Professions (Recommended)	3
Total Common Core	**30**
Major Program Requirements	
Major Core Courses	**30**
SPE 1800 – Health Communication OR PSY 1100 – Introduction to Psychology OR SOC 3100 – Introduction to Sociology	3
HS 4000 – Drugs & Society	3
HS 5200 – Human Sexuality	3
HPE 1200 – Concepts of Wellness	3
HE 3800 – Women's Health Issues	3
HE 4200 – Health and Nutrition	3
BIO 1800 – The Biology of the Human Body^^	3
COH 1500 – Health Care in the United States	3
COH 1600 – Patient Engagement	3
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	3
Electives^	**0-12**
Total Program Curriculum Credits	**30**
Total Program Credits	**60**

*Recommended course for this Pathways category. Students who use other courses may apply the courses mentioned above as part of their discipline electives in order to graduate 60 credits.

^ Variable elective credits because of double dipping Pathways courses.

^^BIO 1100 can be substituted for BIO 1800 if the former course has already been completed.

D. SUMMARY OF TRANSFER CREDITS FROM KCC AND CREDITS TO BE COMPLETED AT SPS

	Requirement	Satisfied with Gen. Ed.	Adjusted Requirement	KCC Transfer	Complete at SPS
General Education	36			30	
Required Core	12			12	
Flexible Core	18			18	
College Option	6				6
Major Core	54	6	48	3	45
Major Electives	15			15	
Free Electives	15*			12	9
Total	**120**			**60**	**60**

*Two required major courses (BIO 1800 and PHIL 7600) also satisfy Gen. Ed. This increases the number of free electives needed to reach 120 credits.

E. COURSE EQUIVALENCIES

KCC	SPS
BIO 1800: Biology of the Human Body (LPS)	BIO 200: Human Biology (core)
COH 1500: Healthcare in the United States (major core)	HIM 205: Healthcare Delivery Systems (core)
PHI 7600: Ethics and Morality in Health Professions (flexible core)	PHIL 201: Bioethics for Health Professions (core)
HS 4000: Drugs & Society (major core)	HSA elective
HS 5200: Human Sexuality (major core)	HSA elective
HPE 1200: Concepts of Wellness (major core)	HSA elective
HE 3800: Women's Health Issues (major core)	HSA elective
HE 4200: Health and Nutrition (major core)	HSA elective

F. SENIOR COLLEGE REQUIREMENTS FOR THE BACCALAUREATE DEGREE

Students will be required to take the following courses at CUNY SPS after completing the A.S. in Community Health with a concentration in Health Services Administration at KCC. Courses with an asterisk will not be required by students who have fulfilled the course equivalency at KCC, as outlined in section E.

Courses	Credits
General Education Requirements	
College Option: 6 credits (PHIL 110 – Critical Thinking, COM 110 – Digital Literacy, PLA 300 – Portfolio Development for Prior Learning Assessment, QUAN 201 – Quantitative Reasoning and Society, COM 210 – Writing at Work)	6
Required Major Requirements	
Core Courses – 54 credits, 9 credits satisfied with KCC courses*	**45**
BIO 200 – Human Biology*	
BUS 305 – Accounting Fundamentals	3
COM 210 – Writing at Work	3
HIM 200 – Medical Terminology	3
HIM 205 – Health Care Delivery Systems*	
HIM 210 – Introduction to Spreadsheets	3
HIM 332 – Quality and Performance Improvement	3
HIM 360 – Privacy and Security of Health Information	3
HIM 365 – Management in Health Care	3
HIM 370 – Organizational Development and Planning	3
HESA 369 – Health Information Technology	3
HESA 450 – Compliance, Regulatory, and Legal Issues in Health Care	3
HESA 499 – Health Services Administration Capstone	3
MATH 215 – Introduction to Statistics	3
PHE 200 – Introduction to Public Health	3
PHIL 201 – Bioethics for Health Professions*	
PROM 210 – Project Management	3
RM 201 – Introduction to Research Methods	3
Major Electives – 15 credits, 15 credits* satisfied with KCC courses	
BUS 200 – Introduction to Business	
BUS 325 – Principles of Management Information Systems	
ECO 201 – Microeconomics	
ECO 202 – Macroeconomics	
BIO 310 – Pathophysiology and Pharmacology	
BUS 306 – Managerial Accounting	
CM 333 – Corporate Communications	
SPAN 110 – Spanish for Health Professions	
Electives – 9 credits	**9**
Total Number of Credits to be Completed at CUNY SPS	**60**
Total Credits Transferred from KCC	**60**
Total Credits Required for the Baccalaureate Degree	**120**

*HSA major electives will be fulfilled by the following courses transferred from KCC: HS 4000, HS 5200, HPE 1200, HE 3800, and HE 4200.

G. ARTICULATION AGREEMENT FOLLOW - UP PROCEDURES

1. **Procedures for reviewing, updating, modifying or terminating the agreement:**

   When either of the degree programs involved in this agreement undergoes a change, the agreement will be reviewed and revised accordingly by a representative from each institution.

2. **Procedures for evaluating agreement, i.e., tracking the number of students who transfer under the articulation agreement and their success:**

   The CUNY Institutional Research Database will be used to track all transfer students, including their performance (credit accumulation and GPA) and persistence (retention and graduation).

3. **Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisers, Websites, etc.:**

   This articulation agreement will be publicized on the KCC and CUNY SPS College websites. Transfer advisors at KCC will promote this agreement with eligible students

H. **Additional Information (e.g., financial aid, transfer scholarships)**

Transfer students are eligible to apply for financial aid that is normally available to other junior standing students.

Students who register for a minimum of 12 credits per semester are eligible for all federal and state grant programs for which they meet income eligibility requirements.

Effective Date: Fall 2022

Signatures

Kingsborough Community College, CUNY

Joanne Russell 4/15/2022

Dr. Joanne Russell Date

VP for Academic Affairs & Provost

CUNY School of Professional Studies

4/15/22

Dr. George Otte Date

Senior Associate Dean, Academic Affairs

donald hume 4/15/2022

Dr. Donald Hume Date

Chairperson, Department of Health, Physical Education and Recreation

Ellen S. Karl 4/15/2022

Prof E. Karl, MBA, RHIA, CHDA, FAHIMA Date

Academic Director, Health Information Programs

APPENDIX G: CUNY Financial Tables

Table 5: New Resources

Expenditures	Year 1 Academic Year 2023-2024	Year 2 Academic Year 2024-2025	Year 3 Academic Year 2025-2026	Year 4 Academic Year 2026-2027	Year 5 Academic Year 2027-2028
Full Time Faculty	$-	$-	$141,600.00	$141,600.00	$292,050.00
Part Time Faculty	$42,510.60	$88,004.40	$71,596.80	$132,006.60	$149,160.00
Full Time Staff	$-	$-	$-	$-	$-
Part Time Staff	18,953.26	19,332	$19,718.95	20,112.98	20,514.47
Library (Includes Staffing)	$1,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00
Equipment	$-	$-	$-	$-	$-
Laboratories	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Supplies & Expenses (Other than Personal Services)	$1,000.00	$1,000.00	$1,250.00	$1,500.00	$1,750.00
Capital Expenditures	$-	$-	$-	$-	$-
Other	$-	$-	$-	$-	$-
Total all	$65,463.86	$111,336.78	$237,165.75	$298,219.58	$466,474.47

Projected Revenue Related to the Proposed Program

Revenues[1]	1st Year 2023-2024	2nd Year 2024-2025	3rd Year 2025-2026	4th Year 2026-2027	5th Year 2027-2028
Tuition Revenue[3]					
01. From Existing Sources[4]	$118,200	$211,080	$293,050	$370,449	$432,769
02. From New Sources[5]	$84,960	$177,192	$270,480	$400,912	$570,607
03. Total	**$203,160**	**$388,272**	**$563,530**	**$771,361**	**$1,003,376**
State Revenue[6]					
04. From Existing Sources§	$53,284	$93,974	$125,944	$154,524	$174,384
05. From New Sources**	$39,721	$80,410	$120,131	$174,868	$244,622
06. Total	**$93,005**	**$174,384**	**$246,075**	**$329,392**	**$419,006**
Other Revenue[7]					
07. From Existing Sources§	$0	$0	$0	$0	$0
08. From New Sources**	$0	$0	$0	$0	$0
09. Total	**$0**	**$0**	**$0**	**$0**	**$0**
Grand Total[8]					
10. From Existing Sources§	$171,484	$305,054	$418,994	$524,973	$607,153
11. From New Sources**	$124,681	$257,602	$390,611	$575,780	$815,229
TOTAL	**$296,165**	**$562,656**	**$809,605**	**$1,100,753**	**$1,422,382**

The Five-Year Financial Projects for Program

DIRECT OPERATING EXPENSES	Year 1	Year 2	Year 3	Year 4	Year 5
	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
Current Full Time Faculty Overload (include Summer)					
New Full Time Faculty Base Salary (list separately)			$80,000.00	$80,000.00	$165,000.00
New Full Time Faculty Overload (include Summer)					
New Faculty Re-assigned Time (6 hrs. per year)			$20,000.00	$20,000.00	$41,250.00
Full Time Employee Fringe Benefits (41.6%)	$0.00	$0.00	$41,600.00	$41,600.00	$85,800.00
Total (Links to Full-Time Faculty on Program Exp Worksheet)	**$-**	**$-**	**$141,600.00**	**$141,600.00**	**$292,050.00**
New sections needed (in addition to those taught by FT faculty)	5.7	11.8	9.6	17.7	20
Part Time Faculty Actual Salaries	34,200.00	70,800.00	57,600.00	106,200.00	120,000.00
Part Time Faculty Actual Fringe Benefits (24.3%)	8,310.60	17,204.40	13,996.80	25,806.60	29,160.00
Total (Links to Part-Time Faculty Program Exp Worksheet)	**$42,510.60**	**$88,004.40**	**$71,596.80**	**$132,006.60**	**$149,160.00**
Full Time Staff Base Salary (list separetely)					
Full Time Staff Fringe Benefits (41.6%)	0	0	0	0	0
Total (Links to Full-Time Staff on Program Exp Worksheet)	**$-**	**$-**	**$-**	**$-**	**$-**
	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
PART-TIME STAFF					
Part Time Staff Base Salary (list separately)					
Faculty Replacement Costs (replacement of full-time faculty - e.g. on release time - with part-time faculty)					
Graduate Assistants					
Student Hourly/CA $16/hr	$15,248.00	$15,553.00	$15,864.00	$16,181.00	$16,504.00
Part Time Employee Fringe Benefits (24.3%)	$3,705.26	$3,779.38	$3,854.95	$3,931.98	$4,010.47
Total (Links to Part-Time Staff on Program Exp Worksheet)	**$18,953.26**	**$19,332.38**	**$19,718.95**	**$20,112.98**	**$20,514.47**
LIBRARY					
Library Resources	$1,000.00	$1,000.00	$1,000.00	$1,000.00	$1,000.00
Library Staff Full Time (List Separately)					
Full Time Staff Fringe Benefits (41.6%)	**0**	**0**	**0**	**0**	**0**
Library Staff Part Time (List Separately)					

Part Time Employee Fringe Benefits (24.3%)	**0**	**0**	**0**	**0**	**0**
TOTAL (Links to Library on Program Exp Worksheet)	**$1,000.00**	**$1,000.00**	**$1,000.00**	**$1,000.00**	**$1,000.00**
EQUIPMENT					
Computer Hardware					
Office Furniture					
Other (Specify)					
Total (Links to Equipment on Program Exp Worksheet)	**$-**	**$-**	**$-**	**$-**	**$-**
LABORATORIES					
Laboratory Equipment	$2,000.00	$2,000.00	$2,000.00	$2,000.00	$2,000.00
Other (list separately)					
TOTAL (Links to Laboratories on Program Exp Worksheet)	**$2,000.00**	**$2,000.00**	**$2,000.00**	**$2,000.00**	**$2,000.00**

	Year 1	**Year 2**	**Year 3**	**Year 4**	**Year 5**
SUPPLIES AND EXPENSES (OTPS)					
Consultants and Honoraria					
Office Supplies	$1,000.00	$1,000.00	$1,250.00	$1,500.00	$1,750.00
Instructional Supplies					
Faculty Development					
Travel and Conferences					
Membership Fees					
Advertising and Promotion					
Accreditation					
Computer Software					
Computer License Fees					
Computer Repair and Maintenance					
Equipment Repair and Maintenance					
New Total Supplies and OTPS Expenses (Links to Supplies on Program Exp Worksheet)	**$1,000.00**	**$1,000.00**	**$1,250.00**	**$1,500.00**	**$1,750.00**
CAPITAL EXPENDITURES					
Facility Renovations					
Classroom Equipment					
Other (list separately)					
TOTAL (Links to Capital Expenditures on Program Exp Worksheet)	**$-**	**$-**	**$-**	**$-**	**$-**

Other (list separately)					
TOTAL (Links to Other on Program Exp Worksheet)	**$-**	**$-**	**$-**	**$-**	**$-**

The Five-Year Revenue Projections for Program

COMMUNITY COLLEGE WORKSHEET

Year 1 = Fall 2023

	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028
EXISTING FULL-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of EXISTING FULL-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	18	32	42	51	56
Tuition Income (calculates 2% increase per year after Fall 2015)	$4,800	$4,896	$4,994	$5,094	$5,196
Total Tuition	$86,400	$156,672	$209,745	$259,784	$290,958
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$86,400**	**$156,672**	**$209,745**	**$259,784**	**$290,958**
Tuition & Fees:					
# of EXISTING FULL-TIME, Out-of-State Students (linked from "Enroll & Seat Need Projections")	2	3	5	7	9
Annual Avg # of Credits per FT student (24-30)	24	24	24	24	24
Tuition Income (Specify Rate per credit. Calculates 2% annual increase after Fall 2015)	$320	$326	$333	$339	$346
Total Tuition	$15,360	$23,472	$39,902	$56,981	$74,726
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$15,360**	**$23,472**	**$39,902**	**$56,981**	**$74,726**
TOTAL EXISTING FULL-TIME TUITION REVENUE	**$101,760**	**$180,144**	**$249,647**	**$316,764**	**$365,684**

EXISTING PART-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of EXISTING PART-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	5	9	12	14	17
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer -- i.e. 6 Fall, 6 Spring, 3 Summer=15)	12	12	12	12	12
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2015)	$210	$214	$218	$223	$227
Total Tuition	$12,600	$23,112	$31,432	$37,404	$46,328
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0

Total In-State Tuition & Fees	**$12,600**	**$23,112**	**$31,432**	**$37,404**	**$46,328**
Tuition & Fees:					
# of EXISTING PART-TIME Out of State Students (linked from "Enrollment and Seat Need Projections")	1	2	3	4	5
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer -- i.e. 6 Fall, 6 Spring, 3 Summer=15)	12	12	12	12	12
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2015)	$320	$326	$333	$339	$346
Total Tuition	$3,840	$7,824	$11,971	$16,280	$20,757
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0				
Total Out-of-State Tuition & Fees	**$3,840**	**$7,824**	**$11,971**	**$16,280**	**$20,757**
TOTAL EXISTING PART TIME REVENUE	**$16,440**	**$30,936**	**$43,403**	**$53,685**	**$67,085**
TOTAL EXISTING REVENUE (LINKS TO REVENUE SPREADSHEET ROW 5)	**$118,200**	**$211,080**	**$293,050**	**$370,449**	**$432,769**
NEW FULL-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of NEW FULL-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	14	28	42	61	85
Tuition Income (Calculates 2% increase per year after Fall 2015)	$4,800	$4,896	$4,994	$5,094	$5,196
Total Tuition	$67,200	$137,088	$209,745	$310,722	$441,632
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$67,200**	**$137,088**	**$209,745**	**$310,722**	**$441,632**
Tuition & Fees:					
# of NEW FULL-TIME, Out-of -State Students (linked from "Enroll & Seat Need Projections")	1	2	3	4	5
Annual Avg # of Credits per FT student (24-30)	24	24	24	24	24
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2015)	$320	$326	$333	$339	$346
Total Tuition	$7,680	$15,648	$23,941	$32,560	$41,514

Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$7,680**	**$15,648**	**$23,941**	**$32,560**	**$41,514**
TOTAL NEW FULL-TIME TUITION REVENUE	**$74,880**	**$152,736**	**$233,686**	**$343,282**	**$483,147**

NEW PART-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of NEW PART-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	4	8	11	17	26
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer -- i.e. 6 Fall, 6 Spring, 3 Summer=15)	12	12	12	12	12
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2015)	$210	$214	$218	$223	$227
Total Tuition	$10,080	$20,544	$28,813	$45,420	$70,855
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$10,080**	**$20,544**	**$28,813**	**$45,420**	**$70,855**
Tuition & Fees:					
# of NEW PART-TIME, Out-of-State Students	0	1	2	3	4
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer -- i.e. 6 Fall, 6 Spring, 3 Summer=15)	12	12	12	12	12
Tuition Income (Specify Rate per credit) calculates 2% increase per year	$320	$326	$333	$339	$346
Total Tuition	$0	$3,912	$7,980	$12,210	$16,606
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$3,912**	**$7,980**	**$12,210**	**$16,606**
TOTAL NEW PART-TIME REVENUE	**$10,080**	**$24,456**	**$36,793**	**$57,630**	**$87,461**

TOTAL NEW REVENUE (LINKS TO REVENUE SPREADSHEET ROW 7)	**$84,960**	**$177,192**	**$270,480**	**$400,912**	**$570,607**

STATE REVENUE	Year One	Year Two	Year Three	Year Four	Year Five
# EXISTING FTEs	22	38.8	52	63.8	72
Appropriaton per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
STATE REVENUE FROM EXISTING SOURCES -LINKS TO REVENUE SPREADSHEET ROW 9	**$53,284**	**$93,974**	**$125,944**	**$154,524**	**$174,384**
# NEW FTEs	16.4	33.2	49.6	72.2	101
Appropriaton per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
STATE REVENUE FROM NEW SOURCES -LINKS TO REVENUE SPREADSHEET ROW 11	**$39,721**	**$80,410**	**$120,131**	**$174,868**	**$244,622**

OTHER REVENUE	Year One	Year Two	Year Three	Year Four	Year Five
Other Revenue From Existing Sources (specify and explain)-LINKS TO REVENUE SPREADSHEET ROW 13)					
Other Revenue New (specify and explain) (LINKS TO REVENUE SPREADSHEET ROW 15)					

Enroll and Seat Projections

Projected Enrollment	Year One	Year Two	Year Three	Year Four	Year Five
Existing Full-time Students	20	35	47	58	65
In-State	18	32	42	51	56
Out-of-State	2	3	5	7	9
Existing Full-time Total	**20**	**35**	**47**	**58**	**65**
Existing Part-time Students	6	11	15	18	22
In-State	5	9	12	14	17
Out-of-State	1	2	3	4	5
Existing Part-time Total	**6**	**11**	**15**	**18**	**22**
New Full-time Students	15	30	45	65	90
In-State	14	28	42	61	85
Out-of-State	1	2	3	4	5
NEW Full-time Total	**15**	**30**	**45**	**65**	**90**
New Part-time Students	4	9	13	20	30
In-State	4	8	11	17	26
Out-of-State	-	1	2	3	4
New Part-time Total	**4**	**9**	**13**	**20**	**30**

NOTES: New students are students who would not otherwise have be enrolled in your college if this program were not offered. The proposal text should explain the basis for this enrollment estimate.

Existing Students are students currently enrolled in another program at your college, or students who would have enrolled in another program at your college, had the new program not been established.

Section Seats per Student	Year One	Year Two	Year Three	Year Four	Year Five
Full-time Students	35	65	92	123	155
Existing Courses	9	8	8	8	8
New Courses	1	2	2	2	2
Total (normally equals 10)	**10**	**10**	**10**	**10**	**10**
Part-Time Students	10	20	28	38	52
Existing Courses	4	4	4	4	4
New Courses	1	2	2	2	2
Total (normally equals 4-6)	**5**	**6**	**6**	**6**	**6**

Seat & Section Needs	Year One	Year Two	Year Three	Year Four	Year Five
Seat Need for Existing Students					
Existing Courses	(26)	(92)	(124)	(152)	(174)
New Courses	26	92	124	152	174
Seat Need for New Students					
Existing Courses	151	276	412	600	840
New Courses	19	78	116	170	240
Total Seat Need					
Existing Courses	125	184	288	448	666
Avail. Seats in Existing Courses					
Net Seat Need in Existing	125	184	288	448	666
New Courses	45	170	240	322	414
All Courses	**170**	**354**	**528**	**770**	**1,080**
Average Seats per Section					
Existing Courses	30	30	30	30	30
New Courses	30	30	30	30	30
Net New Section Need					
Existing Courses	4.2	6.1	9.6	14.9	22.2
New Courses	1.5	5.7	8.0	10.7	13.8
Total	**5.7**	**11.8**	**17.6**	**25.7**	**36.0**

APPENDIX H: NYSED Registration of New Program & Distance Education

THE STATE EDUCATION DEPARTMENT/THE UNIVERSITY OF THE STATE OF NEW YORK/
ALBANY, NY 12234

Application for the Registration of New Graduate and Undergraduate Curricula/Programs – Including Programs to be Offered in Distance Education Format

Important Information

1. This application is for use by institutions of higher education that hold an absolute charter or permanent authority to award degrees seeking to register **general academic curricula**.

2. **Do not** use this application for the following program proposals:

   - Programs preparing teachers, educational leaders, or other school personnel
   - Programs preparing licensed professionals
   - Programs leading to doctoral level degrees
   - Programs leading to a credit-bearing Certificates or Advanced Certificates
   - Proposals for revisions to existing registered programs (including title changes, curricular changes, etc.)

3. Program registration is based upon standards in the Regulations of the Commissioner of Education (8 NYCRR Chapter II, Subchapter A). The Department registers individual curricula/programs rather than the institution as a whole, but the registration process includes, in some instances, an assessment of institutional-level compliance with some of the standards.

4. This application includes attestations/assurances, by the Chief Administrative or Academic Officer/Provost of the institution, on behalf of the institution, concerning the institution's compliance with statutory and regulatory requirements related to the standards for curricula/program registration and operation of higher education programs in New York State.

5. The Department will audit compliance and, if an institution is found to be out of compliance with one or more standard to which it attested compliance, that finding may lead to denial of: (1) re-registration of the program, pursuant to §52.1(l) of the Regulations of the Commissioner of Education and (2) the ability of the institution to utilize attestations in future applications for program registration; and in certain circumstances may warrant deregistration of the program.

6. Program proposals from SUNY and CUNY System institutions must be submitted to the Department by the System Administration. Contact the System Administration for information concerning relevant proposal submission requirements.

7. The Department reserves the right to request additional information and/or clarification of any information provided by the institution that may be necessary for the Department to make a registration decision concerning the proposed program.

Submission Instructions

Applications for program registration will be accepted in **electronic format only** via the instructions below. Hard copy applications will not be accepted or reviewed by the Department and will not be retained.

1. Create a single PDF document that includes the following documents:

    - The completed Application for the Registration of New Graduate and Undergraduate Curricula/Programs, with all required signatures included;
    - Any request for a Master Plan Amendment and associated information and materials that may be required concerning this program proposal (see below); and
    - Any external review of the proposed program that is required (see below).

2. Attach the PDF document to an e-mail.

3. Send the e-mail (with attachment) to OCUERevAdmin@nysed.gov.

4. The subject line of the email should include the name of the institution, the degree award and the program title. For example:

    Subject: ABC College, Master of Science, English Literature.

Master Plan Amendments

If this program proposal necessitates a Master Plan Amendment, additional information and materials related to that request will be required. Please refer to information on the Department's web site at: http://www.highered.nysed.gov/ocue/aipr/guidance/gpr2.html for information on Master Plan Amendments to determine if such an amendment is required for this program proposal and to access the Master Plan Amendment Supplement.

External Review

Please refer to http://www.highered.nysed.gov/ocue/aipr/guidance/gpr9.html for information about when an external review of a proposed program is required. If such a review is required, that material must be submitted with the program registration application.

General Information

Institution (Legal Name)	Institution Code
Kingsborough Community College	372500
Proposed Program Title	Degree Award
Health Sciences	AS
Address of Any Campus Where the Proposed Program Will Be Offered (main and/or branch campuses)	Full-time or Part-time [70]
2001 Oriental Boulevard Brooklyn, NY 11235-2398	FT and PT
All Program Format(s) (standard, distance education[71], evening, weekend and/or other)	HEGIS Code
Standard, distance education	5299.0(suggested)
Joint Registration IHE (if applicable)	Total Number of Credits
N/A	
Lead Contact [First Name, Last Name, Title]	Telephone Number
Dr. Joanne Russell Provost and Senior Vice President for Academic Affairs	718 368 5661
Email Address	

[70] Please refer to §52.2(c) and §145-2.1 of the Regulations of the Commissioner for definitions and information concerning full and part time study. Note: Only programs registered as full time are eligible for TAP. Programs are subject to audit by the NYS Office of the State Comptroller and the Higher Education Services Corporation (HESC) for financial aid compliance purposes.

[71] If a major portion of the program (50% or more) can be completed through study delivered by distance education then the program must be registered in the distance education format. Hybrid or blended courses do not count toward the 50%.

Joanne.Russell@kbcc.cuny.edu	

Attestation and Assurances

On behalf of the institution, I hereby attest to the following:

That all educational activities offered as part of this proposed curriculum are aligned with the institutions' goals and objectives and meet all statutory and regulatory requirements, including but not limited to Parts 50, 52, 53 and 54 of the Rules of the Board of Regents and the following specific requirements:

That credit for study in the proposed program will be granted consistent with the requirements in §50.1(o).

That, consistent with §52.1(b)(3), a reviewing system has been devised to estimate the success of students and faculty in achieving the goals and objectives of the program, including the use of data to inform program improvements.[72]

That, consistent with §52.2(a), the institution possesses the financial resources necessary to accomplish its mission and the purposes of each registered program, provides classrooms and other necessary facilities and equipment as described in §52.2(a)(2) and (3), sufficient for the programs dependent on their use, and provides libraries and library resources and maintains collections sufficient to support the institution and each registered curriculum as provided in §52.2(a)(4), including for the program proposed in this application.

That, consistent with 52.2(b), the information provided in this application demonstrates that the institution is in compliance with the requirements of §52.2(b), relating to faculty.

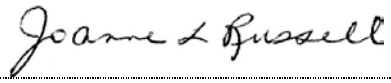
That all curriculum and courses are offered and all credits are awarded, consistent with the requirements of §52.2(c).

That admissions decisions are made consistent with the requirements of §52.2(d)(1) and (2) of the Regulations of the Commissioner of Education.

That, consistent with §52.2(e) of the Regulations of the Commissioner of Education: overall educational policy and its implementation are the responsibility of the institution's faculty and academic officers, that the institution establishes, publishes and enforces explicit policies as required by §52.2(e)(3), that academic policies applicable to each course as required by §52.2(e)(4), including learning objectives and methods of assessing student achievement, are made explicit by the instructor at the beginning of each term; that the institution provides academic advice to students as required by §52.2(e)(5), that the institution maintains and provides student records as required by §52.2(e)(6).

That, consistent with §52.2(f)(2) of the Regulations of the Commissioner of Education, the institution provides adequate academic support services and that all educational activities offered as part of a registered curriculum meet the requirements established by state, the Rules of the Board of Regents and Part 52 of the Commissioner's regulations.

[72] The Department reserves the right to request this data at any time and to use such data as part of its evaluation of future program registration applications submitted by the institution.

CHIEF ADMINISTRATIVE or ACADEMIC OFFICER/ PROVOST	
Signature 	Date 4/22/2022
Type or print the name and title of signatory Joanne Russell	Phone Number 718 368 5661

Program Purpose, Objectives and Targets

Program Purpose

Department Expectation: Clearly define a program purpose that is aligned to the degree award and program title.

The Associate of Science degree in Health Sciences prepares students to enter the health services field by providing courses that will allow them to attain foundational knowledge and skills in health information, health education, and health care.
Opportunities to obtain microcredentials in Health Coaching, Basic Life Support (BLS), and First Aid are embedded within the degree requirements to provide each student industry-recognized credentials that will facilitate employment in health-related fields.
The proposed degree is expected to also provide various paths for transfer to 4-year degree programs in health sciences and other related majors in CUNY and beyond.

Program Objectives

Department Expectation: Articulate between 1 and 3 program-level (curriculum-level) objectives that are clearly defined and directly aligned with the program purpose and proposed degree award.

1. demonstrate fundamental knowledge in health care services related to individual health behaviors, health communication, psychology, and/or sociology
2. demonstrate technological and communication skills in health care services (reading, writing, and/or speaking)
3. employ critical thinking skills when explaining basic health concepts and demonstrating the application of health care practices

Program Targets - *Department Expectation: Establish realistic enrollment, retention, graduation, and job placement targets for this program that are connected to the reviewing system by which the success of students and faculty in achieving such goals and objectives of the program are determined. Note: There are not specific Department defined targets required for the registration of curricula. The Department expects institutions to establish targets that reflect the espoused quality of the program, and to periodically and systematically review such targets are they related to program implementation.*

Enrollment Projections
The Department assumes that Year 5 enrollment projections will be full-capacity relative to existing and new resources planned.

Year 1	Year 2	Year 3	Year 4	Year 5
45	75	120	160	205

Annual Retention Rate Target (%)	Target graduation rate (%)	Target Job Placement Rate (%)
70%	35%	85% transfer/employed

Curriculum and Course Information

Please provide the following:

1. The applicable sample student program schedule table:
   • Table A: Undergraduate Program Schedule; or
   • Table B: Graduate Program Schedule

   When completing the program schedule table please refer to the requirements in §52.2(c) of the Regulations of the Commissioner concerning completion of Associate, Baccalaureate and Master's degree programs.

2. Please list the course titles for all new courses included as part of the proposed program, and, either attach the course syllabi or, if such syllabi are not yet available, provide course descriptions and objectives in the chart below.

New Course Titles	Indicate that course syllabi are attached or, provide course descriptions and objectives (if course syllabi are not available)
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	Included

Table A: Undergraduate Program Schedule: Full-Time (No Selecting Major Requirements that also fulfill Required and Flexible Core)

- *Indicate academic calendar type:* ☒ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: **Year 1 - Fall**		Credits per classification				Term: **Year 1 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 1200 - Composition I	3	3				Required Core: ENG 2400 - Composition II	3	3			ENG 1200
Required Core: Mathematics and Quantitative Reasoning	3	3				HS 5200 - Human Sexuality	3	3	3		
BIO 1800 – The Biology of the Human Body	3	3	3			Flexible Core: Additional Course Selected from Group A - E	3	3			
HS 4000 - Drugs and Society	3	3	3			HE 3800 - Women's Health Issues	3		3		
Flexible Core: Individual and Society (Group D)	3	3				Flexible Core: Creative Expression (Group C)	3	3			
Term credit total:	**15**	**15**	**6**			**Term credit total:**	**15**	**12**	**6**		
Term: **Year 2 - Fall**		Credits per classification				Term: **Year 2 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 4200 - Health and Nutrition	3		3			HPE 1200 – Concepts of Wellness	3		3		
SPE 1800 - Health Communication **or** PSY 1100 - General Psychology **or** SOC 3100 - Introduction to Sociology	3	3	3			COH 1600 – Patient Engagement Techniques in Community Health	3		3		
Flexible Core: U.S. Experience in its Diversity (Group B)	3	3				COH 1500 – Healthcare in the United States	3		3		
Flexible Core: Scientific World (Group E)	3	3				Required Core: Life and Physical Sciences	3	3			
Flexible Core: World Cultures and Global Issues (Group A)	3	3				HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	3		3	X	
Term credit total:	**15**	**12**	**6**			**Term credit total:**	**15**	**3**	**12**		
Term:		Credits per classification				Term:		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Term credit total:						**Term credit total:**					

Program Totals:	Credits: **60**	Liberal Arts & Sciences: **42**	Major: **30**	Elective & Other: **0** *(No double dipping Required & Flexible Core)*

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Table A: Undergraduate Program Schedule: Full-Time (Selecting Major Requirements that also fulfill Required and Flexible Core)

- *Indicate academic calendar type:* ☒ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: **Year 1 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 1200 - Composition I	3	3			
Required Core: Mathematics and Quantitative Reasoning	3	3			
Required Core: Life and Physical Sciences: **BIO 1800 – The Biology of the Human Body (Recommended)**	3	3	3		
Flexible Core: Individual and Society (Group D): **HS 4000 - Drugs and Society (Recommend)**	3	3	3		
Elective	3				
Term credit total:	**15**	**12**	**6**		

Term: **Year 1 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 2400 - Composition II	3	3			ENG 1200
Flexible Core: Additional Course Selected from Group A – E: **HS 5200 - Human Sexuality (Recommended)**	3	3	3		
HE 3800 - Women's Health Issues	3		3		
Flexible Core: Creative Expression (Group C)	3	3			
Elective	3				
Term credit total:	**15**	**9**	**6**		

Term: **Year 2 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 4200 - Health and Nutrition	3		3		
Flexible Core: Scientific World (Group E): **PSY 1100 – General Psychology (Recommended)**	3	3	3		
Flexible Core: U.S. Experience in its Diversity (Group B)	3	3			
Flexible Core: World Cultures and Global Issues (Group A)	3	3			
Elective	3				
Term credit total:	**15**	**9**	**6**		

Term: **Year 2 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HPE 1200 – Concepts of Wellness	3		3		
COH 1600 – Patient Engagement Techniques in Community Health	3		3		
COH 1500 – Healthcare in the United States	3		3		
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	3		3	X	
Elective	3				
Term credit total:	**15**	**0**	**12**		

Term:		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Term credit total:					

Term:		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Term credit total:					

Term:		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Term credit total:					

Term:		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Term credit total:					

Program Totals:	Credits: **60**	Liberal Arts & Sciences: **30**	Major: **30**	Elective & Other: **12** *(Double dipping maximum Required & Flexible Core)*

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Table A: Undergraduate Program Schedule: Part-Time (No Selecting Major Requirements that also fulfill Required and Flexible Core)

- *Indicate academic calendar type:* ☒ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: **Year 1 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 1200 - Composition I	3	3			
Required Core: Mathematics and Quantitative Reasoning	3	3			
Term credit total:	**6**	**6**	**0**		

Term: **Year 1 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 2400 - Composition II	3	3			ENG 1200
HS 5200 - Human Sexuality	3	3	3		
Flexible Core: Individual and Society (Group D)	3	3			
Term credit total:	**9**	**9**	**3**		

Term: **Year 2 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
BIO 1800 – The Biology of the Human Body	3	3	3		
HS 4000 - Drugs and Society	3	3	3		
Term credit total:	**6**	**6**	**6**		

Term: **Year 2 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Flexible Core: Additional Course Selected from Group A - E	3	3			
HE 3800 - Women's Health Issues	3		3		
Flexible Core: Scientific World (Group E)	3	3			
Term credit total:	**9**	**6**	**15**		

Term: **Year 3 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 4200 - Health and Nutrition	3		3		
SPE 1800 - Health Communication **or** PSY 1100 - General Psychology **or** SOC 3100 - Introduction to Sociology	3	3	3		
Term credit total:	**6**	**3**	**6**		

Term: **Year 3 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HPE 1200 – Concepts of Wellness	3		3		
COH 1600 – Patient Engagement Techniques in Community Health	3		3		
COH 1500 – Healthcare in the United States	3		3		
Term credit total:	**9**	**0**	**9**		

Term: **Year 4 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Flexible Core: World Cultures and Global Issues (Group A)	3	3			
Flexible Core: U.S. Experience in its Diversity (Group B)	3	3			
Term credit total:	**6**	**6**	**0**		

Term: **Year 4 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: Life and Physical Sciences	3	3			
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	3		3	X	
Flexible Core: Creative Expression (Group C)	3	3			
Term credit total:	**9**	**6**	**3**		

Program Totals:	Credits: **60**	Liberal Arts & Sciences: **42**	Major: **30**	Elective & Other: **0** *(No double dipping Required & Flexible Core)*

Cr: = credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Table A: Undergraduate Program Schedule: Part-Time (Selecting Major Requirements that also fulfill Required and Flexible Core)

- *Indicate academic calendar type:* ☒ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: **Year 1 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 1200 - Composition I	3	3			
Required Core: Mathematics and Quantitative Reasoning	3	3			
Term credit total:	**6**	**6**	**0**		

Term: **Year 1 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: ENG 2400 - Composition II	3	3			ENG 1200
Flexible Core: Additional Course Selected from Group A – E: **HS 5200 - Human Sexuality (Recommended)**	3	3	3		
Elective	3				
Term credit total:	**9**	**6**	**3**		

Term: **Year 2 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core: Life and Physical Sciences: **BIO 1800 – The Biology of the Human Body (Recommended)**	3	3	3		
Flexible Core: Individual and Society (Group D): **HS 4000 - Drugs and Society (Recommend)**	3	3	3		
Term credit total:	**6**	**6**	**6**		

Term: **Year 2 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 3800 - Women's Health Issues	3		3		
Flexible Core: Creative Expression (Group C)	3	3			
Elective	3				
Term credit total:	**9**	**3**	**3**		

Term: **Year 3 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 4200 - Health and Nutrition	3		3		
Flexible Core: Scientific World (Group E): **PSY 1100 – General Psychology (Recommended)**	3	3	3		
Term credit total:	**6**	**3**	**6**		

Term: **Year 3 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HPE 1200 – Concepts of Wellness	3		3		
COH 1600 – Patient Engagement Techniques in Community Health	3		3		
COH 1500 – Healthcare in the United States	3		3		
Term credit total:	**9**	**0**	**9**		

Term: **Year 4 - Fall**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Flexible Core: U.S. Experience in its Diversity (Group B)	3	3			
Elective	3				
Term credit total:	**6**	**3**			

Term: **Year 4 - Spring**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
HE 2200 – Basic Life Support for the Healthcare Provider and First Aid	3		3	X	
Flexible Core: World Cultures and Global Issues (Group A)	3	3			
Elective	3		3		
Term credit total:	**9**	**3**	**6**		

Program Totals:	Credits: **60**	Liberal Arts & Sciences: **30**	Major: **30**	Elective & Other: **12** *(Double dipping maximum Required & Flexible Core)*

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Faculty Information

Existing Core Faculty

Department Expectations: Identify the specific faculty members that will be responsible for setting the curricular objectives, teaching program courses, advising students, and determining the means by which program and course objectives are measured. ***Identify the program director.*** *Core faculty members must meet minimum academic qualifications as identified in Part 52.2(b) of regulation, and be of sufficient depth and breadth to provide leadership, direction, and discharge other responsibilities critical to the start-up of the program.*

Note: *Faculty curricula vitae or resumes should not be attached to this application and should only be provided if specifically requested by the Department.*

Faculty Member Name, Title, and Rank	Courses to be taught	Full-time or Part-time; if Full-time identify % of time to the program	Highest Earned Degree, Discipline, IHE	Additional qualifications which demonstrate professional competence relative to the specific program.
Dr. Jose Nanin, Professor	HE 5200 Human Sexuality HS 4100 - Global Health Issues	FT, 100%	Columbia University, Teachers College Doctor of Education (Health Education)	Also serves as the Coordinator of Community Health Workforce Initiatives, will serve as Program Director of Health Sciences, and will be responsible for coordinating the courses and activities in the Health Sciences AS program.
Dr. Silvea Thomas, Professor	HPE 1200 – Concepts of Wellness HE 3800- Women's Health issues	FT, 25%	Doctor of Education, Columbia University of New York	Also serves as the Director of the Community Health AS degree program
Dr. Kevicha Echols, Doctoral Lecturer	HS 4100 - Global Health Issues HS 5200 - Human Sexuality HE 4200 - Health and Nutrition HE 3800- Women's Health issues	FT, 50%	Doctor of Philosophy, (Human Sexuality) Widener University	Field Work Coordinator for Community Health

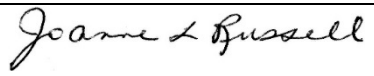
Existing Core Faculty *<u>Department Expectations</u>: Identify the specific faculty members that will be responsible for setting the curricular objectives, teaching program courses, advising students, and determining the means by which program and course objectives are measured.* ***Identify the program director.*** *Core faculty members must meet minimum academic qualifications as identified in Part 52.2(b) of regulation, and be of sufficient depth and breadth to provide leadership, direction, and discharge other responsibilities critical to the start-up of the program.* ***Note:*** *Faculty curricula vitae or resumes should not be attached to this application and should only be provided if specifically requested by the Department.*				
Nancy Nemorin, Lecturer	HPE 1200 – Concepts of Wellness COH 1600- Patient Engagement HS 5200 - Human Sexuality HE 3800- Women's Health issues	FT, 50%	M.S, Urban and Multicultural Education, College of Mount Saint Vincent	Co-wrote the Health Coaching Curriculum, which is currently being taught in the Continuing Education Certificate Program Taught 16 consecutive Health Coaching cohorts
Mary Lou Fierle, Lecturer	HE 4200 - Health and Nutrition	FT, 25%	M.A., Therapeutic Recreation Administration, New York University	Certified Therapeutic Recreation Specialist & Health Care Administrator who Coordinates the Therapeutic Recreation Curriculum
Shannon Caravello, Adjunct Lecturer	HE 2200- Basic Life Support for the Healthcare Provider and First Aid COH 1500- Health Care in the United States	PT	M.S. in Education, Physical Education, Brooklyn College	
Gloria Moore, Adjunct Lecturer	HS 4000 - Drugs: The Individual and Society	PT	M.S. in Health Education, City University	
Veronica Sherman Adjunct Lecturer	HPE 1200 - Concepts of Wellness HS 4000 - Drugs and Society HS 4100 - Global Health Issues	PT	M.S.in Physical Education, Brooklyn College	

Faculty to be Hired

Department Expectations: Identify the specific job title, courses to be taught, and qualifications for each position and the specific timeline by which the faculty member(s) will be hired. The job descriptions and minimum qualifications of faculty to be hired meet the meet minimum academic qualifications as identified in Part 52.2(b) of Commissioner's regulation. The date provided by which faculty to be hired will be in place must be clear and directly connected to when they are needed to discharge their responsibilities during program implementation. The Department reserves the right to request more information concerning recruitment and hiring of faculty if it is needed to make a determination concerning compliance with program registration standards.

Position Title, and Rank	Highest Earned Degree, Discipline, and additional qualifications	Courses to be taught	Date by which they will begin job duties
Assistant Professor	Ph.D.	HPE 1200 - Concepts of Wellness HS 4000 - Drugs and Society HS 4100 - Global Health Issues HE 2200- Basic Life Support for the Healthcare Provider and First Aid COH 15- Health Care in the United States	Year 3

Application to Add the Distance Education Format to a Registered Program

Name of Institution: CUNY Kingsborough Community College	
CEO or Designee: Joanne Russell, Provost and VP for Academic Affairs	
Signature:  Date: April 22, 2022	
The signature of the institutional representative indicates the institution's commitment to support the proposed distance education program.	
Distance Education Contact Person: Dr. Joanne Russell, Provost and Senior Vice President for Academic Affairs	
Telephone: 718 368 5661	Fax: 718 368 5692
E-mail: Joanne.Russell@kbcc.cuny.edu	
Program Title: AS Health Sciences	Program Code:
Degree or Certificate Awarded: ASSOCIATE OF SCIENCE (AS)	HEGIS: 5299.00 (suggested)
Anticipated enrollment in distance program:	
Initial: 45	Maximum by year 3: 120
Term length (in weeks) for the distance program:	Online term lengths will be consistent with Kingsborough's approved academic calendar which is divided into two major terms each consisting of a 12-week session followed by an optional 6-week module

(Is this the same as term length for classroom program?) Yes ☑ No ☐
How much "***instructional time***" is required per week per credit for a distance course in this program? Regardless of modality, the College utilizes the Carnegie Unit to define one semester credit. The Carnegie semester credit is equivalent to a minimum of one hour (defined as 50 minutes) of instructional work plus two hours (100 minutes) of individual work per week per semester. This is based on a 15-week semester. Based on its 12-week semester, Kingsborough Community College defines a credit hour as 60 minutes per week plus a session (typically two hours) for a final examination in the 13th week.
(Do not include time spent on activities that would be done outside "class time", such as research, writing assignments, or chat rooms.)
What proportion or percentage of the program will be offered in Distance Education format? 100%
What is the maximum number of students who would be enrolled in an online course section? 30

B: Program-Specific Issues: Submit this part for each new request to add Distance Education Format to a registered program.

I. LEARNING DESIGN

1. How does your institution ensure that the ***same academic standards and requirements*** are applied to the program on campus and through distance learning? If the curriculum in the Distance Education program differs from that of the on-ground program, please identify the differences.

   The curriculum for the online Associate in Science (AS) in Health Sciences will be exactly the same as the Health Sciences AS program that will be offered face-to-face on the Kingsborough campus.

2. Are the courses that make up the distance learning program offered in a sequence or configuration that allows ***timely completion of requirements***?

   KCC has created degree maps for all programs that provides information to students regarding degree completion pathways. In addition to the traditional 4-semester sequence, program requirements can be completed in 18 months. This is accomplished through strategic use of our unique 18-week terms (12-week session plus an optional six-week module), which will also allow students to save on tuition fees. Courses that are required for the program are offered in each 18-week session. Although the accelerated pathway is feasible for current and incoming students, we anticipate that it might be especially appealing to our targeted population of adult students with some college and no degree since they will also be able to expedite degree completion through transfer credit.

3. How do faculty ensure that ***the technological tools*** used in the program are appropriate for the content and intended learning outcomes?

   Programmatic technology is overseen by the Office of Information Technology Services (OITS). To ensure that students have full access to any course technology, faculty are discouraged from using any tools not supported by OITS in their online courses.

   All faculty who are assigned to teach hybrid or online classes at Kingsborough are required to be certified in online teaching. Although there are several routes to certification, most faculty become certified by successfully completing the course, *Online Teaching Essentials,* that is offered by CUNY School of Professional Studies. In this course, faculty are introduced to principles of effective learning design with a particular focus on alignment between course outcomes, assessment, learning activities and technology. Additional faculty training is offered by Kingsborough Center for e-Learning (KCeL). Finally, KCC has a full-time Instructional Designer who has dedicated time to work with faculty to ensure consistency of course design as well as the usability of the program's pedagogical, communication and research tools.

4. How does the program provide for appropriate and flexible interaction between faculty and students, and among students?

   Students can communicate asynchronously with faculty and their peers through the Learning management System (LMS). Our faculty training emphasizes the importance of communication, engagement and interactive activities in both course design and delivery. Faculty teaching in the program have access to communication methods for synchronous meeting through our LMS and through the videoconferencing system, Zoom.

5. How do faculty teaching online courses verify that students are doing their own work?

   The CUNY Portal serves as a secure gateway to CUNYfirst, the University's Enterprise Resource Planning system and Blackboard, the University's Learning Management System. Each student is assigned a unique username and ID number that are required to access the CUNY Portal. The student alone has access to their account information. Once students log in to the Portal, they can then access their courses through Blackboard. During the online certification process, faculty are provided training in the development of assignments and assessments that minimize cheating.

6. ***For programs that prepare candidates for teacher or educational leadership certification***:
   Explain how the required field/student teaching/practicum/internship experiences meet requirements for the selection of cooperating teachers (licensed/certified in the certification areas of candidates); college faculty supervision and assessment of candidates; and collaboration between the faculty supervisor and cooperating teacher in assessing the candidate within the goals and objectives of the program and the State Learning Standards.

   The online AS in Health Sciences program will not be preparing students for teacher or educational leadership certification.

II. OUTCOMES AND ASSESSMENT

1. Distance learning programs are expected to produce the ***same learning outcomes*** as comparable classroom-based programs. How are these learning outcomes identified -- in terms of knowledge, skills, or credentials -- in course and program materials?

   Program level outcomes are published in the college catalog. Course level outcomes are documented on the course syllabi and in the Blackboard course shell. These learning outcomes are the same, regardless of the modality of instruction.

   The Program Learning Outcomes (PLOs) for this proposed AS in Health Sciences are demonstrative of how the proposed degree provides the breadth of foundational knowledge and skills required within the health field. *Upon successful completion of Health Sciences degree program requirements, graduates will:*

   i. demonstrate fundamental knowledge in health care services related to individual health behaviors, health communication, psychology, and/or sociology;
   ii. explain how health is affected by substance use, unhealthy sexual behavior, improper nutrition, and lack of physical activity;
   iii. practice basic communication skills related to helping individuals enhance their sexual health, reduce substance use, manage better nutrition, adhere to medical advice, engage in health coaching, and navigate health care systems;
   iv. identify their personal values and the ethical standards of practice related to health care services;
   v. demonstrate technological and communication skills in health care services (reading, writing, and/or speaking);
   vi. explain basic concepts related to human anatomy, women's health, and American health care system;
   vii. employ critical thinking skills when explaining basic health concepts and demonstrating the application of health care practices; and,
   viii. apply basic life support and first aid skills to ensure patient and client safety.

   The program uses a curriculum map to identify the program courses that introduce, reinforce, and /or emphasize the program learning outcomes. Each year, the program faculty assess one program learning outcomes in all relevant courses, regardless of the modality (in-person, hybrid, or online).

   Because the program level outcomes in the online AS in Health Sciences program are the same as the outcomes in the face-to-face AS Health Sciences program, the program level assessment—in terms of both process and methodology—is the same regardless of programmatic delivery mode.

III. PROGRAM EVALUATION

1. What process is in place to monitor and ***evaluate the effectiveness*** of the distance learning program on a regular basis?

Kingsborough Community College engages in comprehensive reviews of all degree programs on a six-year cycle. The AS in Health Sciences program will be part of this process and is reviewed as a whole program, whether students take courses online or face-to-face. These reviews consist of a self-study report and a visit by an external evaluator. The self-study report address curriculum, students, assessment of outcomes, faculty, facilities, and instructional support.

Program level assessment of student learning outcomes occurs for all degree programs by gathering data from courses that fulfill one or more of the program outcomes. The faculty gather these data and meet to discuss the results as well as develop strategies to improve student learning. Because the program level outcomes in the online program are identical to the program outcomes in the face-to-face program, the program level assessment is the same regardless of programmatic delivery mode. The faculty will collect information regarding the assessment of student learning outcomes for all courses, face-to-face, online and hybrid.

KCC is committed to tracking and assessing student progress through their academic program, with a focus on retention, timely degree completion and equitable student outcomes for all demographic groups. We have set aggressive goals in each of these categories. A key criterion for the success of the online AS in Health Sciences program is that fully online students—regardless of race, ethnicity, gender, age, and other demographic markers—are as successful as students in the face-to-face AS program.

2. How will the evaluation results will be used for ***continuous program improvement***?

   The frameworks identified above will drive the cycle of continuous adjustments and improvements to curricula, pedagogy and online course design and delivery, as necessitated by the evidence.

3. How will the evaluation process assure that the ***program results in learning outcomes appropriate to the rigor and breadth*** of the college degree or certificate awarded?

   The program learning outcome assessment cycle is set up so that all outcomes are assessed, in rotation, between external reviews. As such, the review can consider the whole program as a single entity, track student growth across courses, and look for opportunities to reinforce key learning experiences. Maintenance of academic rigor across all offerings is always a point of emphasis, along with consideration of how to support student success and eliminate equity gaps between groups of students. Following preparation of a program self-study report, an external evaluator visits the program, considers the report, and submits a review including suggestions and recommendations for improvement.

Board of Trustees of The City University of New York

RESOLUTION TO
Establish a Program in Cybersecurity
Leading to the Associate of Applied Sciences Degree at
Queensborough Community College of
The City University of New York

June 6, 2022

WHEREAS, In October 2021, Microsoft declared that the United States faces a crisis in cybersecurity skills and estimated that there are almost 500,000 open cybersecurity jobs, many of which require only a certification or associate degree; and

WHEREAS, Skilled cybersecurity graduates are in high demand because of a lack of capable personnel and it is expected that this need will persist for at least the next decade; and

WHEREAS, The core skills for cybersecurity graduates tend to overlap with traditional information technology duties, enabling students to seek employment across a variety of employment opportunities; and

WHEREAS, The Engineering Technology department that will sponsor this program has a long, distinguished record of program offerings in technology, some of which are ABET accredited; and

WHEREAS, The 60-credit Cybersecurity program is designed to provide students with the in-depth knowledge and skills needed in computer security and protection via a structured curriculum with 40 credits of courses in key cybersecurity topics; and

WHEREAS, The Cybersecurity program is designed to attract students who have an interest in pursuing careers as computer security analysts, security architects, cryptographers, security administrators, and consultants and there is a large untapped source of students in the Borough of Queens who can benefit from this type of program, especially considering the excellent job outlook; and

WHEREAS, The Cybersecurity program is accessible to students in Queens, Brooklyn, and Nassau County and offers increased educational opportunities for Hispanics, African

Americans, Asians, women, and other underrepresented minorities in STEM disciplines, aligning with the college's strategic planning priorities on diversity, inclusion, and equity.

NOW, THEREFORE, BE IT

RESOLVED, That the proposed program in Cybersecurity leading to the Associate in Applied Sciences be presented to the New York State Education Department for their consideration and registration in accordance with any and all regulations of the New York State Department of Education, including the Master Plan Amendment, effective June 28, 2022, subject to financial ability.

EXPLANATION: The proposed program will provide numerous job opportunities and career paths for students and is designed to address the demand for qualified computer and data security skills that is growing in the private and government sectors nationwide. The intent of the program is aligned with the college's long history of technology programs and with career pathways and equity efforts at the college.

QUEENSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK

PROPOSAL TO ESTABLISH A PROGRAM IN CYBERSECURITY

LEADING TO THE ASSOCIATE OF APPLIED SCIENCES DEGREE

EFFECTIVE FALL 2022

SPONSORED BY THE DEPARTMENT OF ENGINEERING TECHNOLOGY

APPROVED BY

QUEENSBOROUGH COMMUNITY COLLEGE ACADEMIC SENATE
ON 5/10/22

College Representative:
Interim Provost and Vice-President of Academic Affairs, Sandra Palmer

Contact: Sandra Palmer
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Interim Provost and Vice-President of Academic Affairs Signature:

Interim Provost and Vice-President of Academic Affairs Name: Sandra Palmer, Ph.D.

General Information

Institution (Legal Name)	Institution Code
Queensborough Community College, City University of New York	373500
Proposed Program Title	Degree Award
Cybersecurity	A.A.S.
Address of Any Campus Where the Proposed Program Will Be Offered (main and/or branch campuses)	Full-time or Part-time [1]
222-05 56th Avenue Bayside, NY 11364	Full-time
All Program Format(s) (standard, distance education[2], evening, weekend and/or other)	HEGIS Code
Standard	5103.00
Joint Registration IHE (if applicable)	Total Number of Credits
Not applicable	60
Lead Contact [First Name, Last Name, Title]	Telephone Number
Sandra Palmer, Interim Provost and Vice President of Academic Affairs	718-281-5731
Email Address	
SPalmer@qcc.cuny.edu	

[1] Please refer to §52.2(c) and §145-2.1 of the Regulations of the Commissioner for definitions and information concerning full and part time study. Note: Only programs registered as full time are eligible for TAP. Programs are subject to audit by the NYS Office of the State Comptroller and the Higher Education Services Corporation (HESC) for financial aid compliance purposes.

[2] If a major portion of the program (50% or more) can be completed through study delivered by distance education then the program must be registered in the distance education format. Hybrid or blended courses do not count toward the 50%.

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Executive Summary

The Department of Engineering Technology at Queensborough Community College (QCC) proposes an Associate in Applied Science (A.A.S.) degree program in Cybersecurity. This program will allow students to complete two years of college at QCC and begin their careers in the field of Cybersecurity or transfer successfully to a baccalaureate degree in Cybersecurity, Information Security, Information Technology, Computer Science, Computer Networking, or another related degree at four-year CUNY and non-CUNY institutions. This A.A.S. degree program offers increased educational opportunities for Hispanics, African Americans, Asians, women, and other underrepresented minorities in STEM disciplines.

Demand for the program

In October 2021, Microsoft declared that the U.S. faces a crisis in cybersecurity skills and launched a community college program to meet this need. Currently, they estimate that there are almost 500,000 open cybersecurity jobs and many that require only a certification or associate degree.

Skilled Cybersecurity graduates are in high demand due to a lack of capable personnel. It is expected that this need will persist for at least the next decade. Further, the core skills for Cybersecurity graduates tend to overlap with traditional Information Technology duties, enabling students to seek employment across a variety of employment opportunities. It is also expected that the availability of a new associate degree in Cybersecurity program at QCC will serve to improve retention of our engineering technology students by providing an opportunity to enroll in an exciting new field of technology.

Curriculum

The Cybersecurity program proposed by the Queensborough Engineering Technology (ET) department focuses on providing students with the in-depth knowledge and skills needed in computer security and protection via a structured curriculum with 40 credits of courses in key cybersecurity topics. Students in the QCC program will be well grounded in Python, Java programming, Linux, Computer Networking and Security, Ethical Hacking, Security Policies & Procedures, and Database Administration and have a choice of other cybersecurity electives. Graduates will enter a fertile job market or have the option to continue their studies at nearby 4-year colleges with bachelor's programs in Cybersecurity, such as Mercy College, SUNY Farmingdale State College, and the New York Institute of Technology as well as in other technology related programs at CUNY senior colleges.

To ensure the program meets current and future needs in Cybersecurity, the program is designed to meet the rigorous requirements of the National Centers of Academic Excellence in Cybersecurity (NCAE-C). The department and college are committed to the multi-year process of obtaining their CAE-Cyber Defense (CAE-CD) designation that involves approval of the

curriculum, review of a structured self-study, and a continuous improvement process. The first step in the process is the establishment of the Cybersecurity A.A.S. degree program.

Existing programs related to cybersecurity at CUNY are in other boroughs or provide significantly different focus. The AAS degree in Cybersecurity & Networking at Bronx Community College concentrates in computer networking with only a few courses specific to Cybersecurity. At LaGuardia Community College, the degree in Network Administration & Information Security deals with network operating systems and client/server environment, while our program focuses on technical subjects of cybersecurity. None of the existing programs within CUNY are based on the demanding requirements of the NCAE-C program.

Enrollment Projections

The A.A.S. Program in Cybersecurity is designed to attract students who have an interest in pursuing careers as computer security analysts, security architects, cryptographers, security administrators, and consultants. There is a large untapped source of students in the Borough of Queens who can benefit from this type of program, especially considering the excellent job outlook. The enrollment is projected to start with 45 full-time and part-time students in the first year of the program and continue to increase by around 25% or more for the next five years. The department calculates that it will have approximately 315 students in the program by that time.

Cost and Revenue

The QCC Engineering Technology (ET) faculty presently include twenty-two full-time and about thirty-five part-time members. Their education, teaching experience, and areas of expertise are more than sufficient to ensure the highest quality of instruction. The present staff and physical resources of the department are more than adequate to satisfy the needs of the proposed program. Classroom, laboratory, and library resources are also sufficient to sustain effective instruction and support services. In addition, academic advisement for students in the program will be available both from the ET faculty and the advisement professionals in the STEM Academy. There will be no extra cost to the college and all revenue from the increased enrollment will go toward teaching costs and student retention.

Evaluation and Student Outcomes

The A.A.S. degree in Cybersecurity will undergo department self-study and evaluation through the College's academic program reviews which are conducted on a five-year rotation according to a designated schedule. Faculty are encouraged to participate in QCC's Assessment Institute that provides guidance on course and program assessment. General Education Objectives as well as Program Outcomes are assessed in individual courses. The self-study will be conducted by a committee formed by the Engineering Technology Department. Using data provided by Institutional Research and individual course assessments, the committees will discuss student outcomes, curriculum, faculty, and facilities; generate major findings; and formulate recommendations. The committee will prepare a report according to a standardized template.

In response to this report, an action plan is developed, followed by an administrative response that operationalizes the action plan and sets the strategic direction of the program for the next five years.

Abstract

The Queensborough Community College (QCC) Department of Engineering Technology (ET) proposes an Associate in Applied Science (A.A.S.) degree program in Cybersecurity. Cybersecurity is an essential way to promote safety, protection, and data privacy for computers, computer networks, and the Internet. Cyber relates to all aspect of computer data including storing, accessing, processing, transmitting, linking, and protecting data on a computer network system. Security is not just about making data available to authorized and authenticated users, but it is also about ensuring reliability of system's operation with high level of confidentiality and integrity.

QCC students will enroll in courses in computer security, computer networking, programming, operating systems, ethical hacking, as well as general education courses such as English, mathematics, and social sciences during their study of this program. The Cybersecurity degree provides numerous job opportunities and career paths for students. Demand for qualified computer and data security skills is growing in the private and government sectors nationwide. Graduates of this program will deliver protection for malicious activities, malware, and cyber threats to the billions of devices connected to the internet. The need for cybersecurity professionals and hands-on specialists has recently increased and the job market is seeing a strong demand for information and cyber security professionals.

Purpose and Goals

The purpose of the proposed Associate in Applied Science (A.A.S.) in Cybersecurity degree program is to make a career in computer and data security available to QCC students. After graduating, students will be ready for work in the growing number of private sector and government jobs in the local area and across the country. The Cybersecurity curriculum will facilitate students' understanding of computer security, computer networking, programming, operating systems, ethical hacking, and cyber-attacks. Students will enroll in courses in computer software, computer networking, computer security policies, as well as general education courses such as English, mathematics, and social sciences during their study of this program. The education and training that will be provided by QCC will generate a sense of hope, purpose, and stability for them to begin their careers in this field. Additionally, the degree program will offer increased educational opportunities for Hispanics, African Americans, women, and other underrepresented minorities in the technology fields.

The A.A.S. in Cybersecurity will be classified as a STEM degree and provide an entry point into a variety of computer-related STEM careers, which are both lucrative and in demand. While the focus of the degree is immediate employment, students will also be prepared for transfer to bachelor's degree programs in cybersecurity and information security, such as offered by nearby Mercy College, SUNY Farmingdale State College, and the New York Institute of Technology. They could also transfer to wide range of computer information systems programs offered at most of the CUNY Senior Colleges.

With the Department of Engineering Technology's abundant course offerings in mechanical, electrical, and computer technology and our twenty-four current full-time engineering technology faculty members, it is prepared to offer a strong, high quality degree program. The proposed program will not duplicate any existing degree program at the college, but will complement some existing programs, such as the A.A.S. in Internet and Information Technology (more focused on information technology) and the A.S. in Computer Science and Information Security (more focused on programming). This new program will be affordable, high-quality, and prepare students to be successful in a dynamic workforce, which supports the college and university missions. It is also expected that the availability of a new associate degree in Cybersecurity at QCC will serve to improve retention of our engineering technology students by providing an opportunity to enroll in an exciting new field of technology.

Need and Justification

Skilled Cybersecurity graduates are currently in high demand due to a lack of capable personnel. It is expected that this need will persist for at least the next decade. Furthermore, the core skills for Cybersecurity graduates tend to overlap with traditional computer data and information skills enabling them to seek employment across a range of jobs.

Indeed.com lists a variety of New York employment opportunities supported by this proposed degree such as:

- 1,061 Cybersecurity Engineer Jobs ($105K+)
- 477 Cybersecurity Analyst Jobs ($60K+)
- 1,116 DevSecOps Jobs ($110K+)
- 506 Information Security Analyst Jobs ($60K)
- 453 Vulnerability Analyst ($75K+)
- 466 Network Security Analyst ($60K+)
- 520 Cybersecurity Threat Intelligence Jobs ($95K+)
- 2,357 Network Engineer Jobs ($70K+)
- 558 Cloud Architect Jobs ($120K+)
- 2,437 Cloud Security Jobs ($100K+)
- 24,854 Information Technology Jobs ($75K+)

Higher pay scales require baccalaureate degrees in Cybersecurity, Computer Science, or Information Technology, various industry certifications, and a few years of experience. It is important to note that companies need to hire for these positions from the local population. They cannot be outsourced overseas like manufacturing or customer support jobs.

While CUNY current offers several related degrees there is an almost complete lack of Cybersecurity-specific degrees with a significant focus on developing hard skills and obtaining certifications required for employment opportunities. A June 2019 article in Forbes magazine indicates that there is a shortage of cybersecurity employees and a significant deficiency in adequate programs to train the workforce.[3] It claims that only 42% of the top 50 Computer Science programs in the U.S. offer adequate training in Cybersecurity. Furthermore, a vast majority of Cyber and Information Security employees are self-taught and only a minimum of security-oriented skills is typically obtained in the classroom. Thus, not only is there a lack of programs, but there is also a lack of emphasis on skill development objectives in current programs. This deficiency is specifically addressed by the selection and implementation of courses in the proposed Cybersecurity curriculum. A current search for appropriate skill-based programs that are federally recognized by the Center of Academic Excellence Cyber Defense within the five boroughs of New York City is limited to NYU, Pace University, Mercy College, Fordham University, and the New York Institute of Technology, none of which offer an Associate-level program.[4]

[3]Forbes Magazine, The Cybersecurity Skills Gap Won't Be Solved in a Classroom, 06/19/19 https://www.forbes.com/sites/martenmickos/2019/06/19/the-cybersecurity-skills-gap-wont-be-solved-in-a-classroom/#5b7db10d1c30

[4] Center of Academic Excellence Cyber Defense – NSA/DHS National CAE in Cyber Defense Designated Institutions, http://www.iad.gov/NIETP/reports/cae_designated_institutions.cfm#N

A November 2020 article by Forbes magazine[5] focused upon expectations of specific areas of growth in Cybersecurity citing a Burning Glass study that projected development over a five-year period with some of the highlights being: Application Development Security 164%, Cloud Security 115%, and Risk Management 60%.[6] Furthermore, it was projected that these jobs will come with high salaries and require specialized skillsets which are uncommon in the current labor market. Noted skillsets for growth included DevSecOps, Azure/Google Cloud Security, NIST Cybersecurity Framework, Software Engineering, Threat Hunting, and Anomaly Detection with related occupations such as Cybersecurity Engineer, Cybersecurity Analyst, Cloud Architect, Vulnerability Analyst, and Software Developer.

The demand for skilled Cybersecurity personnel is not a short-term problem. The U.S. Bureau of Labor Statistics (BLS) Occupational Outlook Handbook[3] indicates that there are 112,300 Information Security Analyst jobs in 2018 with an expected 32% growth rate by 2028, which is much higher than the projected 5% growth rate for all occupations within the same period.

While the BLS indicates that most cybersecurity jobs do require a bachelor's degree, there are still many systems security positions that can be obtained with a cybersecurity associate degree. CyberSeek.org counts 15% of Incident and Intrusion Analyst online listings have sub-bachelor's degree requirements. Average salary is $89,000. Over 9,000 jobs for Cybersecurity Specialists were listed online nationally in this field over a 12-month period. On average, cybersecurity roles take 21% longer to fill than other IT jobs. CyberSeek.org also lists a Cybersecurity supply/demand heatmap[7] of current job openings which indicates a current national workforce of over a million employees with almost 600,000 openings in the field. Demand is significant in a number of states including New York, Pennsylvania, Virginia, Maryland, Florida, Georgia, Texas, California and Colorado.

Indeed.com lists current **entry level** New York based opportunities under these titles:

- 105 Cybersecurity Engineer Jobs ($95K+)
- 169 Cybersecurity Analyst Jobs ($60K+)
- 117 DevSecOps Jobs ($100K+)
- 173 Information Security Analyst Jobs ($60K)
- 53 Vulnerability Analyst ($75K+)
- 174 Network Security Analyst ($60K+)
- 37 Cybersecurity Threat Intelligence Jobs ($75K+)

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[5] Forbes Magazine, What are the Fastest Growing Cybersecurity Skills in 2021?, 11/01/20 https://www.forbes.com/sites/louiscolumbus/2020/11/01/what-are-the-fastest-growing-cybersecurity-skills-in-2021/?sh=1842292f5d73

[6]Burning Glass, Protecting the Future: The Fastest-Growing Cybersecurity Skills, 10/20 https://www.burning-glass.com/wp-content/uploads/2020/10/Fastest_Growing_Cybersecurity_Skills_Report.pdf

- 537 Network Engineer Jobs ($70K+)
- 83 Cloud Architect Jobs ($120K+)
- 191 Cloud Security Jobs ($80K+)
- 2360 Information Technology Jobs ($60K+)

For context, a description of some of the requirements for these opportunities follows:

- *Cybersecurity or Information Security Engineer*. Engineer jobs focus on the development and implementation of solutions to mitigate and defend against attacks from all aspects of cyber-crime.

- *Cybersecurity or Cyber-Intelligence Threat Analyst*. Responsibilities include monitoring potential threats, assessing system vulnerabilities, mitigating, and defending against threats to data. Furthermore, they are responsible for presenting their analysis of threats to the company for establishing safety protocols and recommendations.

- *DevSecOps*. The term DevSecOps is shorthand for development, security, and operations. Job duties include automation of security integration during software development; process monitoring and risk analysis; application implementation testing deployment and delivery; management of security operations for programmers; development of safety protocols and culture for supported teams.

- *Network or Information Security Analyst*. Analysts design, plan and implement security protocols to defend computers, networks, and data from attacks.

- *Cloud Security Engineer*. Cloud technologies are at the forefront of modern technologies for management and integration of data, personnel, and resources. Cloud Security Engineers and Architects specialize in all aspects of securely creating maintenance and improvement of cloud networks and systems, while assessing threats and providing security recommendations.

Some of these positions are offered by privately owned companies or businesses, whereas others are government-based opportunities. In the latter category, students could find themselves working for one of the branches of the military, the Department of Defense, or Homeland Security. Additionally, cybersecurity jobs are available throughout the world, giving students the opportunity to work in variety of locations. Additionally, there are many opportunities for remote employment.

Student Interest/Enrollment

Interest and Demand

The A.A.S. Program in Cybersecurity is designed to attract students who have an interest in pursuing careers in positions such as computer security analyst, security architect, cryptographer, security administrator, and consultant. There is a large untapped source of students in the Borough of Queens who can benefit from this type of program, especially considering the excellent job outlook.

QCC's Marketing Department, Office of Admissions, and the Engineering Technology Department will market the proposed program with an aggressive information campaign. The QCC Web site will be updated with webpages devoted to the program. The Web pages will include course descriptions, curriculum outline, employment outlook information, and answers to frequently asked questions. In addition, QCC will take every step necessary to ensure that incoming students with an interest in STEM careers are made aware of the program. Flyers will be distributed along with other recruitment materials to all New York City and Western Nassau High Schools through the Office of Admissions.

In a Fall 2019 survey of sixty-four students enrolled across four sections of ET-575, an introductory ET computer programming course, 31.3% indicated that their primary area of interest is Cybersecurity. The population for this survey included the following student majors: 64.1% Computer Science and Information Security, 12.5% Internet and Information Technology, 10.9% Computer Engineering Technology, 10.9% Engineering Science, with the remaining split amongst non-ET majors. The same population was queried about their use of free time in a career-oriented activity. 28.1% indicated that they allocate a significant amount of free time further developing their understanding and hands on abilities with operating systems and networking which are core topics in Cybersecurity. Please see Appendix A for more details on the survey questions and student responses.

Enrollment Projection

We expect the marketing of the program at major recruitment functions and on the QCC Web site will result in an increase in transfer students to the college. Finally, we expect that this program will be popular among students currently enrolled at QCC and anticipate a slight shift of other majors to this program instead of going to other colleges. According to recent figures from the Office of Institutional Research for Spring 2020 on enrollment trends by curriculum, 1,400 students were enrolled in curricular programs (engineering, technology, computer science) from which to draw student interest for the cybersecurity program. The projected enrollment for the first five years of the program is shown in Table 1.

Table 1. Projected student enrollment during the first five years of the proposed degree program.

	Year 1		Year 2		Year 3		Year 4		Year 5	
	New	Cont.	New	Cont.	New	Cont.	New	Cont.	New	Cont.
Full-time	25	N/A	50	20	75	50	100	75	125	95
Part-time	20	N/A	20	15	30	30	40	35	50	45
Sub-totals	45	N/A	70	35	105	80	140	110	175	140
Totals	45		105		185		250		315	

Admission Requirements

QCC has an open admissions policy. Admission is offered to all students with a high school diploma or its equivalent. If this proposal is approved, it is intended that the A.A.S. Degree Program will be made part of the QCC STEM Academy in the context of which academic advisement will be provided by the STEM advisors, supplemented by departmental advisement by ET faculty. Regarding other support services, the ET Department currently supports the IEEE/Robotics club, 3D club, coding club, and the Architecture club whose faculty advisors are full-time ET faculty members. These student clubs serve as a resource for engineering technology students.

Curriculum

The proposed Associates in Applied Science (A.A.S.) degree in Cybersecurity consists of courses that enable students to pursue careers and future education in the areas of Cyber Defense and Threat, Network Security, and Computer Data and Information Technology. This proposed curriculum is designed to satisfy the National Security Agency and Department of Homeland Security requirements for an Associate degree in Cyber Defense as specified by the Center of Academic Excellence Cyber Defense (CAE-CD). Most technical courses in the proposal degree take place in laboratory environments where students learn technical job skills required by employers in the cyber defense industry. Additionally, this program will encourage and support students to obtain the CompTIA Security+ and EC-Council Certified Ethical Hacker industry certifications, which are significant for gaining employment in the cyber defense industry. Finally, this program meets the general education requirements for an Associate in Applied Science at Queensborough Community College, CUNY, and the State of the New York. It also prepares students for potential transfer to CAE-CD baccalaureate programs in Cybersecurity.

Program Outcomes

1. **Career Preparation and Advancement** - Graduates will demonstrate mastery of the knowledge and skills needed for entry into or advancement in the field of Cybersecurity.
2. **Engineering Competence** - Graduates will be competent technicians with problem solving and design skills, and have the ability to apply mathematics, science, and modern engineering software to solve cybersecurity problems.
3. **Professional Skills** - Graduates will have strong communication skills and the ability to work successfully in teams.
4. **College Transfer** - Graduates will meet the requirements for transfer into the junior year of a baccalaureate program in cybersecurity.
5. **Well-rounded Education** - Graduates will demonstrate respect for diversity and knowledge of contemporary professional, societal, ethical, and global issues, and they will engage in life-long learning.

About the NCAE-CD Program

The increasing prevalence of cybersecurity attacks on both individuals and businesses drives the need for cybersecurity professionals to protect and defend our Nation's critical infrastructure and systems. The National Centers of Academic Excellence in Cybersecurity (NCAE-C) program, co-sponsored by the National Security Agency (NSA) and the Department of Homeland Security (DHS), was established to meet this growing need for knowledgeable and skilled cybersecurity professionals within the Federal Government – and ultimately, within state and local governments and industry.

To ensure the program meets current and future needs in Cybersecurity, the program is designed to meet the rigorous requirements of NCAE-C program. The department and college are committed to the multi-year process of obtaining their CAE-Cyber Defense (CAE-CD) designation that involves approval of the curriculum, review of a structured self-study, and a continuous improvement process. The first step in the process is the establishment of the Cybersecurity A.A.S. degree program at Queensborough.

With the CAE designation, colleges and universities are formally recognized by the U.S. Government for their robust cybersecurity-related programs. These institutions have undergone an in-depth assessment and have met rigorous requirements. They are well postured to equip students with expert knowledge and skills to protect and defend against the cyber threat landscape.

Institutions designated as CAEs in Cyber Defense:

- **Are recognized by the U.S. Government** for their cyber defense programs and curricula.

- **Have curricula that is mapped to specified Knowledge Units,** which align with the NICE Cybersecurity Workforce Framework, a cybersecurity language employed nationwide by educators, industry workers, and government organizations.

- **Have degree programs that are a top choice** for students who want to learn the necessary knowledge and skills to succeed in the cybersecurity workforce.

- **Assist federal agencies** by providing academic insight into cyber-related programs at DHS, NSA, and other federal agencies.

- **Participate in a large network** of cybersecurity professionals, educators, researchers, and advocates to grow the cyber field.

- **Are privy to opportunities** for student scholarships and grants through the Department of Defense Cyber Scholarship Program and the Federal Cyber Service Scholarship for Service Program.

The NCAE-C program is managed by the National Cryptologic School at the National Security Agency. A variety of federal institutions act as partners including Cybersecurity and Infrastructure Security Agency (CISA), the Federal Bureau of Investigation (FBI), the National Institute of Standards and Technology (NIST)/National Initiative on Cybersecurity Education (NICE), the National Science Foundation (NSF), the Department of Defense Office of the Chief Information Officer (DoD-CIO), and US Cyber Command (CYBERCOM).

The purpose of NCAE-C programs is to define and manage cybersecurity educational programs at all levels of higher education. Cybersecurity Academic Education (CAE) institutions are recognized by the NCAE-C as offering a valid Program of Study (PoS) in Cybersecurity. The Center of Academic Excellence in Cyber Defense Education (CAE-CD) Designation is awarded by the NCAE-C to regionally accredited academic institutions offering cybersecurity degrees and/or certificates at the Associates, Bachelors, and graduate levels.

The NCAE-C program aims to create and manage collaborative cybersecurity educational programs with community colleges, colleges, and universities that:

- Establish standards for cybersecurity curriculum and academic excellence,
- Include competency development among students and faculty,
- Value community outreach and leadership in professional development,
- Integrate cybersecurity practice within the institution across academic disciplines,
- Actively engage in solutions to challenges facing cybersecurity education.

How the proposed curriculum aligns with NCAE-CD

CAE-CD programs of study (PoS) must align to the National Initiative Cybersecurity Education (NICE) Knowledge Unit (KU) framework. Associate PoS must have a course alignment of three Foundational KU's, five Technical Core KU's or five Non-Technical KU's and three Optional KUs as follows:

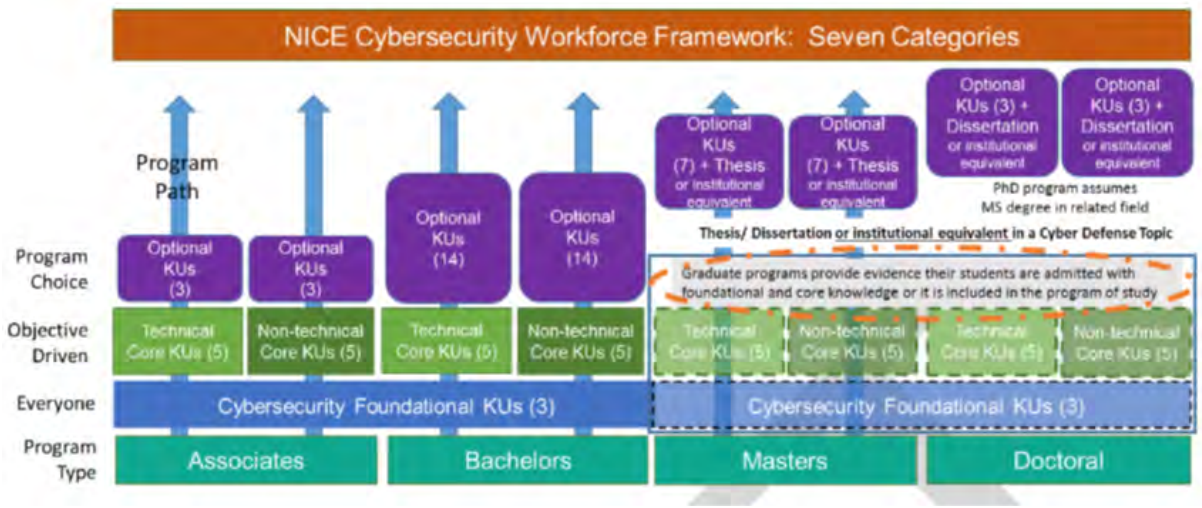


Table 2. The proposed Engineering Technology Cybersecurity alignment is a comprehensive Technical CDE PoS which goes beyond the minimum NICE KU requirements, as shown below.

Course to KU Alignment Table (23 KU's)																						
	Foundational			Technical Core					Non-Technical Core					Optional								
	CSF	CSP	ISC	BCY	BNW	BSP	NDF	OSC	CTH	CPM	PLE	SPM	SRA	NTP	PTT	OSH	ALG	ANT	DAT	DST	WSN	LSA	COO
Required																							
ET-506			x			x										x						x	
ET-574						x		x												x			
ET-581						x											x			x			
ET-704					x		x							x									
ET-705					x		x											x					
ET-725	x	x	x	x																			
ET-726			x				x																
ET-754										x	x	x	x										
ET-756																			x				
ET-760									x						x								
Elective																							
ET-232																					x		
ET-575						x																	
ET-580						x											x			x			
ET-585						x																	
ET-757																							x
ET-758																							x

Full details on 2020 KU requirements are available at this link:
https://www.iad.gov/NIETP/documents/Requirements/CAE-CD_2020_Knowledge_Units.pdf

Path to CAE-CD designation

A goal of this proposal degree program is to designate Queensborough Community College as a CAE-CD institution. The first step is to validate the proposed Cybersecurity degree program as an NCAE-C Cyber Defense education program (CD). Subsequently, Queensborough Community College can then apply to become a Center of Academic Excellence in Cyber Defense education (CAE-CD).

3 to 5-year plan to obtain a recognized CDE program of study

CDE program of study (PoS) validation requirements at the time of program application include the following:

Cybersecurity PoS Curriculum - The development of an official Cybersecurity PoS which aligns with the NICE KU framework as a Technical or Non-Technical degree. This program must exist for three years with at least one year of graduates at the time of program submission for validation. An institutional web presence will document the PoS as an official curriculum and illustrate its alignment with the NICE framework. Course syllabi and learning outcomes with highlighted cyber domain lab exercises should be included in the online demonstration of KU alignment. Program Learning Outcomes will be clearly defined as the basis for continuous improvement efforts.

Students **-** Evidence of student enrollment, graduation, artifacts, and participation in related extracurricular activities for at least three years. Samples of student work including papers, projects, presentations, and lab activities will be provided. Extracurricular activities may include experiential learning activities, local/regional/national cyber exercises or competitions, professional outreach to community colleges, summer internships, guest lectures etc.

Faculty Members **-** Qualified faculty members, full-time and adjunct, with associated qualifications such as publications, research, industry involvement or certifications with demonstration of faculty support for students. Cybersecurity faculty, full-time or adjunct, will provide CV as part of a review process to determine faculty experience, knowledge, and preparation. Faculty will be involved in mentorship or advisement of student-led activities and by participation or sponsorship of cybersecurity exercises and competitions within the last three years.

Continuous Improvement **-** Program must include a plan for continuous improvement and evaluation. Program-Level Learning Outcomes must be assessed at regular intervals by analysis of student work using standard accreditation practices. Improvement activities should be driven by faculty associated with the PoS and all records of assessment and improvement should be submitted as part of an annual report. Documentation of a Continuous Improvement Plan and the process of improvement and evaluation schedule will be submitted as part of the CD application.

The Engineering Technology Department at Queensborough Community College has historically been successful in meeting the above requirements for existing programs including all aspects of assessment, advisement, student success and continuous improvement. In recent year's faculty have increased their involvement in program specific extracurricular activities which will be necessary for this Cybersecurity degree.

3 to 5-year plan to obtain a college CAE designation

Once Queensborough Community College has one or more validated Cyber Defense education PoS, the institution can apply for a Center of Academic Excellence in Cyber Defense education (CAE-CD) designation. The institution must adhere to the following for CAE-CD designation:

1. Regional accreditation
2. Institutional Commitment:
   A letter of institutional commitment from the provost or higher documenting awareness of the expectations and responsibilities associated with a CAE program.
3. Evidence of a Sound Cybersecurity Posture and Plan:
   An officer will be responsible for overseeing the protection of critical information through an institutional cybersecurity plan including awareness training.
4. Established Center for Cybersecurity:
   Either a virtual or physical center providing program guidance and oversight, general cyber defense information, collaboration and outreach opportunities among students, faculty and academic units/departments in the same institution.
5. Affirmation of CAE Core Values and Guiding Principles:
   Applicant institutions will affirm their commitment to CAE Core Values and be expected to follow guiding principles.
6. Sustainability:
   Institution must demonstrate the resources, capacity, and processes for a Cybersecurity institution to be successful on a continuing basis.
7. Professional Development:
   Evidence of faculty and student access to Cybersecurity professional development, training, and furtherance of education.
8. Transfer of Credit/Articulation Agreements:
   Evidence of articulation/transfer agreements with institutions offering a Cybersecurity concentration or degree.

Additional information is available at this link:
https://www.iad.gov/NIETP/documents/Requirements/20201019_CAE2021_Proposed_CDE_Designation_Requirements.pdf

Most CAE requirements are currently met at Queensborough Community College through Information Technology and Continuing Education events and programs. It will be necessary to

establish a web presence which clarifies all opportunities for education and training in Cybersecurity and related fields at Queensborough Community College. A transfer articulation agreement has been discussed with Mercy College (a CAE-CD institution). Due to previous relationships with various institutions for related degrees it is likely that additional transfer articulations will also occur.

Associate of Applied Science in Cybersecurity Degree Requirements

Proposed Degree Requirements for the A.A.S. in Cybersecurity Program

Course		**Credits**
Common Course Requirements		
Required Core 1A:	ENGL-101 English Composition I	3
	ENGL-101 English Composition I	3
Required Core 1B:	MA 440 Pre-Calculus Mathematics (or higher[1])	4
Required Core 1C:	Life & Physical Sciences	3-4
FLEXIBLE CORE 2A, 2B, 2D or 2E	Social Science or History Elective	3
FLEXIBLE CORE 2A, 2B, 2C or 2D	Humanities Elective (SP-211 recommended)	3
	Subtotal	**19-20**
Major Requirements		
ET-506 Linux Operating System		3
ET-574 Programming and Application with Python		3
ET-581 Object-Oriented Programming in Java		3
ET-704 Networking Fundamentals I		4
ET-705 Network Fundamentals II		4
ET-725 Computer Network Security		3
ET-726 Advanced Network Security		3
ET-754 Security Policies & Procedures		3
ET-756 Database Administration		3
ET-760 Ethical Hacking		3
	Subtotal	**32**
Major Electives - Take 8 credits from following courses		
ET-232 Wireless Mobile Communications		3
ET-575 Introduction to C++ Programming Design and Implementation		3
ET-580 Object-Oriented Programming		3
ET-585 Computer Architecture		3
ET-712 Web Client Programming: JavaScript		3
ET-716 Java Programming Technology		4
ET-757 Cloud technology Developing		3
ET-758 Cloud Technology Operations		3
ET-991 ET-992 Cooperative Education in Engineering Technology		1
MA-114 College Algebra and Trigonometry for Technical Students or MA-119 College Algebra and MA-121 Elementary Trigonometry[1]		4
TECH-100 Introduction to Engineering & Technology		1

Subtotal	**8**
Additional Requirements	
Laboratory Science[2] BI-132, BI-171, CH-102, CH-111, CH-121, or PH-112	**0-1**
Subtotal	**0-1**
Total Credits Required for the Degree	**60**

Course Notes:

[1]Students who place into entry level mathematics will take either MA-114 or MA-119 and MA-121 as major electives. Students who place higher than MA-440 will use the upper-level course to satisfy Required Core 1B.

[2]Students who take a STEM Variant for Required Core 1C have completed this requirement.

Program Notes:

A minimum GPA of 2.0 is required to graduate.

A minimum of 20 credits of Liberal Arts and Science courses, as defined by the State of New York, must be completed to graduate.

All students must successfully complete two (2) writing-intensive classes (designated "WI") to fulfill degree requirements.

Certifications for the Program

The following certifications are available for students to apply for after graduating with the A.A.S. Cybersecurity degree from Queensborough Community College. Many aspects and topics for these certifications are covered in the lectures and labs of the Cybersecurity program courses. Students are required to investigate and prepare themselves with regard to the content covered by the certification exams.

CompTIA Network+ covers the configuration, management, and troubleshooting of common wired and wireless network devices. Also focus on specific areas like critical security concepts, key cloud computing best practices and typical service models, newer hardware and virtualization techniques and concepts to give individuals the combination of skills to keep the network resilient. The proposed Engineering Technology Cybersecurity Curriculum includes two courses in Computer Networking which cover the majority of objectives for the CompTIA Net+ certification: ET-704 and ET-705.

CompTIA Security+ is the first security certification a candidate should earn. It establishes the core knowledge required of any cybersecurity role and provides a springboard to intermediate-level cybersecurity jobs. Security+ incorporates best practices in hands-on troubleshooting, ensuring candidates have practical security problem-solving skills required to:

- **Assess** the security posture of an enterprise environment and recommend and implement appropriate security solutions
- **Monitor and secure** hybrid environments, including cloud, mobile, and IoT
- **Operate** with an awareness of applicable laws and policies, including principles of governance, risk, and compliance
- **Identify, analyze, and respond** to security events and incidents

The proposed Engineering Technology Cybersecurity Curriculum includes a Cybersecurity fundamentals course (ET-725) which covers the majority of content assessed on the CompTIA Security+ certification. Furthermore, four to five other courses in Networking, Network Security and Ethical Hacking provide supporting knowledge for this certification.

Cisco Certified CyberOps Associate Certification - The Cisco Certified CyberOps Associate certification validates skills and knowledge in security concepts, security monitoring, host-based analysis, network intrusion analysis, and security policies and procedures. This certification is designed for individuals seeking a role as an associate-level cybersecurity analyst, IT professionals desiring knowledge in Cybersecurity operations. Cisco Associate certifications act as a gateway for more advanced certifications such as CCNP Security and Cisco Certified CyberOps Professional. The proposed Engineering Technology Cybersecurity Curriculum includes two courses in Computer Networking and two courses in Network Security and a Cybersecurity fundamentals course which cover most of the objectives for the Cisco Certified CyberOps Professional certification: ET704, ET-705, ET-725 and ET-726.

Certified Ethical Hacker Certification **-** The EC-Council organization certifies professionals in various e-business and security skills and knowledge. Their stated mission is "to validate information security professionals who are equipped with the necessary skills and knowledge required in a specialized information security domain that will help them avert a cyber conflict, should the need ever arise."

CEH stands for Certified Ethical Hacker, and it is arguably the best known of all the available EC-Council certifications. It was designed to indicate that the holder understands how to look for weaknesses and vulnerabilities in computer systems and is proficient with the tools used by a malicious hacker. The proposed Engineering Technology Cybersecurity Curriculum includes a capstone course in Ethical Hacking which prepares students for the mandatory Certified Ethical Hacker certification course: ET-760.

The Offensive Security Certified Professional certification is the leading industry information security certification for penetration testing with Kali Linux. This certification was designed by the creators of Kali Linux which is the dominant platform for penetration testing operations. The proposed Engineering Technology Cybersecurity Curriculum includes ET-760, a required capstone course in Ethical Hacking, that prepares students with an applied background in Offensive Security Penetration with Kali Linux.

ISACA Information Technology Certified Associate (ITCA) - ISACA is responsible for several industry certifications including Certified Information Security Manager (CISM), Certified Information Systems Auditor (CISA) and Cybersecurity Fundamentals (CSX). ISACA offers an entry level certification, Information Technology Associate (ITCA) for recent college graduates. This certification focuses upon several domains including Cybersecurity fundamentals, Networks and Infrastructure fundamentals and a pathway for additional professional education via higher level certifications. The proposed Engineering Technology Cybersecurity Curriculum includes a variety of courses in Computer Networking and Network Security which cover most objectives for the Information Technology Certified Associate certification: ET-725, ET-726, ET-704, and ET-705.

Shared Governance

The Cybersecurity Program will be overseen by the Department of Engineering Technology and a faculty program director will be appointed by the department. Any changes to the program will be reviewed and approved by the department's curriculum committee before being submitted for approval to the Curriculum Committee of the College's Academic Senate and subsequently to the Academic Senate, CUNY, and NYSED (when needed).

Cost Assessment

Faculty

No additional full-time faculty will be needed for the proposed program in the first three years. Current QCC faculty members already teach the courses that represent the general and major requirements in the program. Additional adjunct faculty will be needed, however, for additional sections of courses required to run the program.

Facilities and Equipment

There are minimal additional facilities or equipment costs associated with this program. QCC has state-of-the-art computer laboratories already equipped with hardware and software that will support this program. Normal ongoing computer and software updates will be made for the courses already being taught.

Library/Instructional Materials

The current library resources – books, journals, and databases – are sufficient to support instruction in Cybersecurity program. It is expected that some instructional software will be needed for the labs used for some of the courses in this program, the department budget is sufficient for the expenses.

Evaluation

QCC institutional processes are currently in place for evaluating the effectiveness of the major degree, assessing individual courses, and reviewing student outcomes at the college. These processes are appropriate for evaluating new degree programs as well. The new A.A.S. degree in Cybersecurity program will undergo department self-study and evaluation through the College's academic program reviews which are conducted on a five-year rotation according to a designated schedule. Faculty are encouraged to participate in QCC's Assessment Institute that provides guidance on the course assessment. General Education Objectives as well as Program Outcomes are regularly assessed in individual courses. The self-study will be conducted by a committee formed by the Engineering Technology Department. Using data provided by Institutional Research and individual course assessments posted to the college website for courses applicable to the program, the committees will discuss student outcomes, curriculum, faculty, and facilities; generate major findings; and formulate recommendations. The committee will prepare a report according to a standardized template. In response to this report, an action plan is developed, followed by an administrative response that operationalizes the action plan and sets the strategic direction of the program for the next five years.

Appendix A: Student Survey Data

The questions and response data from the student survey are included below.

Survey of Interest in Cybersecurity

This anonymous survey is used to evaluate student interest in Cybersecurity courses and curriculum.

* Required

1) The ET department is considering offering an A.A.S in Cybersecurity. Would you be interested in this major? *

Maybe
No
Yes

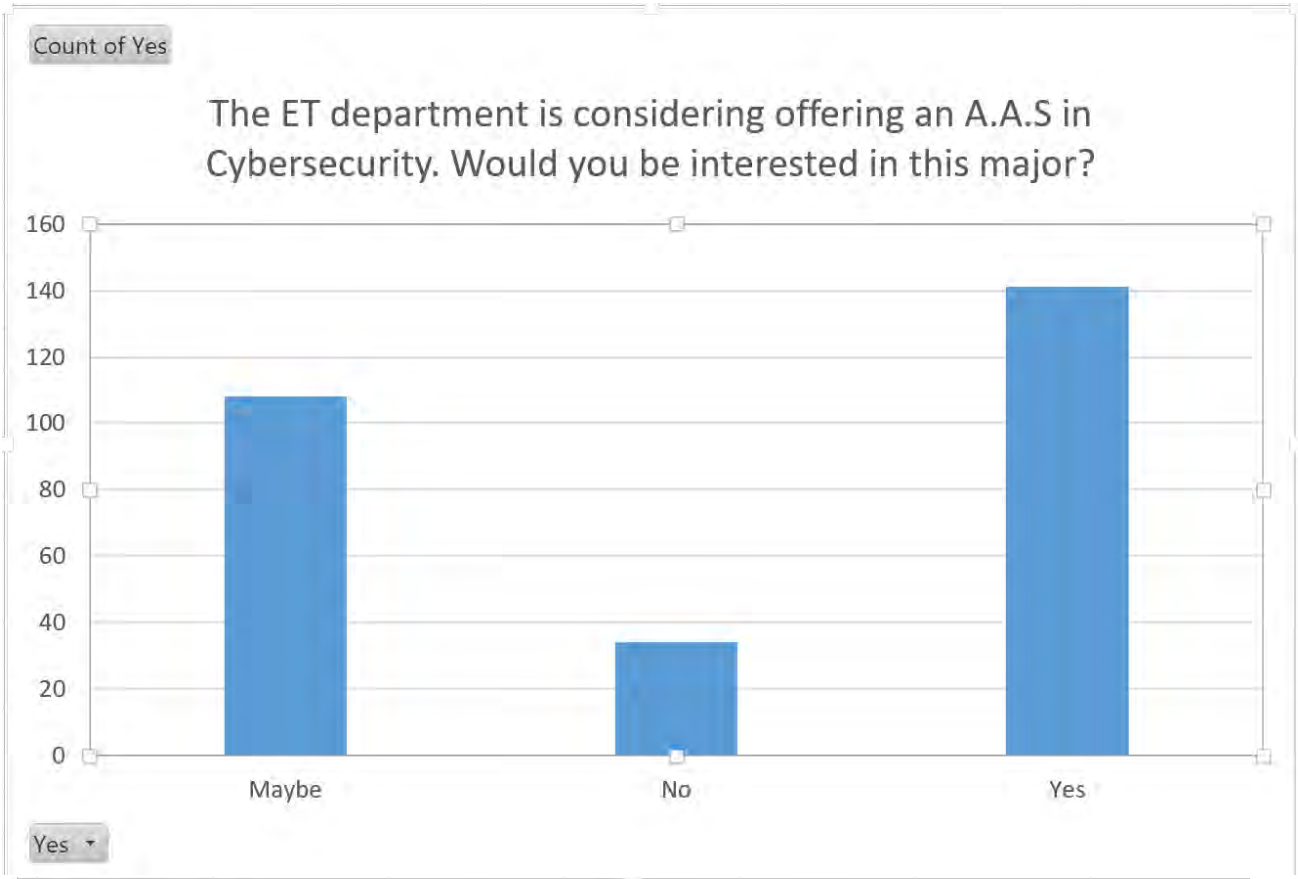
2) Gender *

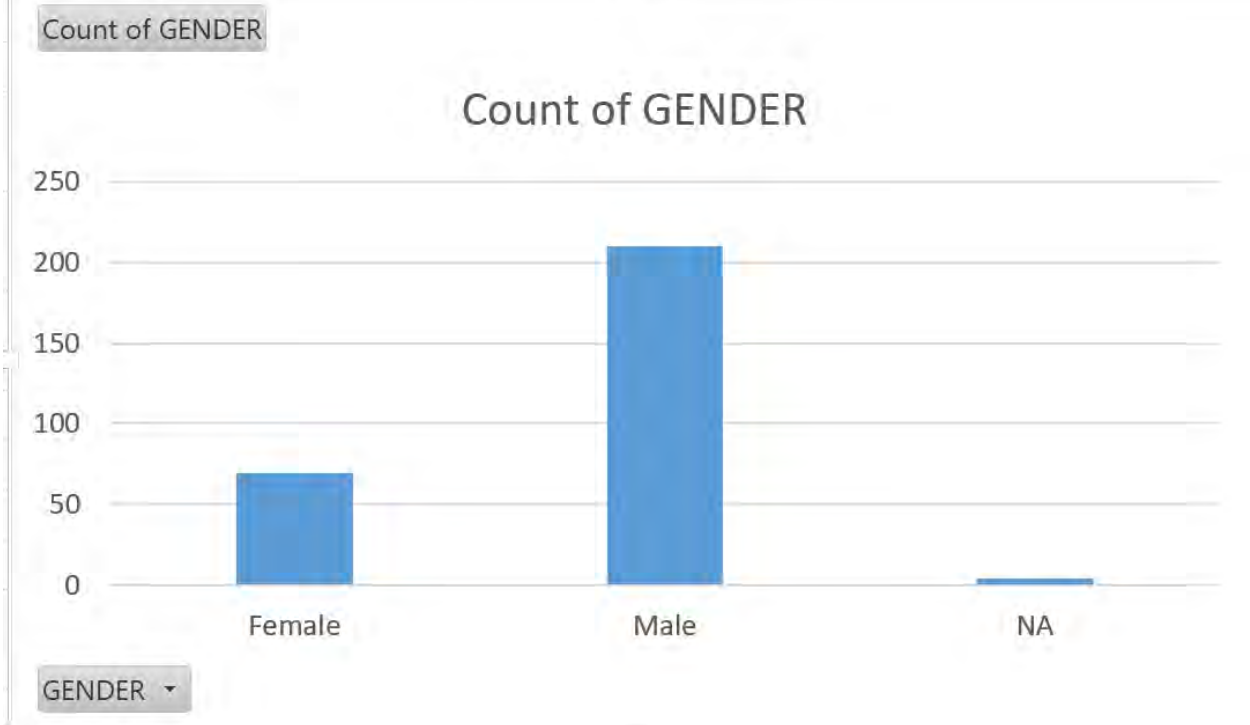
Your answer

3) Please indicate any interest(s) in the following job types. *

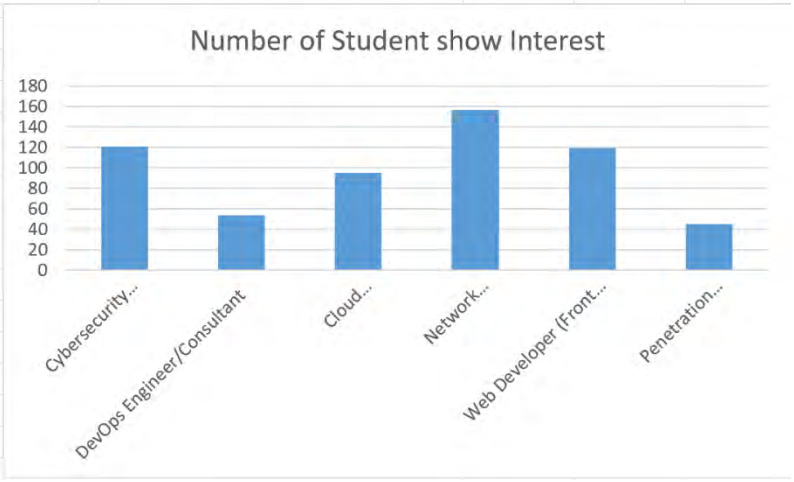
Cybersecurity Specialist/Analyst/Consultant/Engineer
DevOps Engineer/Consultant
Cloud Engineer/Architect/Consultant
Network Engineer/Administrator/Technician
Web Developer (Front End/Back End/Full Stack)
Penetration Tester/Consultant

Submit


Count of Yes
The ET department is considering offering an A.A.S in Cybersecurity. Would you be interested in this major?
160
140
120
100
80
60
40
20
0
Maybe
No
Yes
Yes


Count of GENDER
Count of GENDER
250
200
150
100
50
0
Female
Male
NA
GENDER

Please indicate any interest(s) in the following job types.	Number of Student show Interest
Cybersecurity Specialist/Analyst/Consultant/Engineer	121
DevOps Engineer/Consultant	54
Cloud Engineer/Architect/Consultant	95
Network Engineer/Administrator/Technician	156
Web Developer (Front End/Back End/Full Stack)	119
Penetration Tester/Consultant	45



Appendix B: Sample Program Scheduling, Course Descriptions for Required Courses, List of New Courses, Syllabi for New Courses

Sample Program Scheduling

- *Indicate academic calendar type:* ☒ *Semester* ☐ *Quarter* ☐ *Trimester* ☐ *Other (describe):*
- *Label each term in sequence, consistent with the institution's academic calendar (e.g., Fall 1, Spring 1, Fall 2)*
- *Use the table to show how a typical student may progress through the program; copy/expand the table as needed.*

Term: **Fall 1**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
RC1A ENGL-101 English Composition I	3	X			
RC1B MA-440 Precalculus (or higher)	4	X			Placement or MA-114 or MA 119 and MA-121
ET-574 Prog. & App. with Python	3		X		
ET-704 Networking Fundamentals I	4		X		
Term credit total:	**14**				

Term: **Spring 1**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
RC1A EN-102 English Composition II	3	X			ENGL-101
FLEXIBLE CORE 2A, 2B, 2D or 2E Social Science or History Elective	3	X			
ET 705 Network Fundamentals II	4		X		ET-704
ET 725 Intro. to Cybersecurity	3		X		ET-704
Cybersecurity Elective	2		X		
Term credit total:	**15**				

Term: **Fall 2**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
ET-506 Linux Operating System	3		X		ET-704
ET-726 Advanced Network Security	3		X	X	ET-725
ET-754 Security Policies & Procedures	3		X	X	
ET-756 Database Administration	3		X		ET-574
Cybersecurity Elective	3		X		
Term credit total:	**15**				

Term: **Spring 2**		Credits per classification			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
RC1C Life & Physical Sciences	4	X			
ET-581 Object-Oriented Prog. in Java	3		X	X	ET-574
ET-760 Ethical Hacking	3		X		ET-725
Cybersecurity Elective	3		X		
FLEXIBLE CORE 2A, 2B, 2C, or 2D Humanities Elective	3	X			
Term credit total:	**16**				

Program Totals:	Credits: 60	Liberal Arts & Sciences: 20	Major: 40	Elective & Other: 0

Cr:= credits LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the noted courses

Course Descriptions for Required and Elective Courses

Required Courses

ET-506 LINUX Operating System
2 class hours 2 laboratory hours 3 credits
Corequisite: ET-704 or permission of the Department
This foundation course introduces the basics of Linux system administration and security. Linux core topics include shell commands and processes with an emphasis on administration including files and directory structure, user and group management, networking, and shell scripting. Linux security topics include: vulnerability analysis, intrusion detection, firewall and file system encryption. Hands-on lab activities will complement the lecture topics.

ET-574 Programming and Applications with Python
2 class hours 2 laboratory hours 3 credits
Prerequisite: None Corequisite: ET-704
The course introduces computer programming, network programming and elementary data science using the Python programming language. Topics include procedural programming, Python data structures and aspects of object-oriented programming. Introductory examples of network socket and security programming, data analysis, data visualization and machine learning will be explored. Hands-on lab activities will complement lecture topics.

ET-581 Object-Oriented Programming in Java
2 Lecture Hours, 2 Lab Hours, 3 Credits
Prerequisite: C or better in ET-574 OR C or better in ET-575 Co-requisite: None
This course covers object-oriented algorithmic problem solving in Java. Topics include applications of fundamental data structures (arrays, linked lists), the Java API, inheritance, polymorphism, exception handling, packages, file input/output, recursion, generics, graphical user interfaces, event-driven programming and an introduction to secure software programming. Hands-on lab activities and projects will complement lecture topics.

ET-704 Networking Fundamentals I
3 class hours 3 laboratory hours 4 credits
Prerequisite and/or corequisite: None
This is an introductory level course that provides students with the basic terminology and skills needed to design, build, and maintain small to medium networks. Topics include: OSI model; electronics and signals, collisions and collision domains, MAC addressing, LANs, structured cabling, cabling tools, Ethernet, network design and documentation, power supply issues, Internet Protocol addressing and subnetting, network protocols. This course is the first in a series of four courses designed to prepare students for taking the Cisco Certified Network Associate (CCNA) certification exam. Students are provided with classroom and laboratory experience in current and emerging networking technology.

ET-705 Networking Fundamentals II
3 class hours 2 laboratory hours 4 credits
Prerequisite: ET-704
This course continues to build the skills needed to design, build, and maintain small to medium networks. Students will learn how to startup and configure network routers and utilize the OSI model in troubleshooting router configurations. Topics include WANs and routers, basic network testing, router startup and setup, router configuration, IOS images, TCP/IP, IP addressing and subnetting, routing protocols. This course is the second in a series of four courses designed to prepare students for taking the Cisco Certified Network Associate certification (CCNA) exam. Students are provided with classroom and laboratory experience in current and emerging networking technology.

ET-725 Computer Network Security
3 Class Hours 3 Credits
Prerequisite ET-704 or Department Permission
This course covers computer network security design and vulnerabilities. Topics include Cryptography and encryption, denial-of-service attacks, firewalls and intrusion prevention systems, software, and operating system [OS] security, legal and ethical aspects of cybercrime and computer crime.

ET-756 Database Administration
2 Lecture Hours, 2 Lab Hours, 3 Credits
Prerequisite: None Co-requisite: ET-574 or ET-575
Students will explore the fundamental concepts of database management systems including entity-relationship diagrams, data representation, data integrity, the relational model, concurrency, security, and scalable database design through programming projects. Hands-on lab activities and projects will complement lecture topics.

MA-440 Pre-Calculus Mathematics
3 class hours 2 recitation hours 4 credits
Prerequisite: MA-119 and MA-121 with a C or better in both courses or MA-114 with a grade of C or better, or satisfactory score on the Mathematics Placement Test, Level II.
Mathematical foundations necessary for the study of the calculus. An introduction to analytic geometry, and the elementary functions of analysis, including algebraic, trigonometric, logarithmic, and exponential functions. The use of the graphing calculator will be included.

Elective Courses

ET-232 Wireless Mobile Communications
2 class hours 2 laboratory hours 3 credits
Prerequisite: ET-704 or Permission of the Department
This course covers the important aspects of mobile and wireless communications from the Internet to signals, access protocols and cellular systems, emphasizing the key area of digital data transfer. Students engage in hands-on lab activities.

ET-575 Introduction to C++ Programming Design and Implementation
2 Class Hours 2 laboratory hours 3 Credits
Prerequisite: MA-321 or corequisite: MA-114, MA-119 or MA-440
This foundation course provides a general understanding of the use and development of computer software applications in fields such as science, mathematics, and business using a high-level computer language. The course will concentrate on assessing the practical requirements of a software package and developing applications in C++, which is a high-level computer language that teaches the basic skills necessary for implementing it in a variety of real-world applications. Topics include the analysis and use of concepts such as: primitive data types and their operators, basic I/O, control statements, decision making, looping, subprograms, arrays, strings, and computer ethics. Each student will have a computer platform at his/her disposal from which he/she will design, develop, implement, and test programs, while evaluating the interactions between a user and the computer.

ET-580 Object-Oriented Programming
2 class hours 2 laboratory hours 3 credits
Prerequisite: ET-575 with a grade of C or better
This course covers object-oriented algorithmic problem-solving using C++. Topics include pointers, pointer arithmetic; linked lists; memory management; recursion; operator overloading; inheritance and polymorphism; stream and file I/O; exception handling; templates and STL; applications of simple data structures and debugging techniques. Hands-on lab activities will complement the lecture topics.

ET-585 Computer Architecture
3 class hours 3 credits
Prerequisite: ET-574 or ET-575
The course covers the basic principles of computer organization, operation, and performance. It also deals with embedded systems, peripheral devices, memory management, and processor family evolution patterns.

ET-712 Web Client Programming: JavaScript
2 class hours 2 laboratory hours 3 credits
Students will learn to write Web client programs using JavaScript and Dynamic HyperText Markup Language (DHTML). The course will be project and results oriented, with real-world problem solving. Topics covered will include: DHTML; JavaScript language: statements, operators, functions, methods, expressions, variables, and properties; Cascading Style Sheets; Object Orientation and Layers; Objects: arrays, windows, documents, screen, navigator, math, date, strings.

ET-716 Java Programming Technology
3 class hours 3 laboratory hours 4 credits
Prerequisite: ET-712 and ET-710
This is a project-oriented computer-programming course in the Java Language. Students will learn to develop, test, and debug Java-based solutions to real-world problems. Solutions will be posted and tested on the department's student-project Web server in the form of Java-enhanced Web pages.

ET-757 Cloud technology Developing
3 class hours 3 laboratory hours 3 credits
Corequisite: ET-718 or ET-756 or Department Permission
This course provides an in-depth understanding of core cloud services, use cases, and basic architecture and security best practices. It addresses how to effectively write and deploy applications in the cloud and current industry technologies. Lab activities complement lecture topics and include developing, deploying, and debugging cloud-based applications. The course is aligned with the AWS Certified Developer Associate Certification exam. Students must take the AWS exam separately to earn the certification**.**

ET-758 Cloud Technology Operations
3 class hours 3 laboratory hours 3 credits
Corequisite: ET-757 or Department Permission
This course provides an in-depth understanding of core cloud services, use cases, and basic operations and security best practices. It addresses how to effectively provision and manage cloud-based networks and computer systems. Lab activities complement lecture topics and include creating automatable and repeatable deployments of networks and computer systems. The course is aligned with the AWS Certified Sys/Ops Administrator Associate Certification exam. Students must take the AWS exam separately to earn the certification.

ET-991, ET-992 Cooperative Education in Engineering Technology
1 class hour plus appropriate work experience for each credit; 1 credit each course
Open only to matriculated students who have achieved a minimum grade-point average of 2.0 in their major field of study; have completed at least 12 pertinent credits in an Engineering Technology related curriculum; and are recommended and approved by the chairperson of the Department and the coordinator of Cooperative Education.
The cooperative education experience in Engineering Technology includes employment in a field experience which supplements classroom theory and laboratory instruction with related on-the-job professional training. Students are placed in a work situation for 45 hours, participate in a monthly seminar, and submit a term project related to the work experience. A written evaluation is provided by the employer. Students receive a grade of Pass or Fail.

MA-114 College Algebra and Trigonometry for Technical Students
4 class hours 4 credits
Prerequisite: MA-10, MA-10ALP or satisfactory score on the Mathematics Placement Test
A basic presentation of the fundamental concepts of college algebra and trigonometry with scientific and engineering applications; linear equations and systems, matrices, functions and coordinate geometry, quadratic equations, trigonometric functions and their graphs, vectors, complex numbers, exponents, and radicals.

MA-119 College Algebra
3 class hours 1 recitation hour 3 credits
Prerequisite/Corequisite: Students must complete any developmental requirements in Mathematics (see Proficiency in Math and English) prior to taking this course or enroll in MA-10ALP while taking this course.
A basic presentation of the fundamental concepts of college algebra, systems of linear equations, inequalities, linear, quadratic, exponential, and logarithmic functions. During the recitation hour, students review properties of signed numbers, graphing of linear equations, basic geometric concepts, solution of linear equations, factoring algebraic expressions and its applications to rational expressions.

MA-121 Elementary Trigonometry
1 class hour 1 credit
Corequisite: MA-119
This course is a basic presentation of the fundamental concepts of trigonometry, angles and their measure, basic trigonometric functions, right triangle trigonometry, graphing, and solving trigonometric equations.

New Courses

The following three new courses were developed for the proposed degree program.

- ET-726 Advanced Network Security
- ET-754 Security Policies and Procedures
- ET-760 Ethical Hacking and Penetration Testing

All three courses are required major courses for the proposed A.A.S. in Cybersecurity degree. Full syllabi for the courses are included below.

ET-726 Advanced Network Security

1.	**Department**	Engineering Technology
2.	**Course, prefix, number, & title:**	ET-726 Advanced Network Security
3.	**Hours (Class, recitation, Laboratory, studio) & Credits:**	2 Lecture Hours, 2 Lab Hours, 3 Credits
4.	**Pre-requisites (if any):**	ET-725
	Co-requisites (if any):	None

5. Course Description in college catalog:

This course covers advance network concepts in technologies, complex security issues in network communications and network infrastructure, cryptographic protocols, network attacks and operational security policies and procedures. Students will gain knowledge in network defense and learn the various counter measures to protect these systems from Cyber threats. Students will explore the various tools use in Implementing Firewalls, DMZs, IDS/IPS, Proxy Servers, VPNs, Honeypots and Honeynets in network defense. Student Laboratory experiments will cover network operations in Network Hardening using Network Security Monitoring and Network Traffic Analysis tools. Lab activities will complement the lecture topics.

6. Academic programs for which this course is required:

A.A.S. Cybersecurity-required
A.A.S. Computer Engineering Technology - elective
A.A.S. Internet and Information Technology - elective

7. General Education Outcomes: Place an "X" in the appropriate General Education Outcome(s) box that this course supports.

- ☐ 1.Communicate effectively in various forms
- ☐ 2.Use analytical reasoning to identify issues or problems and evaluate evidence in order to make informed decisions
- ☐ 3.Reason quantitatively as required in various fields of interest and in everyday life
- ☐ 4.Apply information management and digital technology skills useful for academic research and lifelong learning

If applicable, check the appropriate program level outcome(s)

- ☐ A. Integrate knowledge and skills in the program of study
- ☒ B. Make ethical judgments while recognizing multiple perspectives, as appropriate in the program of study
- ☐ C. Work collaboratively to accomplish learning objectives

8. Course-specific student learning outcomes: (Expand if needed**)**

a	Demonstrate proficiency in factual knowledge and conceptual understanding required for transfer to the junior year in computer science, information technology or a related discipline.
b	Engineering Competence: Graduates will be competent technicians with problem solving and design skills, and have the ability to apply mathematics, science and modern engineering software tools to perform security testing with ethical consideration.
c	Demonstrate an understanding of professional and ethical responsibility
d	● **Performance Indicator ETCT3-1** Verify system performance by taking measurements and interpreting results.
e	● **Performance Indicator ETCT4-2** Demonstrate an ability to communicate effectively with team members.
f	● **Performance Indicator ETCT5-4** Identify and use appropriate technical resources.

9. Program-specific outcomes (if applicable)

ABET Student Outcome (1) - an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline;

ABET Student Outcome (3) - an ability to conduct standard tests, measurements, and experiments and to analyze and interpret the results;

10. Methods by which student learning (general education, course-specific, and, if applicable program specific**) will be assessed and evaluated; describe the types of methods to be employed; note whether certain methods are required for all sections):**

- One midterm examination
- One final cumulative examination
- Quizzes
- Project based assignments
- Homework
- Lab activities

11. Course topics and assignments (include laboratory topics when applicable)

Week	Topics	Laboratory
1.	Introduction to Information Security • Explain the relationships among the component parts of information security, especially network Security • Explain the business need for information and network security. • Describe the organizational roles of information and network security professionals.	**Project 1** Project 1-1 In the project, students are asked to use the ALE formula to compute the financial loss from computer attacks in the given problem.
2.	Introduction to Networking • Describe the basic elements of computer-based data communication • Discuss the key entities and organizations behind current networking standards, as well as the purpose of and intent behind the more widely used standards • Explain the nature and intent of the OSI reference model as well as list and describe each of the model's seven layers • Describe the nature of the Internet and the relationship between the TCP/IP protocol and the Internet	**Project 2** Exercise 2-2 Using an Internet search engine, look up "Ethernet Standards." Use two sources and Answer questions a, b, and c. Exercise 2-3 Using an Internet search engine, look up "Overview of the IETF." Answer questions a and b.

3.	Cryptography • Chronicle the most significant events and discoveries in the history of cryptology • Explain the basic principles of cryptography • Describe the operating principles of the most popular cryptographic tools • List and explain the major protocols used for secure communications • Discuss the nature and execution of attacks used against cryptosystems	**Project 3** Using the TrueCrypt to create and manage secure, encrypted file storage containers. Answer all questions in this section.
4.	Firewall Technologies and Administration • Describe what a firewall does • Explain how a firewall restricts access to a network • List the types of firewall protection as well as the types of firewall implementations and the ways they are used • Describe how firewall rules are created and how they are used to control the behavior of the firewall • Explain how instruction detection and prevention systems are related and how they may be made to interact with one another	**Project 4** Project 4-2 In this project, you will be installing iptables for Red Hat Linux. Project 4-3 Students configure iptables to deny all incoming traffic but allow all outgoing traffic. Project 4-4 Students configure iptables to simulate a firewall that only allows incoming network traffic to the organization's Web servers.
5.	Network Authentication and Remote Access using VPN • Define access control and identify the various ways it can be implemented • Explain why authentication is a critical aspect of network access control • Identify the component parts of virtual private networks (VPNs) • List and define the essential activities that an VPN must be able to perform • Explain the various VPN architectures in common use	**Project 5** Project 5-1 Students in this project, will examine how users and groups are managed in OpenSUSE. User management will provide the basis for access control and rights management.

6.	Network Monitoring and Intrusion Detection and Prevention Systems • Define the basic concepts of network packet analysis • Explain the various network packet formats and standards • Describe how packet analysis forms the basis of network intrusion detection • Discuss the various types of intrusion detection and prevention • Explain intrusion detection and prevention deployments and response strategies • Describe various honeypot technologies	**Project 6** Project 6-1 Students will setup and configure a Windows-based honeypot. They will use a network scanning application such as Nmap to detect and report services enabled using various type of scanning options.
7.	Midterm Examination	
8.	Wireless Network Security • Identify various wireless technologies and standards • Recognize the topology and architecture of wireless networks • Define popular wireless security protocols • Describe various WLAN security concerns • Discuss the security issues regarding Bluetooth technology	**Project 7** Project 7-1 Kali Linux will be used to capture and inspect wireless network traffic. Two VM systems are required to complete the experiment that are connected to a wireless network. One system will be using Kali Linux software and the other would be basic windows Operating system using a browser on a wireless NIC card. Internet traffic will be generate without any encryption which will be capture and examine it contents. This experiment will be repeated with network encryption and the resulting encrypted traffic will be analyze.
9.	Security of Web Applications • List the various Internet services in use • Identify threats to Internet services and basic countermeasures • Describe the basics of Web client-server communication • Identify the various Web languages and describe their uses • Identify various Web threats and attacks • Discuss the steps necessary to secure a Web server	**Project 8** Students will research security guidelines in implementing Website security. They will look at the necessary steps an organization uses to protect against website attacks. Students would further explore the Guidelines on Securing a Public web servers from National Institute of Standards and Technology (NIST). https://www.us-cert.gov/ncas/tips/ST18-006 https://csrc.nist.gov/publications/detail/sp/800-44/version-2/final https://www.microsoft.com/en-us/download/confirmation.aspx?id=24487

10.	Network Vulnerability Assessment • Name the common categories of vulnerabilities • Discuss common system and network vulnerabilities • Find network vulnerabilities using scanning tools and in-depth penetration testing • Access sources of information about vulnerabilities and determine how best to remediate those vulnerabilities	**Project 9** Student will setup Metasploit virtual system which will be use as the test system. The Zenmap and Nmap GUI will be used from Kali Linux VM to conduct test exercise. Base on the scan results the will decipher the Vulnerabilities and weaknesses of the system.
11.	Auditing, Monitoring, and Logging • List the various events that should be monitored in network environments • Describe the various network logs available for monitoring • Discuss the various log management, SIEM, and monitoring technologies • Explain the role that configuration and change management play in auditing the network environment • Discuss formal audit programs and how they relate to network environments • Describe Certification and Accreditation (C&A) programs implemented by the U.S. federal government and other international agencies	**Project 10-2** This project examines ways to audit various processes and services in a typical Linux environment.
12.	Contingency Planning and Networking Incident Response • Explain the need for contingency planning • List the major components of contingency planning • Create a simple set of contingency plans, using business impact analysis • Prepare and execute a test of contingency plans • Explain the network incident response process • Explain the need for sound backup and recovery practices and what they consist of	**Project 11** Project 11-1 This project students will examine ways for organizations to monitor their networks for signs of possible attacks. This project will use the open source-source projects built for Intrusion Detection and Network Security Monitoring.

13.	Digital Forensics • Explain how U.S. law enforcement and the U.S. legal system affect digital forensics • Describe the roles and responsibilities of digital forensic team members • List the steps involved in collecting digital evidence • Discuss the process used to analyze evidence • Explain how encryption can thwart digital forensic analysis	**Project 12** In this lab students will learn of the various log files created by the Linux systems as well as how to view their contents. The logs of Ubuntu Linux will be used to conduct the experiment in VM.
14.	Final Project Presentation	
15.	Final Examination	

12. Sample texts/readings/bibliography/other materials required or recommended for the course (as applicable):

GUIDE TO NETWORKS SECURITY, by Michael Whiteman, Herb Mattord, David Mackey, Andy Green. ISBN-13: 978-0-8400-2422-0 ISBN-10: 0-8400-2422-3

13. Required attire (if applicable):

14. Academic Integrity policy (department or College):

Academic honesty is expected of all students. Any violation of academic integrity is taken extremely seriously. All assignments and projects must be the original work of the student or teammates. **Plagiarism will not be tolerated.** Any questions regarding academic integrity should be brought to the attention of the instructor. The following is the Queensborough Community College Policy on Academic Integrity: "It is the official policy of the College that all acts or attempted acts that are violations of Academic Integrity be reported to the Office of Student Affairs. At the faculty member's discretion and with the concurrence of the student or students involved, some cases though reported to the Office of Student Affairs may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grade as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." The college's policy on Academic Integrity can be found at http://www.qcc.cuny.edu/governance/docs/Academic_Integrity_Document.pdf

16. Disabilities

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ET-754 Security Policies and Procedures

1.	**Department**	Engineering Technology
2.	**Course, prefix, number, & title:**	ET-754 Security Policies and Procedures
3.	**Hours (Class, recitation, Laboratory, studio) & Credits:**	3 lecture Hours, 3 Credits
4.	**Pre-requisites (if any):**	None
	Co-requisites (if any):	None

5. Course Description in college catalog:

This course introduces implementation of cybersecurity compliance practices as part of a core organizational strategy for the public and private sectors. Topics include personnel roles, in planning and managing organization security; legal aspect of cybersecurity at the state, Federal and International levels and its impact on organization policies and practices.

6. Academic programs for which this course is required:

A.A.S Cybersecurity - required
A.A.S Computer Engineering Technology – elective
A.A.S Internet and Information Technology - elective

7. General Education Outcomes: Place an "X" in the appropriate General Education Outcome(s) box that this course supports.

- ☐ 1.Communicate effectively in various forms
- ☒ 2.Use analytical reasoning to identify issues or problems and evaluate evidence in order to make informed decisions
- ☐ 3.Reason quantitatively as required in various fields of interest and in everyday life
- ☐ 4.Apply information management and digital technology skills useful for academic research and lifelong learning

If applicable, check the appropriate program level outcome(s)

- ☐ A. Integrate knowledge and skills in the program of study
- ☒ B. Make ethical judgments while recognizing multiple perspectives, as appropriate in the program of study
- ☒ C. Work collaboratively to accomplish learning objectives

8. Course-specific student learning outcomes: (Expand if needed**)**

a	ABET Performance Indicator ETCT1-4 Interpret relevant technical standards.

9. Program-specific outcomes (if applicable)

ABET Student Outcome (1) - an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline;

ABET Student Outcome (5) -an ability to apply written, oral, and graphical communication in both technical and non-technical environments; and an ability to identify and use appropriate technical literature;

10. Methods by which student learning (general education, course-specific, and, if applicable program specific**) will be assessed and evaluated; describe the types of methods to be employed; note whether certain methods are required for all sections):**

- Quizzes
- Midterm Exam
- Final Exam
- Group Project

11. Course topics and assignments (include laboratory topics when applicable)

Week	Topics	Sample Assignments (if applicable, Blackboard/Online)
1.	Security Governance Through Principles and Policies • Understanding and apply concepts of confidentiality, integrity and availability • Evaluate and apply security governance principles • Develop, document, and implement security policy, standards, procedures, and guidelines • Understand and apply threat modeling concepts and methodologies • Apply risk-based management concepts to the supply chain.	CH 1 Quiz
2.	Personnel Security and Risk Management Concepts • Contribute to and personnel security policies and procedures • Understanding and apply risk management concepts • Establish and maintain a security awareness, education, and training program	CH2 Quiz

3.	Laws, Regulations, and Compliance • Determine compliance requirements • Understanding legal and regulatory issues that pertain to information security in a global context • Federal Laws and Authorities a. Computer Security Act b. Sarbanes – Oxley c. Gramm – Leach – Bliley d. Privacy (COPPA) HIPAA / FERPA e. USA Patriot Act f. FISMA e. USA Patriot Act f. FISMA g. Americans with Disabilities Act, Section 508 h. Other Federal laws and regulations • State, US and international standards / jurisdictions • Payment Card Industry Data Security Standard (PCI DSS) • BYOD issues • Data breach disclosure laws • NIST 800 -53 • FDA 21 CFR part 820/806	CH4 Quiz Group Project
4.	Protecting Security of Assets • Identify and Classify information and assets • Determine and maintain information and asset ownership • Protect privacy • Ensure appropriate asset retention • Determine data security controls • Establish information and asset handling requirements	CH 5 Quiz
5.	Principles of Security Models, Design, and Capabilities • Implement and manage engineering processes using secure design principles • Understanding the fundamental concepts of security models a) Rainbow Series • Select controls based upon systems security models Understanding security capabilities of information systems	CH 8 Quiz

6.	• Midterm Exam	Midterm Exam
7.	Security Vulnerabilities, Threats, and Countermeasures • Assess and mitigate the vulnerabilities of security architectures, designs, and solutions elements • Assess and mitigate vulnerabilities in web-based systems • Assess and mitigate vulnerabilities in mobile systems a) Open Standards (OWASP) • Assess and mitigate vulnerabilities in embedded devices	CH 9 Quiz
8.	Controlling and Monitoring Access • Implement and manage authorization mechanisms	CH 14 Quiz
9.	Managing Security Operations • Securely provisioning of resources • Understanding and apply foundation security operations concepts • Apply resource protection techniques • Implement and support patch and vulnerability management • Understand and participate in change management processes • Address personnel safety and security concerns.	CH16 Quiz
10.	Preventing and Responding to Incidents • Conduct logging and monitoring activities • Conduct incident management • Operate and maintain detective and prevention measures	CH17 Quiz
11.	Disaster Recovery Planning • Collect security process data • Implement recovery strategies • System resilience, high availability, Quality of Service • Implement Disaster Recovery (DR) processes • Test Disaster Recovery Plans (DRP)	CH18 Quiz
12.	Investigations and Ethics • Understand, adhere to, and promote professionals ethics • Understand and support investigations • Understand requirements for investigation types	CH19 Quiz

13.	Malicious Code and Application Attacks • Assess and mitigate the vulnerabilities of security architectures, design, and solution elements • Assess and mitigate vulnerabilities in web-based systems • Identify and apply security controls in development environments • Define and apply security controls in development environments • Define and apply secure coding guidelines and standards	CH 21 Quiz
14.	• Principles (CSP) a. Separation (of domains/duties) b. Isolation c. Encapsulation d. Modularity e. Simplicity of design (Economy of Mechanism) f. Minimization of implementation (Least Common Mechanism) g. Open Design h. Complete Mediation i. Layering (Defense in depth) j. Least Privilege k. Fail Safe Defaults / Fail Secure l. Least Astonishment (Psychological Acceptability) m. Minimize Trust Surface (Reluctance to trust) n. Usability o. Trust relationships • Case Studies	Principles (CSP) Quiz Review CH1, CH 2, CH16 https://cryptosmith.com/2013/10/19/security-design-principles/
15.	• Final Exam	

12. Sample texts/readings/bibliography/other materials required or recommended for the course (as applicable):

CISSP Certified Information Systems Security Professional Study Guide, 8th Edition
Stewart Mike, James Michael Chapple, Darril Gibson, 2018

Cyberethics: Morality and Law in Cyberspace, Seventh Edition
by Richard A. Spinello, 2021

Network Security Essentials: Applications and Standards, Sixth Edition, William Stallings
[Foundational- Cybersecurity Principles (CSP) Chapter 1]

https://cryptosmith.com/2013/10/19/security-design-principles/
Information Security Policy Templates | SANS Institute
http://uh.edu/tech/cisre/resources/ia-resources/rainbow-series/

13. Required attire (if applicable):

14. Academic Integrity policy (department or College):

Academic honesty is expected of all students. Any violation of academic integrity is taken extremely seriously. All assignments and projects must be the original work of the student or teammates. **Plagiarism will not be tolerated.** Any questions regarding academic integrity should be brought to the attention of the instructor. The following is the Queensborough Community College Policy on Academic Integrity: "It is the official policy of the College that all acts or attempted acts that are violations of Academic Integrity be reported to the Office of Student Affairs. At the faculty member's discretion and with the concurrence of the student or students involved, some cases though reported to the Office of Student Affairs may be resolved within the confines of the course and department. The instructor has the authority to adjust the offender's grade as deemed appropriate, including assigning an F to the assignment or exercise or, in more serious cases, an F to the student for the entire course." The college's policy on Academic Integrity can be found at http://www.qcc.cuny.edu/governance/docs/Academic_Integrity_Document.pdf

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ET-760 Ethical Hacking and Penetration Testing

1.	**Department**	Engineering Technology
2.	**Course, prefix, number, & title:**	ET-760 Ethical Hacking and Penetration Testing
3.	**Hours (Class, recitation, Laboratory, studio) & Credits:**	3cr / 4hrs (2lec+2lab)
4.	**Pre-requisites (if any):**	ET725
	Co-requisites (if any):	None

5. Course Description in college catalog:

Topics include fundamental network and internet terminology in the fields of information security and information assurance and related legal and ethical issues. Students learn the tools and penetration testing methodologies used by ethical hackers. They also identify current computer security resources that describe new vulnerabilities and innovative methods to protect networks. Hands-on lab activities will complement the lecture topics.

6. Academic programs for which this course is required:

Required in A.A.S. in Cyber Security
Elective in Internet and Information Technology
Elective in Computer Engineering Technology

7. General Education Outcomes: Place an "X" in the appropriate General Education Outcome(s) box that this course supports.

- ☐ 1.Communicate effectively in various forms
- ☒ 2.Use analytical reasoning to identify issues or problems and evaluate evidence in order to make informed decisions
- ☐ 3.Reason quantitatively as required in various fields of interest and in everyday life
- ☐ 4.Apply information management and digital technology skills useful for academic research and lifelong learning

If applicable, check the appropriate program level outcome(s)

- ☐ A. Integrate knowledge and skills in the program of study
- ☒ B. Make ethical judgments while recognizing multiple perspectives, as appropriate in the program of study
- ☐ C. Work collaboratively to accomplish learning objectives

8. Course-specific student learning outcomes: (Expand if needed**)**

a	ABET Performance Indicator ETCT1-2 - Solve applied problems by employing computer programming skills and associated software including circuit simulation software.
b	ABET Performance Indicator CT1-6 – Apply configuration, installation, and maintenance techniques to computer networks and operating systems.
c	ABET Performance Indicator ETCT1-4– Interpret relevant technical standards.

9. Program-specific outcomes (if applicable)

ABET Student Outcome (1) - an ability to apply knowledge, techniques, skills and modern tools of mathematics, science, engineering, and technology to solve well-defined engineering problems appropriate to the discipline.

10. Methods by which student learning (general education, course-specific, and, if applicable program specific**) will be assessed and evaluated; describe the types of methods to be employed; note whether certain methods are required for all sections):**

- One midterm examination
- One final cumulative examination
- Quizzes
- Project based assignments

11. Course topics and assignments (include laboratory topics when applicable)

Week	Topics	Sample Assignments (if applicable, Blackboard/Online)
1.	Ethics of Hacking and Cracking Reconnaissance	**Reading Assignment:** Ch1 **Quiz 1** on BlackBoard **Lab 1**: Apply the Web search method of Internet footprinting, and the network enumeration method of Internet footprinting
2.	Scanning Tools Sniffers	**Reading** Assignment: Ch2, Ch3 **Quiz 2** on BlackBoard **Lab 2:** Install Wireshark and explore sniffing capabilities
3.	TCP/IP Vulnerabilities	**Reading Assignment:** Ch4 **Quiz 3** on BlackBoard **Lab 3:** Use Tcpdump, as a packet analyzer for Linux
4.	Encryption and Password Cracking	**Reading Assignment:** Ch5 **Quiz 4** on BlackBoard **Lab 4:** Familiarize with different crackers for different uses
5.	Spoofing Session Hijacking	**Reading Assignment:** Ch6, Ch7 **Quiz 5** on BlackBoard **Lab 5**: Use Wireshark on either the Linux or Windows platform to develop a filter that will allow capture the packets going between a specific computer in the classroom and the Internet
6.	Hacking Network Devices Trojan Horses	**Reading Assignment:** Ch8, Ch9 **Quiz 6** on BlackBoard **Lab 6:** Run Nmap on the entire subnet to find out about the subnet router, including what OS it is running.
7.	Review	Mid-term Exam
8.	Denial-of-Service Attacks Buffer Overflows	**Reading Assignment:** Ch10, Ch11 **Quiz 7** on BlackBoard **Lab 7:** Explore how DoS attacks are initiated and how to tell you are under attack. They should be confined to a controlled testing environment.
9.	Programming Exploits	**Reading Assignment:** Ch12 **Quiz 8** on BlackBoard **Lab 8:** Download a version of the code- review tool of your choice from Internet and experiment with how it functions to identify vulnerabilities in software.

10.	Mail Vulnerabilities	**Reading Assignment:** Ch13 **Quiz 9** on BlackBoard **Lab 9:** Using the Whois and Nslookup commands, discover all the fully qualified domain names of all of the IP addresses in the e-mail headers given to you. Compare these to the apparent senders' fully qualified domain names.
11.	Web Application Vulnerabilities	**Reading Assignment:** Ch14 **Quiz 10** on BlackBoard **Lab 10:** Look for sites that use the different applications by searching the Web for their signatures. The pages returned by data-driven site applications are not identical to the pages that produce them.
12.	Windows Vulnerabilities	**Reading Assignment:** Ch15 **Quiz 11** on BlackBoard **Lab 11:** Citing data on the three current Windows desktops (Windows Server 2012, XP, and Windows 7), research and describe what the potential default vulnerabilities of each version are and how a Windows administrator can harden these operating systems in order to mitigate those potential areas of risk.
13.	Linux Vulnerabilities	**Reading Assignment:** Ch16 **Quiz 12** on BlackBoard **Lab 12:** Research for Linux known vulnerabilities that can be classified as either default vulnerabilities (all of the exploits available after a standard or default installation) or utility vulnerabilities (ones that appear as a result of use).
14.	Incident Handling	**Reading Assignment:** Ch17 **Quiz 13** on BlackBoard **Lab 13:** Develop an incident-handling document if a company has been hacked once, and some amount of data has been stolen or corrupted.
15.	Final Examination	

12. Sample texts/readings/bibliography/other materials required or recommended for the course (as applicable):

Alfred Basta, Nadine Basta, Mary Brown, Computer Security and Penetrating Testing, 2nd Edition, 2014, Cengage Learning; eText: ISBN-10 1285709713, ISBN-13 9781285709710; Print: ISBN-10 0840020937, ISBN-13 978084002093

Ethical Hacking and Penetration Testing Guide, b yRafay Baloch
Edition1st Edition
First Published2015
eBook Published30 September 2017
DOIhttps://doi.org/10.4324/9781315145891
Pages531
eBook ISBN9781315145891

13. Required attire (if applicable):

14. Academic Integrity policy (department or College):

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Appendix C: Faculty Teaching Assignments

Existing Core Faculty				
Faculty Member Name, Title, and Rank	Courses to be taught	Full-time or Part-time; if Full-time identify % of time to the program	Highest Earned Degree, Discipline, IHE	Additional qualifications which demonstrate professional competence relative to the specific program.
Hamid Namdar- PE, Professor	ET-574, ET-585, ET-704, ET-705	Full-time, 50%	M.S. Computer Science; PE license; New York Institute of Technology	CCNA, Cyber-Physical Systems Certificate
Belle Birchfield- Dr., Professor	ET-574, ET-585, ET-704, ET-705	Full-time, 50%	Ph.D. Electrical Engineering; Columbia University	CCNA, CCAI
Merlinda Drini- Dr., Assoc. Prof.	ET-232, ET-704, ET-705, ET-725, ET-726, ET-754, ET-760	Full-time, 100%	Ph.D. Electrical Engineering; CUNY	CompTIA Network + CompTIA Security +
Marvin Gayle- PE, Assoc. Prof.	ET-585, ET-704, ET-726, ET-756, ET-760	Full-time, 75%	ME Electrical Engineering; PE License; CCNY	
Robert Kueper- Assist. Prof.	ET-574, ET-712, ET-716	Full-time, 25%	B.P.S Electrical Technology; SUNY Empire	
Danny Mangra- PE, Assoc. Prof.	ET-506, ET-574, ET-704, ET-725, ET-760	Full-time, 75%	MS- Electrical Engineering; PE license; NYU - Polytechnic University	
Mike Metaxas- PE, Assist. Prof.	ET-574, ET-575	Full-time, 50%	MS Electrical Engineering; PE License; Polytechnic University	
Jeffrey Schwartz- PE, Lecturer	ET-574	Full-time, 25%	MS Electrical Engineering; PE License; MIT	
Dugwon Seo- Dr., Assist. Prof.	ET-574	Full-time, 25%	Ph.D. Civil Engineering; CCNY	
Steven Trowbridge- Lecturer	ET-506, ET-574, ET-575, ET-580, ET-581, ET-704	Full-time, 100%	M.S. Computer Science; Queens College	CompTIA A+ Microsoft MCP
Joann Sun- Lecturer	ET-574, ET-575, ET-580, ET-756	Full-time, 100%	M.S. Computer Science; New York Institute of Technology	
Guozhen An- Dr., Assist. Prof.	ET-506, ET-574, ET-575, ET-580, ET-581, ET-756	Full-time, 100%	Ph.D. Computer Science; CUNY Graduate Center	
Huixin Wu- Lecturer	ET-574, ET-575, ET-581, ET-704	Full-time, 50%	M.S. Electrical Engineering; SUNY Stony Brook	

Existing Core Faculty				
Michael Lawrence- Lecturer	ET-574	Full-time, 25%	B.S. Aeronautical Engineering; U.S. Air Force Academy	CompTIA Security +, AWS SAA, AWS Developer-Assoc, AWS CLF, AWS Academy Accredited Educator
Andrei Szabo Adjunct Lecturer	ET-506, ET-704, ET-725	Part-time	MS Electrical Engineering; Polytechnic Institute, Bucharest	CCNA, CCNP CompTIA Security+ CompTIA LINUX+
John Ducroiset Adjunct Lecturer	ET-506	Part-time	M.S. Telecommunications Management; Stevens Institute of Technology	CCNA, CCNP
Kimmon Stair Adjunct Lecturer	ET-704, ET-725	Part-time	M.S. Business Administration; Long Island University, CW Post	CompTIA Sec+, CCNA
Peter Novak PE, Adjunct	ET-585	Part-time	MS Electrical Engineering; PE License; NYU - Polytechnic University	
Brian Toyota Adjunct Lecturer	ET-704, ET-705	Part-time	M.S. Telecommunications Management; Stevens Institute of Technology	MEF-CECP 2.0, CCDA, CompTIA Cloud Essentials
Brian Banho Adjunct Lecturer	ET-574	Part-time	M.S. Professional and Technical Communication; New Jersey Institute of Technology	CCNA, CCNP, ITIL V3 Foundation Certification
Dhiraj Nanda Adjunct Lecturer	ET-574	Part-time	MS Physics Institute of Management Technology, New Delhi, India	MSSE/CNE, Foundations for IT service management
David Lambert Adjunct Lecturer	ET-704, ET-725	Part-time	M.A. Education Ashford University	CompTIA Sec+, Net+, A+ Net Fund MTA 98-366

Appendix D: Financial Tables

Enrollment and Seat Projection

Projected Enrollment	Year One	Year Two	Year Three	Year Four	Year Five
Existing Full-time Students	0	20	50	75	95
In-State	-	20	50	75	95
Out-of-State					
Existing Full-time Total	**-**	**20**	**50**	**75**	**95**
Existing Part-time Students	-	15	30	35	45
In-State	-	15	30	35	45
Out-of-State					
Existing Part-time Total	**-**	**15**	**30**	**35**	**45**
New Full-time Students	25	50	75	100	125
In-State	25	50	75	100	125
Out-of-State					
NEW Full-time Total	**25**	**50**	**75**	**100**	**125**
New Part-time Students	20	20	30	40	50
In-State	20	20	30	40	50
Out-of-State					
New Part-time Total	**20**	**20**	**30**	**40**	**50**

Section Seats per Student	Year One	Year Two	Year Three	Year Four	Year Five
Full-time Students	25	70	125	175	220
Existing Courses	7	7	7	7	7
New Courses	3	3	3	3	3
Total (normally equals 10)	**10**	**10**	**10**	**10**	**10**
Part-Time Students	20	35	60	75	95
Existing Courses	3	3	3	3	3
New Courses	1	1	1	1	1
Total (normally equals 4-6)	**4**	**4**	**4**	**4**	**4**

Seat & Section Needs	Year One	Year Two	Year Three	Year Four	Year Five
	2022-23	2023-24	2024-25	2025-26	2026-27
Seat Need for Existing Students					
Existing Courses	-	(75)	(180)	(260)	(330)
New Courses	-	75	180	260	330
Seat Need for New Students					
Existing Courses	235	410	615	820	1,025
New Courses	95	170	255	340	425
Total Seat Need					
Existing Courses	235	335	435	560	695
Avail. Seats in Existing Courses					
Net Seat Need in Existing	235	335	435	560	695
New Courses	95	245	435	600	755
All Courses	**330**	**580**	**870**	**1,160**	**1,450**
Average Seats per Section					
Existing Courses	24	24	24	24	24
New Courses	24	24	24	24	24
Net New Section Need					
Existing Courses	9.8	14.0	18.1	23.3	29.0
New Courses	4.0	10.2	18.1	25.0	31.5
Total	**13.8**	**24.2**	**36.3**	**48.3**	**60.4**

Projected Revenue

Revenues[1]	1st Year Academic Year[2]	2nd Year Academic Year*	3rd Year Academic Year*	4th Year Academic Year*	5th Year Academic Year*
Tuition Revenue[3]					
01. From Existing Sources[4]	$162,650	$293,250	$448,673	$610,195	$777,998
02. From New Sources[5]	$13,768	$24,231	$35,107	$46,409	$58,148
03. Total	$176,418	$317,481	$483,780	$656,603	$836,146
State Revenue[6]					
04. From Existing Sources*	$75,082	$135,632	$203,448	$271,264	$339,080
05. From New Sources**	$6,297	$11,141	$15,985	$20,829	$25,673
06. Total	$81,379	$146,773	$219,433	$292,093	$364,753
Other Revenue[7]					
07. From Existing Sources*	$0	$0	$0	$0	$0
08. From New Sources**	$0	$0	$0	$0	$0
09. Total	$0	$0	$0	$0	$0
Grand Total[8]					
10. From Existing Sources*	$237,732	$428,882	$652,121	$881,459	$1,117,078
11. From New Sources**	$20,065	$35,372	$51,092	$67,238	$83,821
TOTAL	$257,797	$464,254	$703,213	$948,697	$1,200,900

[1] Specify the inflation rate used for projections.
[2] Specify the academic year.
[3] Please explain how tuition revenue was calculated.
[4] Existing sources means revenue generated by continuing students. Please remember to account for attrition and
[5] New sources means revenue engendered by new students. The revenue from new sources from one year should be carried over to the next year as revenues from continuing sources with adjustments for
[6] Public institutions should include here regular State appropriations applied to the program.
[7] Specify what is included in "other" category.
[8] Enter total of Tuition, State and Other Revenue, from Existing or New Sources.

Revenue (Supporting Materials)

	2022/23	2023/24	2024/25	2025/26	2026/27
EXISTING FULL-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of EXISTING FULL-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	25	50	75	100	125
Tuition Income (calculates 2% increase per year after Fall 2022)	$4,994	$5,094	$5,196	$5,300	$5,406
Total Tuition	$124,850	$254,694	$389,682	$529,967	$675,708
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$124,850**	**$254,694**	**$389,682**	**$529,967**	**$675,708**
Tuition & Fees:					
# of EXISTING FULL-TIME, Out-of-State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Annual Avg # of Credits per FT student (24-30)					
Tuition Income (Specify Rate per credit. Calculates 2% annual increase after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING FULL-TIME TUITION REVENUE	**$124,850**	**$254,694**	**$389,682**	**$529,967**	**$675,708**

EXISTING PART-TIME STUDENTS	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Tuition & Fees:					
# of EXISTING PART-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	20	20	30	40	50
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer=15)	9	9	9	9	9
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$210	$214	$218	$223	$227
Total Tuition	$37,800	$38,556	$58,991	$80,227	$102,290
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$37,800**	**$38,556**	**$58,991**	**$80,227**	**$102,290**
Tuition & Fees:					
# of EXISTING PART-TIME Out of State Students (linked from "Enrollment and Seat Need Projections")	0	0	0	0	0
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer=15)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0				
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING PART TIME REVENUE	**$37,800**	**$38,556**	**$58,991**	**$80,227**	**$102,290**
TOTAL EXISTING REVENUE (LINKS TO REVENUE SPREADSHEET ROW 5)	**$162,650**	**$293,250**	**$448,673**	**$610,195**	**$777,998**

Revenue (Supporting Materials, Continued)

NEW FULL-TIME STUDENTS	Year One	Year Two	Year Three	Year Four	Year Five
Tuition & Fees:					
# of NEW FULL-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	2	4	6	8	10
Tuition Income (Calculates 2% increase per year after Fall 2022)	$4,994	$5,094	$5,196	$5,300	$5,406
Total Tuition	$9,988	$20,376	$31,175	$42,397	$54,057
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$9,988**	**$20,376**	**$31,175**	**$42,397**	**$54,057**
Tuition & Fees:					
# of NEW FULL-TIME, Out-of -State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Annual Avg # of Credits per FT student (24-30)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL NEW FULL-TIME TUITION REVENUE	**$9,988**	**$20,376**	**$31,175**	**$42,397**	**$54,057**

NEW PART-TIME STUDENTS	Year One	Year Two	Year Three	Year Four	Year Five
Tuition & Fees:					
# of NEW PART-TIME, In-State Students (linked from "Enroll & Seat Need Projections")	2	2	2	2	2
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer=15)	9	9	9	9	9
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$210	$214	$218	$223	$227
Total Tuition	$3,780	$3,856	$3,933	$4,011	$4,092
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total In-State Tuition & Fees	**$3,780**	**$3,856**	**$3,933**	**$4,011**	**$4,092**
Tuition & Fees:					
# of NEW PART-TIME, Out-of-State Students	0	0	0	0	0
Total Enrolled Credits (Enter Avg # credits per student per year-Fall+ Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer=15)					
Tuition Income (Specify Rate per credit) calculates 2% increase per year	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	0	0	0	0	0
Total Out-of-State Tuition & Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL NEW PART-TIME REVENUE	**$3,780**	**$3,856**	**$3,933**	**$4,011**	**$4,092**

TOTAL NEW REVENUE (LINKS TO REVENUE SPREADSHEET ROW 7)	**$13,768**	**$24,231**	**$35,107**	**$46,409**	**$58,148**

STATE REVENUE	Year One	Year Two	Year Three	Year Four	Year Five
# EXISTING FTEs	31	56	84	112	140
Appropriaton per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
STATE REVENUE FROM EXISTING SOURCES -LINKS TO REVENUE SPREADSHEET ROW 9	**$75,082**	**$135,632**	**$203,448**	**$271,264**	**$339,080**
# NEW FTEs	2.6	4.6	6.6	8.6	10.6
Appropriaton per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
STATE REVENUE FROM NEW SOURCES -LINKS TO REVENUE SPREADSHEET ROW 11	**$6,297**	**$11,141**	**$15,985**	**$20,829**	**$25,673**

OTHER REVENUE	Year One	Year Two	Year Three	Year Four	Year Five
Other Revenue From Existing Sources (specify and explain)-LINKS TO REVENUE SPREADSHEET ROW 12)					
Other Revenue New (specify and explain) (LINKS TO REVENUE SPREADSHEET ROW 15)					

Expenditures

Expenditures	Year 1 Academic Year[2]	Year 2 Academic Year[2]	Year 3 Academic Year[2]	Year 4 Academic Year[2]	Year 5 Academic Year[2]
Full Time Faculty	$ -	$ -	$ -	$ -	$ -
Part Time Faculty	$ 14,294.75	$ 14,294.75	$ 14,294.75	$ 14,294.75	$ 14,294.75
Full Time Staff	$ -	$ -	$ -	$ -	$ -
Part Time Staff	0	0	0	0	0
Library (Includes Staffing)	$ -	$ -	$ -	$ -	$ -
Equipment	$ -	$ -	$ -	$ -	$ -
Laboratories	$ -	$ -	$ -	$ -	$ -
Supplies & Expenses (Other than Personal Services)	$ -	$ -	$ -	$ -	$ -
Capital Expenditures	$ -	$ -	$ -	$ -	$ -
Other	$ -	$ -	$ -	$ -	$ -
Total all	$ 14,294.75	$ 14,294.75	$ 14,294.75	$ 14,294.75	$ 14,294.75

[1] Specify the inflation rate used for projections.

[2] Specify the academic year.

[3] Include fringe benefits.

[4] New resources means resources engendered specifically by the proposed program.

The new resources from the previous year should be carried over to the following year, new resources with adjustments for inflation, if a continuing cost.

[5] Specify what is included in "other" category. (e.g. student financial aid).

Expenditures (Supporting Materials)

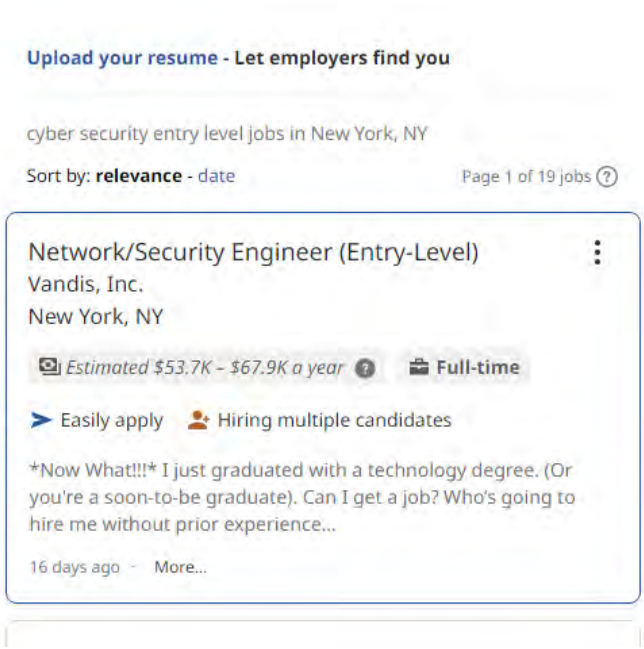
	2022-23	2023-24	2024-25	2025-26	2026-27
DIRECT OPERATING EXPENSES	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Include additional expenses incurred by other programs when satisfying needs of new program. Faculty need should be commensurate with "net section needs" based on enrollment (see "Enrol & Seat Need Projections" tab)					
Current Full Time Faculty Overload (include Summer)					
New Full Time Faculty Base Salary (list separetely)					
New Full Time Faculty Overload (include Summer)					
New Faculty Re-assigned Time (list seperately)					
Full Time Employee Fringe Benefits (41.6%)	0	0	0	0	0
Total (Links to Full-Time Faculty on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
Part Time Faculty Actual Salaries	$ 11,500.20	$ 11,500.20	$ 11,500.20	$ 11,500.20	$ 11,500.20
Part Time Faculty Actual Fringe Benefits (24.3%)	$ 2,794.55	$ 2,794.55	$ 2,794.55	$ 2,794.55	$ 2,794.55
Total (Links to Part-Time Faculty Program Exp Worksheet)	**$ 14,294.75**	**$ 14,294.75**	**$ 14,294.75**	**$ 14,294.75**	**$ 14,294.75**
Full Time Staff Base Salary (list separetely)					
Full Time Staff Fringe Benefits (41.6%)	0	0	0	0	0
Total (Links to Full-Time Staff on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -

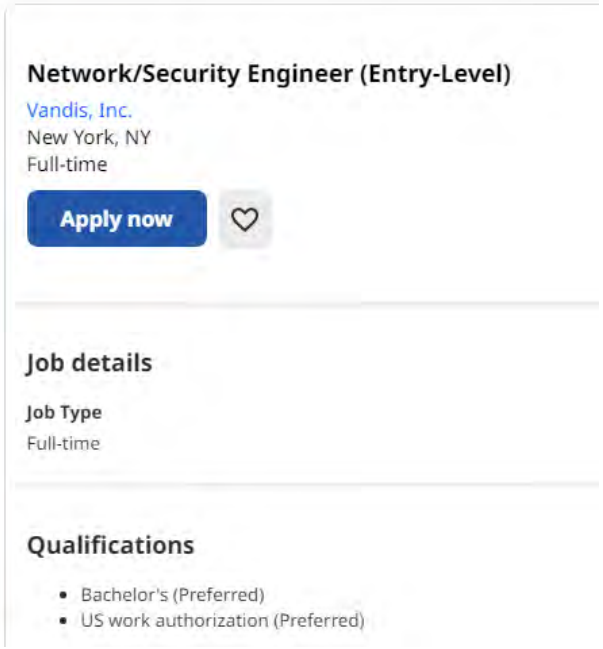
	Year 1	Year 2	Year 3	Year 4	Year 5
PART-TIME STAFF (do not include library staff in this section)					
Part Time Staff Base Salary (list separately)					
Faculty Replacement Costs (replacement of full-time faculty - e.g. on release time - with part-time faculty)					
Graduate Assistants					
Student Hourly					
Part Time Employee Fringe Benefits (24.3%)	0	0	0	0	0
Total (Links to Part-Time Staff on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
LIBRARY					
Library Resources					
Library Staff Full Time (List Separately)					
Full Time Staff Fringe Benefits (41.6%)	**0**	**0**	**0**	**0**	**0**
Library Staff Part Time (List Separately)					
Part Time Employee Fringe Benefits (24.3%)	**0**	**0**	**0**	**0**	**0**
TOTAL (Links to Library on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
EQUIPMENT					
Computer Hardware					
Office Furniture					
Other (Specify)					
Total (Links to Equipment on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
LABORATORIES					
Laboratory Equipment					
Other (list separately)					
TOTAL (Links to Laboratories on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -

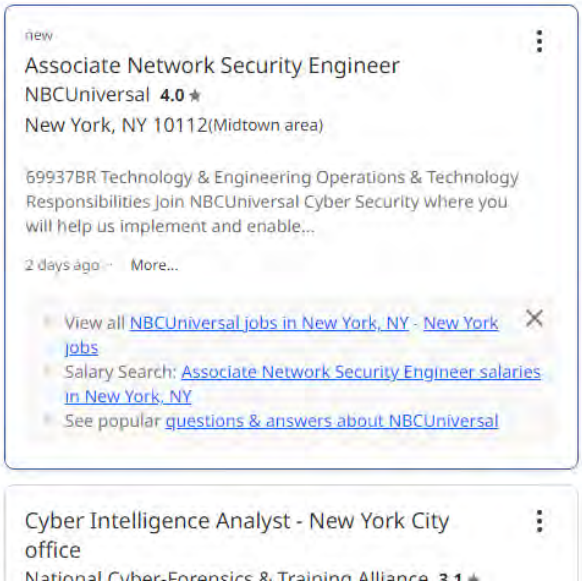
	Year 1	Year 2	Year 3	Year 4	Year 5
SUPPLIES AND EXPENSES (OTPS)					
Consultants and Honoraria					
Office Supplies					
Instructional Supplies					
Faculty Development					
Travel and Conferences					
Membership Fees					
Advertising and Promotion					
Accreditation					
Computer Software					
Computer License Fees					
Computer Repair and Maintenance					
Equipment Repair and Maintenance					
New Total Supplies and OTPS Expenses (Links to Supplies on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
CAPITAL EXPENDITURES					
Facility Renovations					
Classroom Equipment					
Other (list separately)					
TOTAL (Links to Capital Expenditures on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -
Other (list separately)					
TOTAL (Links to Other on Program Exp Worksheet)	$ -	$ -	$ -	$ -	$ -

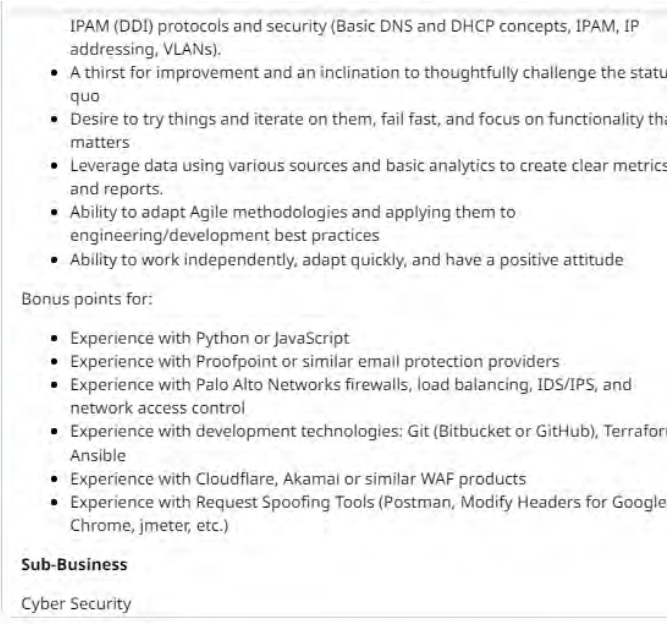
Appendix E: Sample Job Advertisements

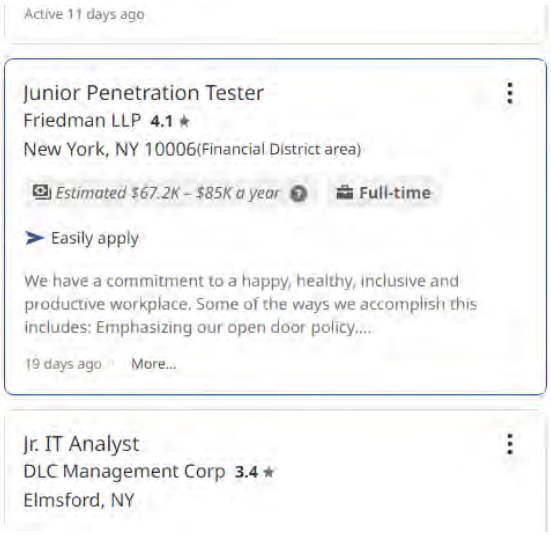
Job Description	Company	Education/Experience	Salary
Network Engineer	Tekscape, NY	Two years of college, Background in Cisco routers, switches, IOS syntax, IP protocols	76k-96K
Information Security Engineer	Maimonides Medical Center, NY	Two years of college, Certifications such as CNE, CCNA, Network+ etc.	Open
Information Technology Support Engineer	Audible, NY	Two years of related experience, Certifications such as CompTIA A+, Network+, CCNA, AWS	Open
Cybersecurity Test Engineer, Junior	Booz Allen Hamilton, NY	High School Diploma, GED, 1+ years of Cybersecurity experience including an Academic Environment	Open
Cybersecurity Consulting Analyst	Friedman LLP, NY	Background in Cybersecurity principles, Security Frameworks, Networking, Risk Assessments	Open
Junior Penetration Tester	Friedman LLP, NY	Background in Cybersecurity Fundamentals, Operating System, Networking and Security Tools	67K-85K
SOC Analyst	Friedman LLP, NY	Background in Info Sec, Operating Systems, Scripting Languages, Cloud Computing	Open
SOC Analyst	Robert Half, NY	Background in Threat, Vulnerability Analysis, Information Security	Hourly $23.50-$27.50
Associate Network Security Engineer	NBC Universal, NY	Background in Network Security principles, Agile methodologies	73K-169K
Junior IT Help Desk Analyst	DLC Management, NY	Certifications such as CompTIA A+, CompTIA Security+, CCNA	40K-60K
Junior IT Analyst	DLC Management, NY	Certifications such as CompTIA Network+, Security+, CCNA	54K-109K


Upload your resume - Let employers find you
cyber security entry level jobs in New York, NY
Sort by: relevance - date
Page 1 of 19 jobs
Network/Security Engineer (Entry-Level)
Vandis, Inc.
New York, NY
Estimated $53.7K – $67.9K a year
Full-time
Easily apply
Hiring multiple candidates
Now What!!! I just graduated with a technology degree. (Or you're a soon-to-be graduate). Can I get a job? Who's going to hire me without prior experience...
16 days ago
More...


Network/Security Engineer (Entry-Level)
Vandis, Inc.
New York, NY
Full-time
Apply now
Job details
Job Type
Full-time
Qualifications
Bachelor's (Preferred)
US work authorization (Preferred)


new
Associate Network Security Engineer
NBCUniversal 4.0
New York, NY 10112(Midtown area)
69937BR Technology & Engineering Operations & Technology Responsibilities Join NBCUniversal Cyber Security where you will help us implement and enable...
2 days ago
More...
View all NBCUniversal jobs in New York, NY - New York jobs
Salary Search: Associate Network Security Engineer salaries in New York, NY
See popular questions & answers about NBCUniversal
Cyber Intelligence Analyst - New York City office
National Cyber-Forensics & Training Alliance 3.1


IPAM (DDI) protocols and security (Basic DNS and DHCP concepts, IPAM, IP addressing, VLANs).
A thirst for improvement and an inclination to thoughtfully challenge the statu quo
Desire to try things and iterate on them, fail fast, and focus on functionality tha matters
Leverage data using various sources and basic analytics to create clear metrics and reports.
Ability to adapt Agile methodologies and applying them to engineering/development best practices
Ability to work independently, adapt quickly, and have a positive attitude
Bonus points for:
Experience with Python or JavaScript
Experience with Proofpoint or similar email protection providers
Experience with Palo Alto Networks firewalls, load balancing, IDS/IPS, and network access control
Experience with development technologies: Git (Bitbucket or GitHub), Terrafor Ansible
Experience with Cloudflare, Akamai or similar WAF products
Experience with Request Spoofing Tools (Postman, Modify Headers for Google Chrome, jmeter, etc.)
Sub-Business
Cyber Security



Minimum Qualifications

- Familiarity with basic cybersecurity concepts such Confidentiality, Integrity, and Availability
- Basic knowledge of operating systems including Windows, Linux, and Unix
- Working knowledge of basic computer and networking concepts (memory, hard drives, network protocols, network architecture, etc)
- Ability to configure and use security tools such as Nmap, Burpsuite, Nessus, etc.
- Ability to analyze and interpret results from security tools
- Ability to prioritize tasks to effectively manage multiple engagements
- Strong verbal and written communication skills to effectively communicate testing results to clients

Why Join Us?

Since 1924, Friedman LLP established itself as the premier advisor within the middle market business sector. With a forward thinking approach, Friedman has expanded on core audit and tax services with diverse advisory consulting services including: China Consulting; Forensic, Litigation Support & Valuation Services, Governance, Risk & Compliance, Cybersecurity Consulting and Digital Currency.

Ranked #1 in *Vault's 2020 Best Culture in the Accounting Industry*, the Friedman Experience offers an inclusive environment where professionals are developed into respected business leaders, while helping our community navigate their businesses in

Appendix F: Attestations and Assurances

On behalf of the institution, I hereby attest to the following:

That all educational activities offered as part of this proposed curriculum are aligned with the institutions' goals and objectives and meet all statutory and regulatory requirements, including but not limited to Parts 50, 52, 53 and 54 of the Rules of the Board of Regents and the following specific requirements:

That credit for study in the proposed program will be granted consistent with the requirements in §50.1(o).

That, consistent with §52.1(b)(3), a reviewing system has been devised to estimate the success of students and faculty in achieving the goals and objectives of the program, including the use of data to inform program improvements.[7]

That, consistent with §52.2(a), the institution possesses the financial resources necessary to accomplish its mission and the purposes of each registered program, provides classrooms and other necessary facilities and equipment as described in §52.2(a)(2) and (3), sufficient for the programs dependent on their use, and provides libraries and library resources and maintains collections sufficient to support the institution and each registered curriculum as provided in §52.2(a)(4), including for the program proposed in this application.

That, consistent with 52.2(b), the information provided in this application demonstrates that the institution is in compliance with the requirements of §52.2(b), relating to faculty.

That all curriculum and courses are offered and all credits are awarded, consistent with the requirements of §52.2(c).

That admissions decisions are made consistent with the requirements of §52.2(d)(1) and (2) of the Regulations of the Commissioner of Education.

That, consistent with §52.2(e) of the Regulations of the Commissioner of Education: overall educational policy and its implementation are the responsibility of the institution's faculty and academic officers, that the institution establishes, publishes and enforces explicit policies as required by §52.2(e)(3), that academic policies applicable to each course as required by §52.2(e)(4), including learning objectives and methods of assessing student achievement, are made explicit by the instructor at the beginning of each term; that the institution provides academic advice to students as required by §52.2(e)(5), that the institution maintains and provides student records as required by §52.2(e)(6).

That, consistent with §52.2(f)(2) of the Regulations of the Commissioner of Education, the institution provides adequate academic support services and that all educational activities offered as part of a registered curriculum meet the requirements established by state, the Rules of the Board of Regents and Part 52 of the Commissioner's regulations.

CHIEF ADMINISTRATIVE or ACADEMIC OFFICER/ PROVOST	
Signature	Date
Type or print the name and title of signatory Sandra Palmer, Interim Provost and Vice President of Academic Affairs	Phone Number 718-281-5731

[7] The Department reserves the right to request this data at any time and to use such data as part of its evaluation of future program registration applications submitted by the institution.

Appendix G: Letters of Support

Letters of support from Mercy College and the New York Institute of Technology for this degree proposal are provided.

Mercy College

MERCY COLLEGE

555 Broadway 1-877-MERCY-GO
Dobbs Ferry, NY 10522 www.mercy.edu

May 14 2021

TO WHOM IT MAY CONCERN

I have reviewed and support your proposed AAS degree program in Cybersecurity at Queensborough Community College. The proposed program would be a valuable asset and alternative for Engineering Technology graduates of Queensborough Community College who wish to continue on for a four-year degree or start employment in the field. After the approval of this program Mercy College and Queensborough can work on an articulation agreement so the future AAS Cybersecurity graduates can easily enroll into Mercy College Bachelor's Cybersecurity program designated as a National Center of Academic Excellence in Information Assurance Education by the National Security Agency and the Department of Homeland Security. This proposal would provide them with a choice and an excellent opportunity to continue their education.

As you are well aware, there is a tremendous need and demand for engineering technology graduates both in the New York City Metropolitan area and nationwide. This is particularly true for the Cybersecurity. Throughout the United States, trends indicate that the need for people with expertise at various levels in computer security and technology has been rising, and will continue to rise into the foreseeable future. The proposed program in Cybersecurity will also help to reduce the predicted shortage of U.S. government graduates in the field.

I fully support and welcome your proposed Associate Degree Program in Cybersecurity.
Sincerely,

John Yoon, Ph.D.
Director, Cybersecurity Program
Department of Math/Computer Sciences

NEW YORK INSTITUTE
OF TECHNOLOGY
College of Engineering
& Computing Sciences

August 8, 2021

Dear Prof. Namdar,

New York Institute of Technology has reviewed and supports your proposed AAS degree program in Cybersecurity at Queensborough Community College. The proposed program would be a valuable asset and an alternative for Engineering Technology graduates of Queensborough Community College who wish to continue on for a four-year degree or start employment in the field of cybersecurity.

After the approval of this program, New York Tech and Queensborough can work on an articulation agreement so the future AAS Cybersecurity graduates can easily enroll in New York Tech Bachelor's in Computer Science- Network Security program. Your program, aligned with the National Center of Academic Excellence in Cybersecurity by the National Security Agency and the Department of Homeland Security, is a plus for both the students and the local region. This proposal would provide them with a choice and an excellent opportunity to continue their education.

As you are well aware, there is a tremendous need and demand for engineering technology graduates both in the New York City Metropolitan area and nationwide. This is particularly true for Cybersecurity. Throughout the United States, trends indicate that the need for people with expertise at various levels in computer security and technology has been rising, and will continue to rise into the foreseeable future. The proposed program in Cybersecurity will also help to reduce the predicted shortage of graduates that seek employment in the U.S. government in the field.

I fully support and welcome your proposed Associate Degree Program in Cybersecurity.

Best Regards,

Babak D. Beheshti, PhD
Professor and Dean, College of Engineering and Computing Sciences | New York Institute of Technology
Pronouns: He, Him, His

Harry Schure Hall, Room 112, Long Island Campus
1855 Broadway, Room 805B, New York City Campus
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Board of Trustees of The City University of New York

RESOLUTION TO
Establish a program in Mathematics
Leading to the Associate in Science Degree at
Queensborough Community College of
The City University of New York

June 6, 2022

WHEREAS, Many careers today require a solid background in mathematics and employers need varying degrees of math ability for the fields of data science, machine learning, business, medicine and science, technology, and human services, among others; and

WHEREAS, Industry data indicates that mathematicians have among the highest rates of job satisfaction based on such criteria as work environment, income, and job prospects; and

WHEREAS, The Mathematics and Computer Science department that will sponsor this program has a large and highly credentialed faculty dedicated to improving mathematics education and using new and innovative techniques in the classroom to ensure the highest quality of instruction and engagement and retention of students; and

WHEREAS, The 60-credit Mathematics degree program is designed to prepare students for successful transfer to 11 senior colleges that offer a bachelor's degree in mathematics and to provide students with the foundations of mathematics and statistics and the skills required by scientists, including inquisitiveness, critical thinking, and problem-solving; and

WHEREAS, The Mathematics program is designed to provide students for a wide range of careers, including finance, engineering, computer science, coding, accounting, statistics, and research at a time when there is an urgent need for more qualified data scientists, programmers, and high school math teachers in the New York City area and Queens specifically; and

WHEREAS, The Mathematics program will provide an opportunity to recruit actively from a diverse group of students, addressing the low participation by women and underrepresented minorities (locally, regionally, and nationally) in this field, particularly

students who may have been unaware of the opportunities that a career in mathematics might provide.

NOW, THEREFORE, BE IT

RESOLVED, That the proposed program in Mathematics leading to the Associate in Science be presented to the New York State Education Department for their consideration and registration in accordance with any and all regulations of the New York State Department of Education, including the Master Plan Amendment, effective June 28, 2022, subject to financial ability.

EXPLANATION: The proposed program will prepare students for transfer to a senior college in a baccalaureate program majoring in mathematics, mathematics education, data science, applied mathematics, statistics, or another related STEM field. The intent of the program is aligned with the college's strategic planning priorities of offering students clear career pathways and addressing disparities in equity. Opportunities for careers in this field are numerous; jobs in this field pay well and have demonstrated high job satisfaction.

QUEENSBOROUGH COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK

PROPOSAL TO ESTABLISH A PROGRAM IN MATHEMATICS LEADING TO THE ASSOCIATE IN SCIENCE DEGREE

EFFECTIVE FALL 2022

SPONSORED BY THE DEPARTMENT OF MATHEMATICS AND COMPUTER SCIENCE

APPROVED BY

QUEENSBOROUGH COMMUNITY COLLEGE ACADEMIC SENATE
ON 5/10/22

College Representative:
Interim Provost and Vice President, Sandra Palmer, Ph.D.

Contact: Sandra Palmer
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Provost and Senior Academic Vice-President's Signature:

Provost and Senior Academic Vice-President's Name: Sandra Palmer

General Information

Institution (Legal Name)	Institution Code
Queensborough Community College, City University of New York	373500
Proposed Program Title	Degree Award
Mathematics	A.S.
Address of Any Campus Where the Proposed Program Will Be Offered (main and/or branch campuses)	Full-time or Part-time [1]
222-05 56th Avenue Bayside, NY 11364	Full-time
All Program Format(s) (standard, distance education[2], evening, weekend and/or other)	HEGIS Code
Standard	5617.00
Joint Registration IHE (if applicable)	Total Number of Credits
Not applicable	60
Lead Contact [First Name, Last Name, Title]	Telephone Number
Sandra Palmer, Interim Provost and Vice President of Academic Affairs	718-281-5731
Email Address	
SPalmer@qcc.cuny.edu	

[1] Please refer to §52.2(c) and §145-2.1 of the Regulations of the Commissioner for definitions and information concerning full and part time study. Note: Only programs registered as full time are eligible for TAP. Programs are subject to audit by the NYS Office of the State Comptroller and the Higher Education Services Corporation (HESC) for financial aid compliance purposes.

[2] If a major portion of the program (50% or more) can be completed through study delivered by distance education then the program must be registered in the distance education format. Hybrid or blended courses do not count toward the 50%.

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Executive Summary

The Department of Mathematics and Computer Science, at Queensborough Community College (QCC), proposes an Associate of Science (A.S.) degree in Mathematics. This program is intended for students planning to transfer to a four-year college to complete their baccalaureate degree majoring in Mathematics, Mathematics Education, Data Science, Applied Mathematics, Statistics, or another related STEM field.

Many careers today require a solid background in mathematics. Employers want workers with varying degrees of math ability for the fields of data science, machine learning, business, medicine and science, technology, human services, and others. Data from JobsRated.com (now CareerCast), as reported in the Wall Street Journal, show mathematicians having the among the highest rates of job satisfaction based on criteria such as work environment, income, and job prospects. Over the past several years, mathematics-related careers have ranked among the top ten, consistently. Our associate degree in mathematics shall equip students with the mathematical and computing training needed to be competitive in today's digitally advanced world. Throughout this degree, students will learn how to solve problems using appropriate mathematical, technological, and scientific methods as well as how to use technology to solve mathematical problems. A math degree will allow the department to build a community of mathematics, statistics and computer science students thus providing the students with the relationships and resources that will help them become better scientists. It will also allow the math department to continue to offer rigorous introductory mathematics classes as well as regularly provide more advanced math classes, and thus draw more STEM students to our college. The mission of the college, dedicating itself to academic excellence and rigor as well as providing a holistic development for students, aligns well with the mission and goals of the math department.

Nationally, mathematics struggles to bring participation by women and underrepresented minorities to an equitable level. The availability of a math degree at Queensborough will provide students in our borough, one of the most diverse in the nation, with the opportunity to join this important and lucrative STEM field. This will allow for a richer and more diverse community of undergraduates pursuing math degrees. A departmental committee is being formed to help sponsor a student club, organize/give talks for students, arrange for mentorship, help identify grants, and support recruitment of underrepresented groups. Outreach and interdisciplinary initiatives are regularly promoted by the department. The *Data Science Career Panel*[3], is a recent example (February 2022) showcasing two QCC graduates.

The current personnel and mathematics resources of QCC are more than adequate to satisfy the needs of the program and its courses. The mathematics department has 53 full time faculty and 16 part time faculty. Our faculty are dedicated to improving mathematics education and using new and innovative techniques in the classroom to ensure the highest quality of instruction and engagement and retention of our students. Current classroom, laboratory, and library resources are sufficient to support the requirements of a new math degree.

[3] NSF-ATE Award # 2100027 https://www.qcc.cuny.edu/nsfGrants/nsf-ate.html

Abstract

This document outlines the proposal by Queensborough Community College of the City University of New York for an Associate in Science (A.S.) degree in Mathematics. The proposal includes articulation agreements with the B.A. in Mathematics program at nearby Queens College. The program will provide a strong foundation in STEM courses with a concentration in mathematics and statistics, as well as a comprehensive general education component to support student learning following the CUNY Pathways requirements. The proposed program will prepare graduates for transfer into mathematics bachelors programs.

Purpose and Goals

The proposed Associate in Science (A.S.) degree in Mathematics is designed to align well with the 11 CUNY senior colleges that offer bachelor's degrees in mathematics. Our purpose is to provide students with skills required by scientists, including being inquisitive, thinking critically, and solving problems. It is also important that students gain experience in framing a research question and seeking out appropriate publicly available data in order to answer it. Students will also learn how to approach a data set, how to perform initial exploratory analysis of the data, how to conduct simple statistical analyses, including model building, to test one or more hypotheses relevant to the data, and how to interpret and present the results of the investigation. The goals of the program are to provide rigorous instruction in the foundations of math and statistics required to be successful in transferring to a four-year math degree program at CUNY, SUNY, and prestigious universities nationwide.

Need and Justification

Students who have an interest in careers in mathematics, statistics and computer science are enrolled in the STEM academy. The current degree available to them is the Liberal Arts and Sciences: Mathematics and Science A.S. degree. This program has recommended course sequences in Biology, Chemistry, Computer Science, Mathematics, and Physics, but no official concentrations. The general A.S. degree program allows students to take a wide variety of STEM courses as major electives and within the common core. This makes advisement very challenging. Students can complete the degree requirements but arrive at a senior college lacking key math courses that prepare them well for junior level work in a bachelor's degree program in math. By separating mathematics into its own degree, the proposed A.S. in Mathematics allows advisement to be much more targeted and effective for students in this area of interest. Recently, A.S. degree programs in Biology and Physics were approved for the same reason.

The skills that students learn in the proposed A.S. program in Mathematics, including communication, critical thinking, and applying mathematical concepts to real world situations, will provide students a strong foundation for a wide range of careers, such as finance, engineering, computer science, coding, accounting, statistics, and research. There is an urgent need for more qualified data scientists, programmers, and high school math teachers in the New York City area and Queens specifically. This major will provide the first two years of instruction that these workers will need to succeed.

The field of mathematics has low participation by women and underrepresented minorities (locally, regionally, and nationally). The amazing diversity of QCC students and the borough of Queens provides us with an opportunity to help address that problem. Many incoming QCC students are unaware of the opportunities that a math major might provide. Having a math major

will allow us to actively recruit a diverse group of students from the surrounding high schools during application and registration time.

Students

The Math & CS department, with the help of the Office of Institutional Research, distributed a survey to gauge students' interest in a mathematics degree. The target population was selected based on students' academic interest, as indicated by their declared major and previous courses they had taken. In total, 296 students responded to the survey. The outcomes are very encouraging. Overall, over 56.4% of respondents expressed high interest in such a degree (4 or 5 on a 5-point scale) The pattern persisted across gender, and ethnic categories.

Interest Level / Group	1	2	3	4	5
All (n=296)	7.09%	11.49%	25.00%	30.41%	26.01%
Male (n=142)	4.93%	9.15%	28.17%	33.80%	23.94%
Female (n=145)	8.28%	14.48%	20.69%	26.90%	29.66%
Other Ethnicity (n=9)	22.22%	0.00%	44.44%	33.33%	0.00%
Asian/Pacific Islander (n=127)	4.72%	11.02%	27.56%	27.56%	29.13%
Black, Non-Hispanic (n=50)	10.00%	12.00%	22.00%	32.00%	24.00%
Hispanic (n=52)	5.77%	5.77%	34.62%	34.62%	19.23%
White, Non-Hispanic (n=23)	13.04%	26.09%	13.04%	30.43%	17.39%
Other Ethnicity (n=44)	9.30%	11.63%	16.28%	32.56%	30.23%

An associate degree in mathematics is the first steppingstone to a world of opportunity. With this introductory, two–year, 60–credit math degree program, students will qualify to pursue a bachelor's degree in mathematics or in most other STEM disciplines. Our courses will provide basic education in subjects such as calculus, algebra, geometry, trigonometry, statistics, and probability. Each of these foundational subjects applies in myriad ways to the sciences. These topics can also help students take the first step if they ultimately hope to become a scientist, computer programmer, financial analyst, statistician, systems analyst, urban planner, accountant, math teacher, and so on. While they will need more than an associate degree to land one of these jobs, an associate degree in mathematics is a great way to get started. In addition, with further education and recruitment highlighting the possibilities for jobs, the number of students with a mathematics major is expected to increase.

Enrollment Projections

The projected enrollment for the first five years of the program is shown in the table below.

	2022-23		**2023-24**		**2024-25**		**2025-26**		**2026-27**	
	New	Cont.	New	Cont.	New	Cont.	New	Cont.	New	Cont.
F-T	2	30	3	35	4	40	5	45	6	50
P-T	1	6	1	6	2	6	2	6	2	6
Subtotal	3	36	4	41	6	46	7	51	8	56
Total	**39**		**45**		**52**		**58**		**64**	

Admission Requirements and Advisement

Students seeking admission to the mathematics degree program must satisfy the general requirements for entry to Queensborough: completion of either a high school diploma or a New York State Equivalency Diploma. The College's Office of New Student Engagement will help guide students through the admissions process and prepare them for academic success. Students requiring developmental coursework in Math and/or English have a range of options, including the Accelerated Learning Program which allows them to take a credit-bearing course alongside a developmental co-requisite course, reducing the time to graduation.

Students enrolled in the mathematics degree program will be part of the Queensborough STEM Academy. Queensborough's STEM Academy, together with the Department of Mathematics and Computer Science, will advise students on their curriculum and opportunities for transfer to 4-year institutions. The Transfer Resource Center at the College will also advise students on how to prepare for transfer to specific B.S. or B.A. degree programs.

Curriculum

The proposed A.S. in Mathematics degree program will require students to complete courses in the CUNY Pathways General Education curriculum and in Mathematics Major Requirements and Electives. The 60 credits A.S. in mathematics degree program requires 34 or 35 credits of CUNY Pathways courses (including specific Mathematics courses in Areas 1B and 2E) and 25 or 26 credits of Mathematics requirements and electives. The program easily meets the New York state requirement that A.S. degree programs must include at least 50% of credit hours from Liberal Arts and Sciences courses (Appendix A).

Program Outcomes

1. Demonstrate proficiency in knowledge of mathematics and its underlying concepts.
2. Use mathematics to model real-world phenomena.
3. Demonstrate an ability to communicate mathematical principles and explain problems effectively, through writing.
4. Acquire, process, and analyze data related to mathematics and draw conclusions based on the observed data.

Associate of Science (A.S.) in Mathematics Degree Requirements

The Associate in Science degree program in Mathematics offers students interested in careers in mathematics and applied mathematics the ability to complete the first two years of study leading to the Bachelor of Science degree in the field.

Common Core Requirements	**Credits**
Required Core 1A: English Composition ENGL-101 English Composition I	3
Required Core 1A: English Composition ENGL-102 English Composition II	3
Required Core 1B: Mathematics and Quantitative Reasoning MA-440 Pre-Calculus Mathematics or higher[1,2]	4
Required Core 1C: Life and Physical Sciences (Select any course)	3-4

Flexible Core 2A: World Cultures and Global Issues (Select any course)	3
Flexible Core 2B: U.S. Experience in Its Diversity (Select any course)	3
Flexible Core 2C: Creative Expression (Select any course)	3
Flexible Core 2D: Individual and Society (Select any course)	3
Flexible Core 2E: Scientific World MA-441 Analytic Geometry and Calculus I[2]	4
One additional course from Flexible Core 2A, 2B, 2C, 2D or 2E MA-442 Analytic Geometry and Calculus II[2]	4
Subtotal	**33-34**
Major Requirements	**Credits**
MA-443 Analytic Geometry and Calculus III	4
MA-461 Linear Algebra	4
MA-451 Differential Equations or MA-481 Probability and Statistics	3-4
Subtotal	**11-12**
Advised Major Electives – Take 14 or 15 credits from courses listed below	**Credits**
CS-100 Introduction to Computers and Programming	3
CS-101 Algorithmic Problem Solving I	4
CS-102 Spreadsheet Programming with MS Excel	3
CS-103 Relational Databases	4
CS-201 Computer Organization and Assembly Language	4
CS-203 Algorithmic Problem Solving II in C++	4
CS-204 Algorithmic Problem Solving II in Java	4
CS-220 Discrete Structures	3
EDUC-101 Contemporary Education: Principles and Practices[3]	4
EDUC-240 Middle Childhood and Adolescent Learning and Development[3]	3
MA-119 College Algebra[1]	3
MA-121 Trigonometry[1]	1
MA-451 Differential Equations	4
MA-471 Introduction to Discrete Structures	3
MA-481 Probability and Statistics	3
MA-905 Undergraduate Research in Mathematics and/or Computer Science I	2
MA-906 Undergraduate Research in Mathematics and/or Computer Science II	2
Subtotal	**14-15**
Additional Requirements	
One laboratory science course – Select from: BI-132, BI-171, CH-102, CH-111, CH-121, ET-842, or PH-112[4]	0-1
Subtotal	**0-1**
Total Credits Required	**60**

[1]Depending on their incoming math placement, students may be required to complete MA-119 and/or MA-121 (both with a C or better) prior to MA-440. When required by math placement, MA-119 and MA-121 will count as major electives.
[2]Students who place into mathematics at MA-441 will use that course to satisfy Required Core 1B, use MA-443 in the Flexible Core, and take an additional 4 credits of major elective courses to reach 60 credits.
[3]Students planning to pursue Mathematics Education are recommended to take these courses.
[4]Students who take a STEM variant for Required Core 1C have satisfied this requirement

All students must successfully complete two (2) writing-intensive classes (designated "WI") to fulfill degree requirements.

Shared Governance

The Mathematics Program will be overseen by the Department of Mathematics and Computer Science and Associate Professor Kostas Stroumbakis will serve as the Program Director. Any changes to the program will be reviewed and approved by the departmental curriculum committee before being submitted for approval to the College's Academic Senate Curriculum Committee and subsequently to the Academic Senate and CUNY.

Cost Assessment

Faculty

Our math faculty have the necessary qualifications, expertise, and experience to provide valuable guidance and support to the proposed Mathematics program. The Department of Mathematics and Computer Science has 53 full-time faculty members, 38 of whom hold doctorate degrees in Mathematics or a related field. All faculty members are engaged in student advisement and mentoring. Many of the full-time faculty conduct original research and many of them involve Queensborough students. Mathematics program students will have opportunity to gain research experience performing projects with these faculty. To support their research efforts, the faculty have secured and continue to apply for funding from both the CUNY programs and outside of CUNY, including from the National Science Foundation. External funding will provide math program students with the opportunity to obtain scholarships to participate in research. Many of the faculty incorporate high impact practices into their courses, including writing intensive courses, and courses incorporating undergraduate research.

Facilities and Equipment

The proposed program can be established without requiring Queensborough to increase expenditures in faculty, space, or equipment. All of courses are taught by existing QCC faculty.

Evaluation

Queensborough Community College has an Institutional Framework in place for evaluating degree programs and for assessing individual courses. Faculty are encouraged to participate in the Assessment Institute that provides guidance on the course assessment. General Education Objectives as well as Program Outcomes are assessed in individual courses. Each degree program is evaluated every five years on a designated schedule. The program review consists of two parts: a self-study and an external evaluation. The A.S. degree in Mathematics will undergo Program Review in the same manner. The self-study will be conducted by a committee formed by the Department of Mathematics and Computer Science. Using data provided by Institutional Research

and individual course assessment, the committees will discuss student outcomes, curriculum, faculty, and facilities; generate major findings; and formulate recommendations. The committee will prepare a report according to a standardized template. An external reviewer, with an expertise in mathematics, will be invited to read the report, visit the campus, and meet with faculty members, administrators, and students. The external reviewer will then prepare a report that includes recommendations. In response to this report, an action plan is developed, followed by an administrative response that operationalizes the action plan and sets the strategic direction of the program for the next five years.

In addition to the college wide assessment plan, the math department has created a course assessment plan that regularly assesses each of our courses and provides valuable feedback to the instructors and the chair of the department. Using a combination of nationally accepted concept inventory tests and locally generated problem-solving questions and rubrics that are offered on a consistent basis in the relevant classes, the department tracks progress within the semester as well as through time. In addition to individual courses, course sequences and program outcomes are evaluated internally.

Appendix A: Sample Program Scheduling, Course Descriptions for Required Courses, List of New Courses, Syllabi for New Courses

Sample Program Scheduling

Term: Fall #1		**Credits per classification**			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core 1A ENGL-101 English Composition 1	3	X			
Required Core 1B MATH-440 Pre-Calculus Mathematics	4	X	X		MA-119 and MA-121 or placement
Flexible Core Course 2A, 2B, 2C, or 2D	3	X			
Flexible Core Course 2A, 2B, 2C, or 2D	3	X			
Advised Major Elective	3	X	X		
Term credit total:	**16**	**16**	**7**		

Term: Spring #1		**Credits per classification**			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Required Core 1A ENGL-102 English Composition II	3	X			ENG-101
Flexible Core Course 2E MATH-441 Analytic Geometry & Calculus I	4	X	X		MA-440
Advised Major Elective	3	X	X		
Advised Major Elective	4	X	X		
Term credit total:	**14**	**14**	**11**		

Term: Fall #2		**Credits per classification**				**Term: Spring #2**		**Credits per classification**			
Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)	Course Number & Title	Cr	LAS	Maj	New	Prerequisite(s)
Flexible Core Course 2E MATH-442 Analytic Geometry & Calculus II	4	X	X		MA-441	MATH-443 – Analytical Geometry & Calculus III	4	X	X		MA-442
MA-461 Linear Algebra	4	X	X		MA-441	MA-481 Probability and Statistics	3	X	x		MA-442
Required Core 1C	4	X				Flexible Core Course 2A, 2B, 2C, or 2D	3	X			
Flexible Core Course 2A, 2B, 2C, or 2D	3	X				Advised Major Elective	5	X			
Term credit total:	**15**	**15**	**8**			**Term credit total:**	**15**	**15**	**7**		

Program Totals:	Credits: 60	Liberal Arts & Sciences: 60	Major: 33	Elective & Other: 0

Cr = credits noted courses LAS = Liberal Arts and Sciences Maj = major requirement New = new course Prerequisite(s) = list prerequisite(s) for the

Course Descriptions for Required and Elective Courses

Required Courses

MA-440 Pre-Calculus Mathematics
3 class hours 2 recitation hours 4 credits
Prerequisite: MA-119 and MA-121 with a C or better in both courses or MA-114 with a grade of C or better, or advanced math placement
Mathematical foundations necessary for the study of the calculus. An introduction to analytic geometry, and the elementary functions of analysis, including algebraic, trigonometric, logarithmic, and exponential functions. The use of the graphing calculator will be included.

MA-441 Analytic Geometry and Calculus I
4 class hours 1 recitation hour 4 credits
Prerequisite: MA-440 (with a grade of C or better) or advanced math placement (see Proficiency in Math and English)
Functions and graphs; derivative of algebraic and trigonometric functions with applications; indefinite and definite integrals with applications; the fundamental theorem of integral calculus; conic sections. Students will develop problem solving skills and construct mathematical models in the computer laboratory using software such as MAPLE, DERIVE, CONVERGE, and MATHCAD.

MA-442 Analytic Geometry and Calculus II4 class hours 1 recitation hour 4 credits
Prerequisite: MA-441 (with a grade of C or better).
Coordinated continuation of MA-441 (Analytic Geometry and Calculus I); transcendental functions; integration by various techniques; parametric equations; infinite series. Students will develop problem solving skills and construct mathematical models in the computer laboratory using software such as MAPLE, DERIVE, CONVERGE, and MATHCAD.

MA-443 Analytic Geometry and Calculus III
4 class hours 1 recitation hour 4 credits
Prerequisite: MA-442 (with a grade of C or better).
Continuation of MA-442 (Analytic Geometry and Calculus II); polar coordinates; solid analytic geometry and vectors; partial derivatives; multiple integrals. Students will develop problem solving skills and construct mathematical models in the computer laboratory using software such as MAPLE, DERIVE, CONVERGE, and MATHCAD.

MA-461 Linear Algebra
4 class hours 1 recitation hour 4 credits
Prerequisite: MA-441 (with a grade of C or better)
Vector spaces; systems of linear equations; determinants; linear operations; matrices; inner product spaces; eigenvalues and eigenvectors. Students will solve application problems using software such as MAPLE.

MA-481 Probability and Statistics[4]
3 class hours 3 credits
Corequisite: MA-442
Axioms of probability, combinational methods, conditional probability, discrete and continuous random variables and distributions, binomial, Poisson, normal and exponential distributions, independent discrete random variables, Law of Large Numbers and the Central Limit Theorem, expectation, confidence intervals and test of hypotheses.

MA-451 Differential Equations
4 class hours 1 recitation hour 4 credits
Corequisite: MA-443 (with a grade of C or better)
Methods of solving ordinary differential equations with physics, engineering and computer science applications; solutions by series. Students will solve application problems using software such as MAPLE.

Elective Courses

CS-100 Introduction to Computers and Programing
3 class hours 3 credits
Prerequisite/Co-requisite: Students must complete any developmental requirements in Mathematics (see Proficiency in Math and English) prior to taking this course.
A survey of topics in computer science including history, hardware components, software applications and the use of computers in society. Use of software applications. Introduction of computer programming using a high-level language.

CS-101 Algorithmic Problem Solving I
3 class hours 2 laboratory hours 4 credits
Corequisite: MA-441
Primitive data types; single and multidimensional arrays; strings; control structures; basic I/O; subprograms and parameter passing; references; scope; introduction to recursion; designing, coding, debugging and documenting programs in a high-level language.

CS-102 Spreadsheet Programming with MS Excel
3 class hours, 1 laboratory hour
Pre-requisites: MA-119 with C or better, or Permission of the Department
Introduction to the organization, processing, and analysis of data through programmed spreadsheets, as would apply to data science and related mathematical concepts. Topics include: cell operations, text manipulation, formulas, functions, arrays, charting techniques, pivot tables, conditional formatting, and VBA programming, as they relate to data science.

[4] Students may choose MA-481 or MA-451 to satisfy the requirement. The other course may be taken as elective.

CS-103 Relational Databases
3 class hours 2 laboratory hours 4 credits
Prerequisite: MA-119 with C or better, MA-114 with C or better, or Permission of the Department
Principles of relational databases; data manipulation using SQL queries, as would apply to data science and related mathematical concepts: selection, insertion and deletion, aggregates, joins, views, integrity constraints, triggers; table management; database design. Emphasis is on the writing of SQL queries and PL/SQL scripts in a scalable, cross-platform, and client-server database systems (such as MySQL, PostgreSQL, or Oracle) with an understanding of the mathematical underpinnings.

CS-201 Computer Organization and Assembly Language
3 class hours 1 recitation hour 1 lab hour 4 credits
Prerequisite: CS-101 with a grade of C or better and MA-441
Principles of computer design and implementation. Instruction set architecture and register-transfer level execution; storage formats; binary data encoding; bus structures; assembly language programming.

CS-203 Algorithmic Problem Solving II in C++
3 class hours 2 recitation hours 4 credits
Prerequisite: MA-441 and C or better in CS-101
User defined data types, pointers and linked lists, ADT's, stacks, queues, recursion, searching and simple sorting, elementary memory management. Object oriented problem solving.

CS-204 Algorithmic Problem Solving II in Java
3 class hours 2 laboratory hours 4 credits
Prerequisite: MA-441 and C or better in CS-101
Algorithmic object-oriented problem solving in Java, elements of graphical user interfaces (GUIs) and event driven programming; exception handling, inheritance and polymorphism; searching and sorting; recursion; linked lists, stacks and queues; file processing; testing and debugging.

CS-220 Discrete Structures
3 class hours 3 credits
Prerequisite: MA-471
Recursion, recurrence and generating functions; relations; graphs and applications; asymptotics; trees; applications in computer science.

EDUC-101 Contemporary Education: Principles and Practices

4 class hours 4 credits

Prerequisite/Corequisite: Students must complete any developmental requirements in English (see Proficiency in Math and English) prior to taking this course or enroll in ENGL-101 and BE-102 at the same time as this course.

This course will examine the historical, philosophical and sociological foundations of American education. Students will study the evolution of educational theory and research based practices that promote social, emotional, and cognitive development and enhance learning. Attention will be paid to comparative analysis of past and contemporary political, philosophical, and sociological factors that influence and shape education decision-making. The course introduces students to the reflective decision-making model through readings, in-class activities and discussions, and intensive writing exercises. Students will directly observe the teaching and learning process through the experience of a required internship in a public or private educational institution with field hours to be arranged. Students will also be introduced to the applications of technology in the classroom.

EDUC-240 Middle Childhood and Adolescent Learning and Development

3 class hours 3 credits

Prerequisite: EDUC-101

This course will examine psychological theories regarding processes related to learning and how they apply to secondary education in middle childhood and adolescence. To the extent that learning and development occur in context, the role and impact of the home, school, and community on learning processes will also be investigated. Individual differences, the range of normal development, and strategies for accommodating individual variability in the secondary classroom will be emphasized. Cognitive, behavioral, social, emotional, and physical issues as these relate to student diversity (culture, heritage, SES, gender, race, ethnicity, and the full range of disabilities and exceptionalities) will be included. Students learn to apply knowledge of development and learning to interpret real world observations of adolescents and secondary educational settings. The course emphasizes foundational learning principles that guide effective teaching. This course integrates required fieldwork observation and the use of technology.

MA-119 College Algebra

3 class hours 1 recitation hour 3 credits

Prerequisite/Corequisite: Students must complete any developmental requirements in Mathematics prior to taking this course or enroll in MA-10ALP while taking this course.

A basic presentation of the fundamental concepts of college algebra, systems of linear equations, inequalities, linear, quadratic, exponential, and logarithmic functions. During the recitation hour, students review properties of signed numbers, graphing of linear equations, basic geometric concepts, solution of linear equations, factoring algebraic expressions and its applications to rational expressions.

MA-121 Elementary Trigonometry

1 class hour 1 credit

Corequisite: MA-119

This course is a basic presentation of the fundamental concepts of trigonometry, angles and their measure, basic trigonometric functions, right triangle trigonometry, graphing, and solving trigonometric equations.

MA-471 Introduction to Discrete Structures
3 class hours 3 credits
Prerequisite: MA-440
Concepts in set theory, functions, logic, proofs, elementary number theory, introduction to abstract algebra.

MA-905 Undergraduate Research in Mathematics and/or Computer Science I
90 Hours of Research 2 credits
Prerequisite: MA-440 or permission of the Department. Students must have permission from the course instructor and a letter of recommendation from a Math and Computer Science instructor who has had the student in a college level class.
MA-905 will focus on a specific research question or topic to be announced in advance and will vary each semester as well as it will vary by section. Descriptions of the research topic in a particular section in a particular semester will be available in the Math & CS Department before registration. Areas of research include but are not limited to: Mathematical Modeling, Simulations, Computer Coding or Web Design, Statistical Research, Logic, Algebra, Geometry, Number Theory, Actuarial Science, Signal Processing, Mathematical Neuroscience, Dynamical Systems, Pedagogical Research (in Math), and History of Mathematics.

MA-906 Undergraduate Research in Mathematics and/or Computer Science II
90 Hours of Research 2 credits
Prerequisite: MA-905 or permission of the Department. Students must have permission from the course instructor to register for a section of this course.
MA-906 will be offered exclusively to student-faculty pairs working on a research question or topic started in MA-905 but that requires a second semester of research to be completed in a meaningful way.

New Courses

No new courses are required for proposed degree program.

Appendix B: Faculty Teaching Assignments

Existing Core Faculty				
Faculty Member Name, Title, and Rank	Courses to be taught	Full-time or Part-time; if Full-time identify % of time to the program	Highest Earned Degree, Discipline, IHE	Additional qualifications
Haishen Yao Professor and Chair	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Haya Adner Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Zeynep Akcay Ozkan Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Applied Mathematics	
Changiz Alizadeh Lecturer	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A., Mathematics	
Dona V. Boccio Professor	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Lyubomir Boyadzhiev Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443,	Full-time, 10%	Ph.D., Mathematics	

Existing Core Faculty				
	MA-461, MA-471, MA-481, MA-451, MA-905/6			
Andrew Bulawa Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Beata Ewa Carvajal Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441	Full-time, 10%	M.A., Mathematics	
Steven Cheng Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441	Full-time, 10%	M.A., Mathematics Education	
Kwai Chiu Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441	Full-time, 10%	M.A., Mathematics	
Danielle Cifone Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481	Full-time, 10%	M.A., Mathematics Education	
Jonathan Cornick Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematical Sciences	
Yusuf Danisman Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Robert W. Donley, Jr. Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	

Existing Core Faculty				
Mercedes Franco Associate Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Applied Mathematics	
Jonathan Funk Assistant Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Daniel Garbin Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
John Gordon Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Yusuf Z. Gurtas Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Robert J. Holt Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Francis Jordan Associate Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Nataliya Khomyak Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-471, MA-905/6	Full-time, 10%	M.A., Mathematics	

Existing Core Faculty				
Kwang Hyun Kim Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Carolyn King Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Urban Education-SMT	
Whanki Lee Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Lixu Li Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442	Full-time, 10%	M.A, Mathematics	
Wenjian Liu Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Lucian Makalanda Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A., Mathematics	
Debra Maslanko Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442	Full-time, 10%	M.A., Mathematics	
Azita Mayeli Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	

Existing Core Faculty				
Richard Micieli Lecturer	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.S., Computer Science M.A., Mathematics	
Nam Jong Moh Associate Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
David N. Pham Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Susana Pinheiro Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Karan M. Puri Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Manachanallur S. Ravi Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Tian Ren Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461,	Full-time, 10%	Ph.D., Mathematics	

Existing Core Faculty				
	MA-471, MA-481, MA-451, MA-905/6			
Andrew S.H. Russell Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A. and M.S., Mathematics Education	
Mathieu Sassolas Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Computer Science	
Kenneth Schmidt Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A., Mathematics Education	
Venessa Singhroy Assistant Professor	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Educational Psychology (specialization in Quantitative Methods)	
Bianca Sosnovski Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Eric Sponza Lecturer	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A., Mathematics	
Howard Sporn Associate Professor	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461,	Full-time, 10%	Ed.D., Mathematics Education	

Existing Core Faculty				
	MA-471, MA-481, MA-451, MA-905/6			
Ewa Stelmach Lecturer	CS-100, CS-101, CS-102, CS-103, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics Education	
Kostas Stroumbakis Associate Professor **Program Director**	CS-100, CS-101, CS-102, CS-103, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-905/6	Full-time, 10%	Ed.D., Mathematics Education	
Evelyn Tam Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.A., Mathematics	
Clara Wajngurt Professor	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Patrick Wallach Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	D.A., Mathematics	
Biao Wang Associate Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Mathematics	
Fei Ye Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443,	Full-time, 10%	Ph.D., Mathematics	

Existing Core Faculty				
	MA-461, MA-471, MA-481, MA-451, MA-905/6			
Esma Yildirim Assistant Professor	CS-100, CS-101, CS-102, CS-103, CS-201, CS-203, CS-204, CS-220, MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	Ph.D., Computer Science	
Reuvain Zahavy Lecturer	MA-119, MA-121, MA-440, MA-441, MA-442, MA-443, MA-461, MA-471, MA-481, MA-451, MA-905/6	Full-time, 10%	M.S., Mathematics	

Appendix C: Financial Tables

Enrollment and Seat Projection

Enrollment and Seat Projection					
	2022-23	2023-24	2024-25	2025-26	2026-27
Projected Enrollment	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Existing Full-time Students	30	35	40	45	50
In-State	30	35	40	45	50
Out-of-State					
Existing Full-time Total	**30**	**35**	**40**	**45**	**50**
Existing Part-time Students	6	6	6	6	6
In-State	6	6	6	6	6
Out-of-State					
Existing Part-time Total	**6**	**6**	**6**	**6**	**6**
New Full-time Students	2	3	4	5	6
In-State	2	3	4	5	6
Out-of-State					
New Full-time Total	**2**	**3**	**4**	**5**	**6**
New Part-time Students	1	1	2	2	2
In-State	1	1	2	2	2
Out-of-State					
New Part-time Total	**1**	**1**	**2**	**2**	**2**
Section Seats per Student	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Full-time Students	32	38	44	50	56
Existing Courses	8	8	8	8	8
New Courses	2	2	2	2	2
Total (normally equals 10)	**10**	**10**	**10**	**10**	**10**
Part-time Students	7	7	8	8	8
Existing Courses	3	3	3	3	3
New Courses	1	1	1	1	1
Total (normally equals 4-6)	**4**	**4**	**4**	**4**	**4**

Enrollment and Seat Projection -continued

Seat and Section Needs	Year One	Year Two	Year Three	Year Four	Year Five
	2022-23	2023-24	2024-25	2025-26	2026-2027
Seat Need for Existing Students					
Existing Courses	(66)	(76)	(86)	(96)	(106)
New Courses	66	76	86	96	106
Seat Need for New Students					
Existing Courses	19	27	38	46	54
New Courses	5	7	10	12	14
Total Seat Need					
Existing Courses	(47)	(49)	(48)	(50)	(52)
Available Seats in Existing Courses					
Net Seats in Existing Courses	(47)	(49)	(48)	(50)	(52)
New Courses	71	83	96	108	120
All courses	**24**	**34**	**48**	**58**	**68**
Average Seats per Section					
Existing Courses	25	25	25	25	25
New Courses	25	25	25	25	25
Net New Section Need					
Existing Courses	-1.9	-2.0	-1.9	-2.0	-2.1
New Courses	2.8	3.3	3.8	4.3	4.8
Total	**1.0**	**1.4**	**1.9**	**2.3**	**2.7**

Projected Revenue

Projected Revenue Related to the Proposed Program					
Revenues [1]	**1st Year**	**2nd Year**	**3rd Year**	**4th Year**	**5th Year**
	2022-23	2023-24	2024-25	2025-26	2026-27
Tuition Revenue [3]					
01. From Existing Sources	$169,440	$198,298	$228,243	$259,306	$291,521
02. From New Sources [5]	$12,913	$18,265	$26,869	$32,706	$38,766
03. Total	**$182,353**	**$216,563**	**$255,112**	**$292,013**	**$330,287**
State Revenue [6]					
04. From Existing Sources	$79,926	$92,036	$104,146	$116,256	$128,366
05. From New Sources	$6,055	$8,477	$12,110	$14,532	$16,954
06. **Total**	**$85,981**	**$100,513**	**$116,256**	**$130,788**	**$145,320**
Other Revenue [7]					
07. From Existing Sources	$0	$0	$0	$0	$0
08. From New Sources	$0	$0	$0	$0	$0
09. **Total**	$0	$0	$0	$0	$0
Grand Total [8]					
10. From Existing Sources	$249,366	$290,334	$332,389	$375,562	$419,887
11. From New Sources	$18,968	$26,742	$38,979	$47,238	$55,720
TOTAL	**$268,334**	**$317,076**	**$371,368**	**$422,801**	**$475,607**

Revenue (Supporting Materials)

The Five-Year Revenue Projections for Program					
COMMUNITY COLLEGE WORKSHEET					
Year 1 = Fall 2022					
	2022-23	2023-24	2024-25	2025-26	2026-27
Existing Full-Time Students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition and Fees:					
# of Existing Full-Time, In-State Students (linked from "Enroll & Seat Need Projections")	30	35	40	45	50
Tuition Income (Calculates 2% increase per year after Fall 2022)	$4,994	$5,094	$5,196	$5,300	$5,406
Total Tuition	$149,820	$178,286	$207,830	$238,485	$270,283
Student Fees (enter ANNUAL program fees other than standard CUNY					
Total Fees	$0	$0	$0	$0	$0
Total In-State Tuition and Fees	**$149,820**	**$178,286**	**$207,830**	**$238,485**	**$270,283**
Tuition and Fees:					
# of Existing Full-Time, Out-State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Annual Average # of Credits per FT student (24-30)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	$0	$0	$0	$0	$0
Total Out-State Tuition and Fees	**$0**	**$0**	**$0**	**$0**	**$0**
TOTAL EXISTING FULL-TIME TUITION REVENUE	**$149,820**	**$178,286**	**$207,830**	**$238,485**	**$270,283**
Existing Part-Time Students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition and Fees:					
# of Existing Part-Time, In-State Students (linked from "Enroll & Seat Need Projections")	6	6	6	6	6
Total Enrolled Credits (Enter average # credits per student per year – Fall+Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer = 15)	15	15	15	15	15
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$218	$222	$227	$231	$236
Total Tuition	$19,620	$20,012	$20,413	$20,821	$21,237
Student Fees (enter ANNUAL program fees other than standard CUNY					
Total Fees	0	0	0	0	0
Total In-State Tuition and Fees	**$19,620**	**$20,012**	**$20,413**	**$20,821**	**$21,237**
Tuition and Fees:					
# of Existing Part-Time, Out-State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Total Enrolled Credits (Enter average # credits per student per year – Fall+Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer = 15)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	$0	$0	$0	$0	$0
Total Out-State Tuition and Fees	$0	$0	$0	$0	$0
TOTAL EXISTING PART-TIME TUITION REVENUE	**$19,620**	**$20,012**	**$20,413**	**$20,821**	**$21,237**
TOTAL EXISTING REVENUE (LINKS TO REVENUE TABLE ROW 5)	**$169,440**	**$198,298**	**$288,243**	**$259,306**	**$291,521**

Revenue (Supporting Materials) – continued

New Full-Time Students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition and Fees:					
# of New Full-Time, In-State Students (linked from "Enroll &	2	3	4	5	6
Tuition Income (Calculates 2% increase per year after Fall 2022)	$4,994	$5,094	$5,196	$5,300	$5,406
Total Tuition	$9,988	$15,282	$20,783	$26,498	$32,434
Student Fees (enter ANNUAL program fees other than standard					
Total Fees	$0	$0	$0	$0	$0
Total In-State Tuition and Fees	**$9,988**	**$15,282**	**$20,783**	**$26,498**	**$32,434**
Tuition and Fees:					
# of New Full-Time, Out-State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Annual Average # of Credits per FT student (24-30)					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$333	$340	$346	$353	$360
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard					
Total Fees	$0	$0	$0	$0	$0
Total Out-State Tuition and Fees	$0	$0	$0	$0	$0
TOTAL New FULL-TIME TUITION REVENUE	**$9,988**	**$15,282**	**$20,783**	**$26,498**	**$32,434**

New Part-Time Students	**Year 1**	**Year 2**	**Year 3**	**Year 4**	**Year 5**
Tuition and Fees:					
# of New Part-Time, In-State Students (linked from "Enroll &	1	1	2	2	2
Total Enrolled Credits (Enter average # credits per student per year – Fall+Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer =	15	15	15	15	15
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$195	$199	$203	$207	$211
Total Tuition	$2,925	$2,984	$6,086	$6,208	$6,332
Student Fees (enter ANNUAL program fees other than standard					
Total Fees	$0	$0	$0	$0	$0
Total In-State Tuition and Fees	**$2,925**	**$2,984**	**$6,086**	**$6,208**	**$6,332**
Tuition and Fees:					
# of New Part-Time, Out-State Students (linked from "Enroll & Seat Need Projections")	0	0	0	0	0
Total Enrolled Credits (Enter average # credits per student per year – Fall+Spring+Summer – i.e. 6 Fall, 6 Spring, 3 Summer =					
Tuition Income (Specify Rate per credit. Calculates 2% increase per year after Fall 2022)	$305	$311	$317	$324	$330
Total Tuition	$0	$0	$0	$0	$0
Student Fees (enter ANNUAL program fees other than standard CUNY fees)					
Total Fees	$0	$0	$0	$0	$0
Total Out-State Tuition and Fees	$0	$0	$0	$0	$0
TOTAL NEW PART-TIME TUITION REVENUE	**$2,925**	**$2,984**	**$6,086**	**$6,208**	**$6,332**
TOTAL NEW REVENUE (LINKS TO REVENUE TABLE ROW	**$12,913**	**$18,265**	**$26,869**	**$32,706**	**$38,766**

Revenue (Supporting Materials) – continued

State Revenue	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
# of Existing FTEs	33	38	43	48	53
Appropriation per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
State Revenue from Existing Source – Links to Revenue Table Row 9	**$79,926**	**$92,036**	**$104,146**	**$116,256**	**$128,366**
# New FTEs	2.5	3.5	5	6	7
Appropriation per FTE	$2,422	$2,422	$2,422	$2,422	$2,422
State Revenue from New Source – Links to Revenue Table Row 11	**$6,055**	**$8,477**	**$12,110**	**$14,532**	**$16,954**
Other Revenue	**Year One**	**Year**	**Year Three**	**Year**	**Year Five**
Other Revenue from Existing Source (specify and explain) – Links to Revenue Worksheet Row 13					
Other Revenue from New Source (specify and explain) (Links to Revenue Worksheet Row 15)					

Expenditures

Expenditures	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
	2022-23	2023-24	2024-25	2025-26	2026-27
Full Time Faculty					
Part Time Faculty	$11,702.89	$14,014,57	$16,759.69	$19,071.37	$21,383.06
Full Time Staff					
Part Time Staff					
Library (includes Staffing)					
Equipment					
Laboratories					
Supplies and Expenses (Other than Personal Services)					
Capital Expenditures					
Other					
Total all	$11,702.89	$14,014,57	$16,759.69	$19,071.37	$21,383.06

Expenditures (Supporting Materials)

Supporting Material Expenditures (Community College)					
The Five-Year Financial Projections for Program					
	2022-23	2023-24	2024-25	2025-26	2026-27
Direct Operating Expenses	**Year One**	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Current Full Time Faculty Overload (include Summer)					
New Full Time Faculty Base Salary (list separately)					
New Full Time Faculty Overload (include Summer)					
New Full Time Faculty Re-assigned Time (list separately)					
Full Time Employee Fringe Benefits (41.6%)					
Total (Link to Full-Time Faculty on Program Exp Worksheet)					
Part Time Faculty Actual Salaries	$9,415.04	$11,274.80	$13,483.26	$15,343.02	$17,202.78
Part Time Faculty Actual Fringe Benefits (24.3%)	2,287.85	2,739.78	3,276.43	3,728.35	4,180.28
Total (Link to Part-Time Faculty on Program Exp Worksheet)	**$11,702.89**	**$14,014.57**	**$16,759.69**	**$19,071.37**	**$21,383.06**
	Year One	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Part-Time Staff (do not include library staff in this section)					
Part Time Staff Base Salary (list separately)					
Faculty Replacement Costs (replacement of full-time faculty – e.g. on release time – with part-time faculty)					
Graduate Assistants					
Student Hourly					
Part Time Employee Fringe Benefits (24.3%)					
Total (Link to Part-Time Staff on Program Exp Worksheet)					
Library					
Library Resources					
Library Staff Full Time (list separately)					
Full Time Staff Fringe Benefits (41.6%)					
Library Staff Part Time (list separately)					
Part Time Employee Fringe Benefits (24.3%)					
Total (Link to Library on Program Exp Worksheet)					
Equipment					
Computer Hardware					
Office Furniture					
Other (specify)					
Total (Link to Equipment on Program Exp Worksheet)					
	Year One	**Year Two**	**Year Three**	**Year Four**	**Year Five**
Supplies and Expenses (OPTs)					
Consultants and Honoraria					
Office Supplies					
Instructional Supplies					
Faculty Development					
Travel and Conferences					
Membership Fees					
Advertising and Promotion					
Accreditation					
Computer Software					
Computer License Fees					
Computer Repair and Maintenance					
Equipment Repair and Maintenance					
New Total Supplies and OPTs Expense (links to Supplies on					
Capital Expenditures					
Facility Renovations					
Classroom Equipment					
Other (list separately)					
Total (Link to Capital Expenditures on Program Exp Worksheet)					
Other (list separately)					
Total (links to Other on Program Exp Worksheet)					

Appendix D: Articulation Agreements

This proposal contains an articulation agreement with the B.S. in Applied Mathematics program at John Jay College. We are in the process of establishing additional articulation agreements with other CUNY Senior Colleges, including Brooklyn College, York College, and the New York City College of Technology.

QUEENSBOROUGH COMMUNITY COLLEGE | CUNY

ARTICULATION AGREEMENT

JOHN JAY COLLEGE OF CRIMINAL JUSTICE

A. SENDING AND RECEIVING INSTITUTIONS

Sending College: Queensborough Community College
Program: Mathematics
Degree: Associate of Science (A.S.)

Receiving College: John Jay College of Criminal Justice
Program: Applied Mathematics
Degree: Bachelor of Science (B.S.)

B. ADMISSION REQUIREMENTS FOR SENIOR COLLEGE PROGRAM

- Successful completion of a freshman composition course, its equivalent, or a higher-level English course.
- Successful completion of a 3-credit college-level math course
- A.S. Degree in Mathematics and a minimum GPA of 2.0

Total transfer credits granted toward the baccalaureate degree: 60.
Total additional credits required at the senior college to complete baccalaureate degree: 60.
Total credits required for the John Jay baccalaureate degree: 120

C. SUMMARY OF TRANSFER CREDITS FROM QCC AND CREDITS TO BE COMPLETED AT JOHN JAY

	Total Credits for the Baccalaureate	Transfer Credits from QCC	Credits to be completed at John Jay
General Education Requirements	39	33	6
Major Requirements	51-54	12-13	33-36
Electives	30-33	14-15	18-21
Total	120	60	60

D. TRANSFER CREDITS AWARDED

Queensborough Community College (QCC) graduates who complete the Associate in Science (A.S.) degree in Mathematics will receive 60 credits toward the Bachelor of Science degree in Applied Mathematics at John Jay College of Criminal Justice (John Jay) as indicated below.

COURSE EQUIVALENCIES AND TRANSFER CREDIT AWARDED

Sending College Queensborough Community College		Receiving College Equivalent John Jay College		Credit Granted
General Education Courses				
REQUIRED CORE: 12 Credits				
ENG 101 English Composition I	3	ENG 101 Composition I	3	3
ENG 102 English Composition II: Introduction to Literature	3	ENG 201 Composition II	3	3
MQR: MA 440 Pre-Calculus Mathematics[1]	4	MQR: MAT 141 Pre-Calculus Elective Credit	3 1	4
Life and Physical Science	3	Life and Physical Science	3	3
FLEXIBLE CORE: 18 Credits				
Creative Expression	3	Creative Expression	3	3
Scientific World MA-441 Analytic Geo. and Calc I[1,2] MA 442 Analytic Geo. and Calculus II[1,2]	 4 4	Scientific World MAT 151 Calculus I MAT 152 Calculus II	 4 4	 4 4
US Experience in its Diversity SP 211 Speech Communication	3	US Experience in its Diversity COM 113 Oral Communication	3	3
Individual and Society	3	Individual and Society	3	3
World Cultures and Global Issues	3	World Cultures and Global Issues	3	3
			Subtotal	33
MAJOR REQUIREMENTS[2]				
MA-443 Analytic Geo. and Calculus III[2]	4	MAT 253 Calculus III	4	4
MA-461 Linear Algebra	4	MAT 410 Linear Algebra	4	4
MA-451 Differential Equations OR MA-481 Probability and Statistics	4 3	MAT 351 Introduction to Differential Equations or MAT 205 Probability	3 + 1bl 3	3+ 1bl 3
			Subtotal	11-12
Major Electives (Take 14-15 credits from below, recommended in bold)				
CS-100 Introduction to Computers and Programming	3	CSCI Blanket Credit	3	3
CS-101 Algorithmic Problem Solving I	4	CSCI 271: Introduction to Computing and Programming Elective credit	3 1	3 1
CS-102 Spreadsheet Programming with MS Excel	3	CSCI Blanket Credit	3	3
CS-103 Relational Databases	4	CSCI Blanket Credit	4	4

CS-201 Computer Organization and Assembly Language	4	CSCI Blanket Credit	4	4
CS-203 Algorithmic Problem Solving II in C++	4	CSCI 272: Object-Oriented Programming	3 + 1bl	3+ 1bl
CS-204 Algorithmic Problem Solving II in Java	4	CSCI Blanket Credit	4	4
CS-220 Discrete Structures	3	MAT 204 Discrete Structures	3	3
EDUC-101 Contemporary Education: Principles and Practices	4	EDU Blanket Credit	3	3
EDUC-240 Adolescent Learning and Development	3	PSY 231 Developmental Psychology	3	3
MA 119 College Algebra	3	MAT 105 College Algebra	3	3
MA 121 Elementary Trigonometry	1	MAT Elective	1	1
MA 451 Differential Equations	4	MAT 351 Introduction to Differential Equations	4	4
MA 471 Introduction to Discrete Mathematics	3	MAT 204 Discrete Structures	3	3
MA-481 Probability and Statistics	3	MAT 205 Probability	3	3
MA-905 Undergraduate Research in Mathematics I	2	MAT Blanket Credit	2	2
MA-906 Undergraduate Research in Mathematics II	2	MAT Blanket Credit	2	2
			Subtotal	14-15
Additional Requirements				
One laboratory science course – Select from: BI-132, BI-171, CH-102, CH-111, CH-121, ET-842, or PH-1124	1	Elective or equivalent laboratory course	1	1
			Subtotal	1
			Total	60

Notes:

[1]Depending on their math placement, students may be required to complete MA-119 and/or MA-121 (both with a C or better) prior to MA-440. When required by math placement, MA-119 and MA-121 will count as major electives.

[2]Students who place into mathematics at MA-441 will use that course to satisfy Required Core 1B, use MA-443 in the Flexible Core, and take an additional 4 credits of major elective courses to reach 60 credits.

All Queensborough Community College students must complete at least two writing intensive courses, designated as "WI" in the course schedule.

E. REMAINING CREDITS FOR THE BACCALAUREATE DEGREE

Course	Course Title	Credits
General Education Requirements		
College Option	300 Justice Core	3
College Option	Learning from the Past or Communications	3
	Subtotal	6
Major Requirements: Foundation		
CSCI 171	The Nature of Computers and Computing	3
CSCI 172	Introduction to Data Science	3
	Subtotal	6
Major Requirements: Mathematics Core		
MAT 265	Elements of Mathematical Proof	3
MAT 301	Probability and Mathematical Statistics I	3
MAT 302	Probability and Mathematical Statistics I	3
MAT 341	Advanced Calculus I	3
MAT 351	Introduction to Ordinary Differential Equations	0-3
	Subtotal	12-15
Major Requirements: Concentration (Select one concentration and complete all 3 courses)		
Option A: Data Science		
MAT 455	Data Analysis	3
CSCI 362	Databases and Data Mining	3
MAT 367	Multivariate Analysis	3
Option B: Cryptography		
MAT 460	Mathematical Cryptography	3
CSCI 360	Cryptography and Cryptanalysis	3
MAT 410	Abstract Algebra	3
	Subtotal	9
Electives (Complete two courses):		
CSCI 358	Machine Learning	3
CSCI 360	Cryptography and Cryptanalysis (Concentration A only)	3
CSCI 362	Database and Data Mining (Concentration B only)	3
CSCI 376	Artificial Intelligence	3
CSCI 377	Computer Algorithms	3
CSCI 385	Faculty Mentored Research Experience in Computer Science	3
CSCI 421	Quantum Computing	3
MAT 352	Applied Differential Equations	3
MAT 354	Regression Analysis	3

MAT 361	Functions of a Complex Variable	3
MAT 365	The Mathematics of Signal Processing	3
MAT 367	Multivariate Analysis (Concentration B only)	3
MAT 371	Numerical Analysis	3
MAT 380	Selected Topics in Mathematics	3
MAT 385	Faculty Mentored Research Experience in Mathematics	3
MAT 410	Abstract Algebra (Concentration A only)	3
MAT 442	Advanced Calculus II	3
MAT 455	Data Analysis (Concentration B only)	3
MAT 460	Mathematical Cryptography (Concentration A only)	3
	Subtotal	6
	Major Requirements	33-36
	General Electives (Consult with an Advisor)	15-18
	Total Transfer Credits Applied to Program	60
	Total Credits Required after Transfer	60
	Total Credits Required for Degree	**120**

F. ARTICULATION AGREEMENT FOLLOW-UP PROCEDURE

1. Procedures for reviewing, updating, modifying or terminating agreement: When either of the degree programs involved in this agreement undergoes a change, the agreement will be reviewed and revised accordingly by representatives from each institution's respective departments, selected by their chairpersons/program directors.
2. Procedures for evaluation agreement, i.e., tracking the number of students who transfer under the articulation agreement and their success: Each semester John Jay will provide QCC with the following information: a) the number of QCC students who applied to the program; b) the number of QCC students who were accepted into the program; c) the number of QCC students who enrolled; and d) the aggregate GPA of these enrolled students.
3. Sending and receiving college procedures for publicizing agreement, e.g., college catalogs, transfer advisers, Websites, etc.: This articulation agreement will be publicized on the QCC website, and on John Jay's website. Transfer advisors at QCC will promote this agreement with eligible students.

Effective Date: Fall 2022

For Queensborough Community College:		*For John Jay College:*	
Sandra Palmer, Ph.D. Interim Provost and Vice-President for Academic Affairs	Date	Yi Li, Ph.D. Provost and Senior Vice President for Academic Affairs	Date
Michael Pullin, Ph.D. Dean of Academic Initiatives	Date	Michael Puls, Ph.D. Professor, Department of Mathematics	Date
Haishen Yao, Ph.D. Professor and Chair, Department of Mathematics and Computer science	Date		

Appendix E – Careers in Mathematics & Sample Job Advertisements

Careers for Mathematics Majors

A two-year degree in mathematics prepares students for a wide variety of four-year degrees with heavy reliance on mathematics. In addition to traditional mathematics degrees, math-heavy degrees are consistently among the top-paying, https://www.payscale.com/college-salary-report/common-jobs-for-majors/math.
Career paths, employing math-heavy degrees, of course include typical engineering and computer science paths, but are also in areas that are not readily associated with mathematics: e.g. meteorology, economics, finance, and business. https://cas.umw.edu/math/what-can-i-do-with-a-math-major/

Data science and financial mathematics have emerged recently with high demand, high projected growth, and high salaries. Several CUNY schools offer those degrees including Baruch College, Queens College, CCNY, CUNY Graduate Center, CUNY SPS, and New York City Tech.

The following quote is from the U.S. Bureau of Labor Statistics:

> "Employment in math occupations is projected to grow 27 percent from 2019 to 2029, much faster than the average for all occupations, and will add about 56,100 jobs. Growth is anticipated as businesses and government agencies continue to emphasize the use of big data, which math occupations analyze."
> https://www.bls.gov/ooh/math/home.htm

Careers for math degrees are typically among the highest paying and mathematics degrees are frequently employed in industries not typically thought of as mathematical. The tables below, all from the U.S. Bureau of Labor Statistics, show employment summaries of various career paths, for mathematics degrees, most with a bachelor's degree as the typical entry point.

High School Math Teachers

For May 2021, www.uft.org posts a salary schedule[5] starting at $61,070 (with only a bachelor's degree) to $128,657. Positions come with complete benefits plans, including pensions. The BLS reports the NYC metropolitan area mean salary for secondary teachers (2020)[6] to be $91,390. Charter schools[7] have advertised starting salaries of up to $125,000 plus bonus potential. In NYC schools, mathematics teaching remains a high-

[5] https://www.uft.org/your-rights/salary/doe-and-city-salary-schedules/teachers-salary-schedule
[6] https://www.bls.gov/oes/current/oes252031.htm
[7] http://www.tepcharter.org/jobs.php?gh_jid=2546796&gh_src=ffe6ed161us

need subject[8]. This is evidenced by incentives[9] to recruit and retain math teachers. For example, the Bronx Plan, offered an additional $7,200 to the UFT base salary for those teaching as part of its *hard-to-staff* program. The nonprofit organization, Math for America[10], M*f*A, is a more lasting example. Over the past 17 years, M*f*A has incentivized the recruitment and retention of high-quality mathematics teachers with professional development opportunities and stipends of up to $60,000 over four years. In 2013, New York State launched "Master Teacher[11]", a state-funded program modeled on M*f*A.

Some paths that are not as easy to categorize.

- Data science and mathematical science occupations are expected to grow at 31%, (projections to 2029) and frequently with an undergraduate degree as the entry point. The 2019 national median wage was $94,280, and for New York State the median was $119,130. https://www.bls.gov/oes/current/oes152098.htm
- The Employment Matrix, https://data.bls.gov/projections/nationalMatrix?queryParams=15-2098&ioType=o shows nearly 100 industries (all but four projected with positive growth) employing degrees in these fields.

Tables with Employment Statistics for Mathematics Degrees

Quick Facts:	Actuaries	Operations Research Analysts	Mathematicians and Statisticians
2019 Median Pay	$108,350 per year	$84,810 per year	$92,030 per year
Typical Entry-Level Education	Bachelor's degree	Bachelor's degree	Master's degree
Work Experience in a Related Occupation	None	None	None
On-the-job Training	Long-term on-the-job training	None	None
Number of Jobs, 2019	27,700	105,100	45,700
Job Outlook, 2019-29	**18% (Much faster than average)**	**25% (Much faster than average)**	**33% (Much faster than average)**
Employment Change, 2019-29	4,900	26,100	14,900

[8] http://teachnyc.net/about-our-schools/high-need-subjects
[9] http://teachnyc.net/about-our-schools/financial-incentives
[10] https://www.mathforamerica.org/
[11] https://www.suny.edu/masterteacher/

Table 1. Mathematics degree, 2018

Data	Mathematics	All fields
Employment	892,200	55,381,020
Median wage	$70,000	$59,000
Percent employed part time	14	15
Percent employed in occupations requiring at least a bachelor's degree	70	59
Percent with an advanced degree	49	37
Source: U.S. Census Bureau, American Community Survey.		

Table 2. Employment distribution of workers with a mathematics degree, by occupational group, 2018

Occupational group	Occupational group share
Computer and mathematical occupations	21%
Educational instruction and library occupations	21%
Management occupations	15%
Business and financial operations occupations	10%
Sales and related occupations	6%
Other	27%
Note: The sum of percents by major may not total 100 due to rounding. Source: U.S. Census Bureau, American Community Survey.	

Table 3. Top-employing occupations for workers with a mathematics degree (with growth)

Occupational Outlook Handbook profile	Percent, projected growth 2019–29	Typical entry-level education	Percent degree holders in this field, this occupation, 2018	Percent of this occupation with an advanced degree, 2018
Statisticians	35%	Master's degree	3%	47%
Software developers and software quality assurance analysts and testers	22	Bachelor's	7	33
Health specialties teachers, postsecondary	21	Doctoral or professional	8	74
Management analysts	11	Bachelor's	2	36
Computer systems analysts	7	Bachelor's	2	26
Elementary school teachers, except special education	4	Bachelor's	6	50
Secondary school teachers, except special and career/technical education	4	Bachelor's	4	53
Accountants and auditors	4	Bachelor's	2	26

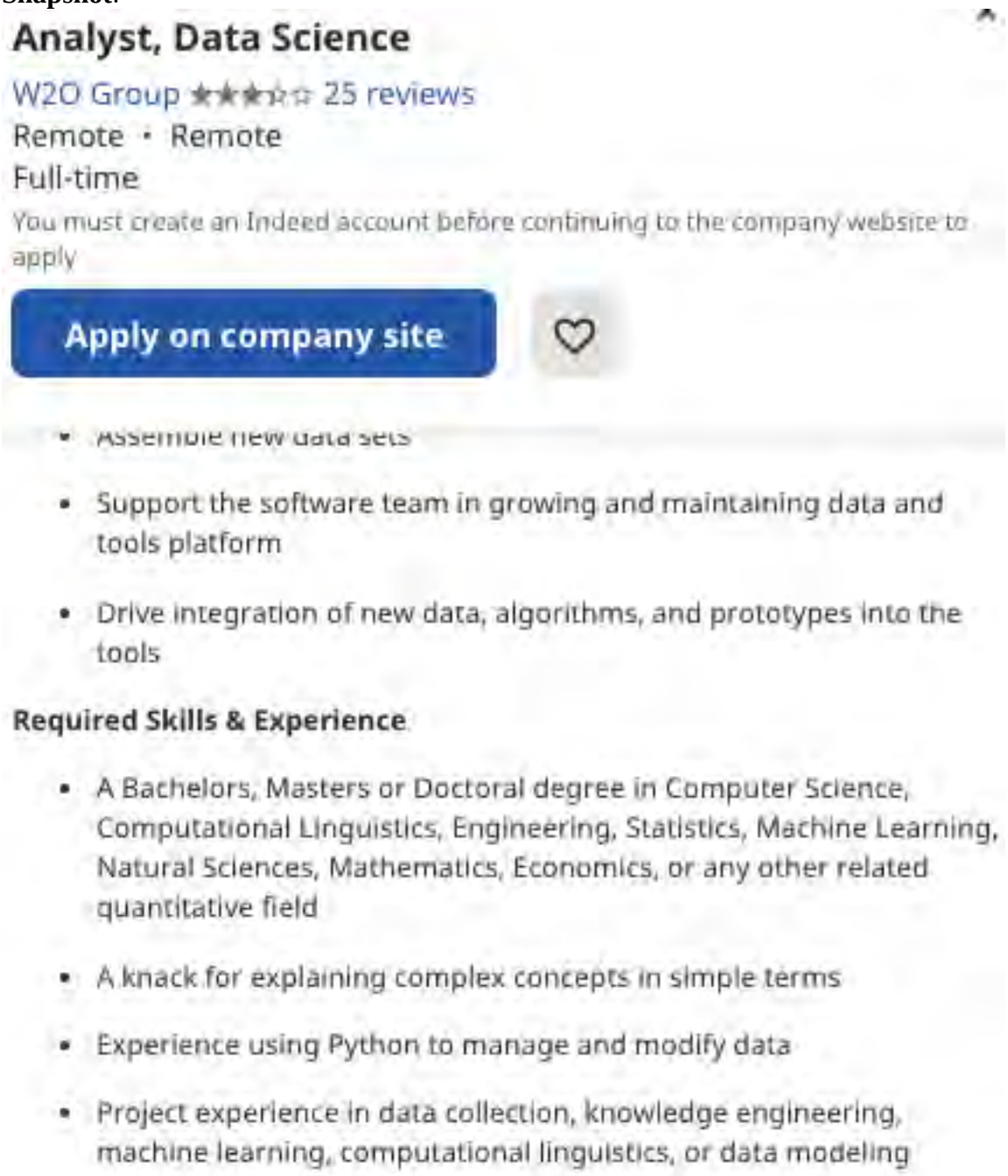
Note: Occupational profiles may comprise multiple SOC occupations, which may have differing education categories.
Source: U.S. Bureau of Labor Statistics, Employment Projections program (projected growth, entry-level education) and U.S. Census Bureau, American Community Survey (degree holders, advanced degrees).

Bureau of Labor Statistics, U.S. Department of Labor, *Occupational Outlook Handbook*, Field of degree: Mathematics,
at https://www.bls.gov/ooh/field-of-degree/mathematics/mathematics-field-of-degree.htm (visited *February 24, 2021*).

Sample Job Advertisements

Link:
https://www.indeed.com/viewjob?jk=859371fb9ee7837a&tk=1fqt7bo7ct4ed804&from=serp&vjs=3

Snapshot:



Analyst, Data Science

W2O Group ★★★½☆ 25 reviews

Remote • Remote

Full-time

You must create an Indeed account before continuing to the company website to apply

Apply on company site

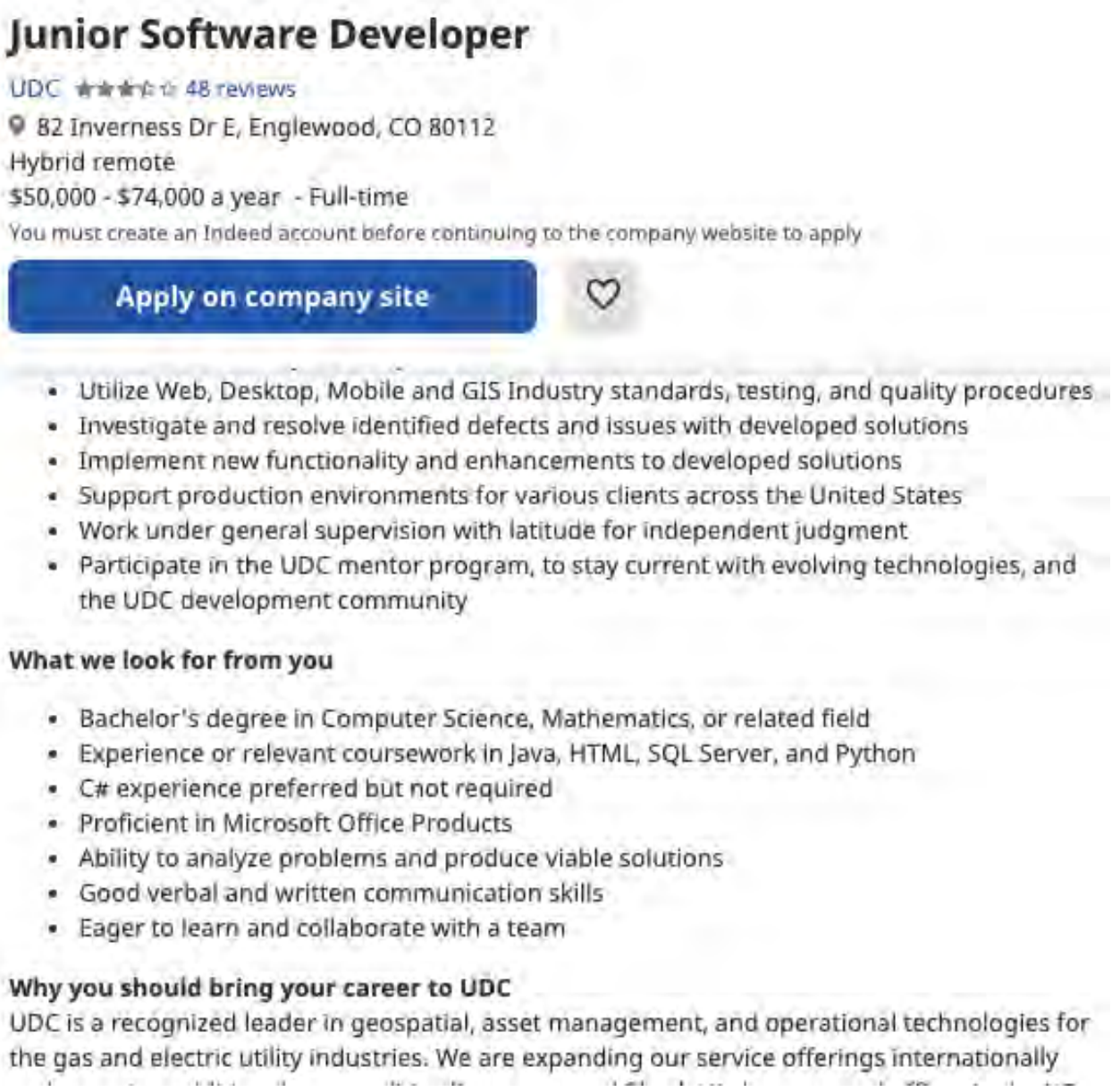
- Assemble new data sets
- Support the software team in growing and maintaining data and tools platform
- Drive integration of new data, algorithms, and prototypes into the tools

Required Skills & Experience

- A Bachelors, Masters or Doctoral degree in Computer Science, Computational Linguistics, Engineering, Statistics, Machine Learning, Natural Sciences, Mathematics, Economics, or any other related quantitative field
- A knack for explaining complex concepts in simple terms
- Experience using Python to manage and modify data
- Project experience in data collection, knowledge engineering, machine learning, computational linguistics, or data modeling

Link:
https://www.indeed.com/viewjob?cmp=UDC&t=Junior+Software+Developer&jk=d091ab2e9236276a&q=entry+level+mathematics&vjs=3

Snapshot:



Junior Software Developer

UDC ★★★½☆ 48 reviews

82 Inverness Dr E, Englewood, CO 80112

Hybrid remote

$50,000 - $74,000 a year - Full-time

You must create an Indeed account before continuing to the company website to apply

Apply on company site

- Utilize Web, Desktop, Mobile and GIS Industry standards, testing, and quality procedures
- Investigate and resolve identified defects and issues with developed solutions
- Implement new functionality and enhancements to developed solutions
- Support production environments for various clients across the United States
- Work under general supervision with latitude for independent judgment
- Participate in the UDC mentor program, to stay current with evolving technologies, and the UDC development community

What we look for from you

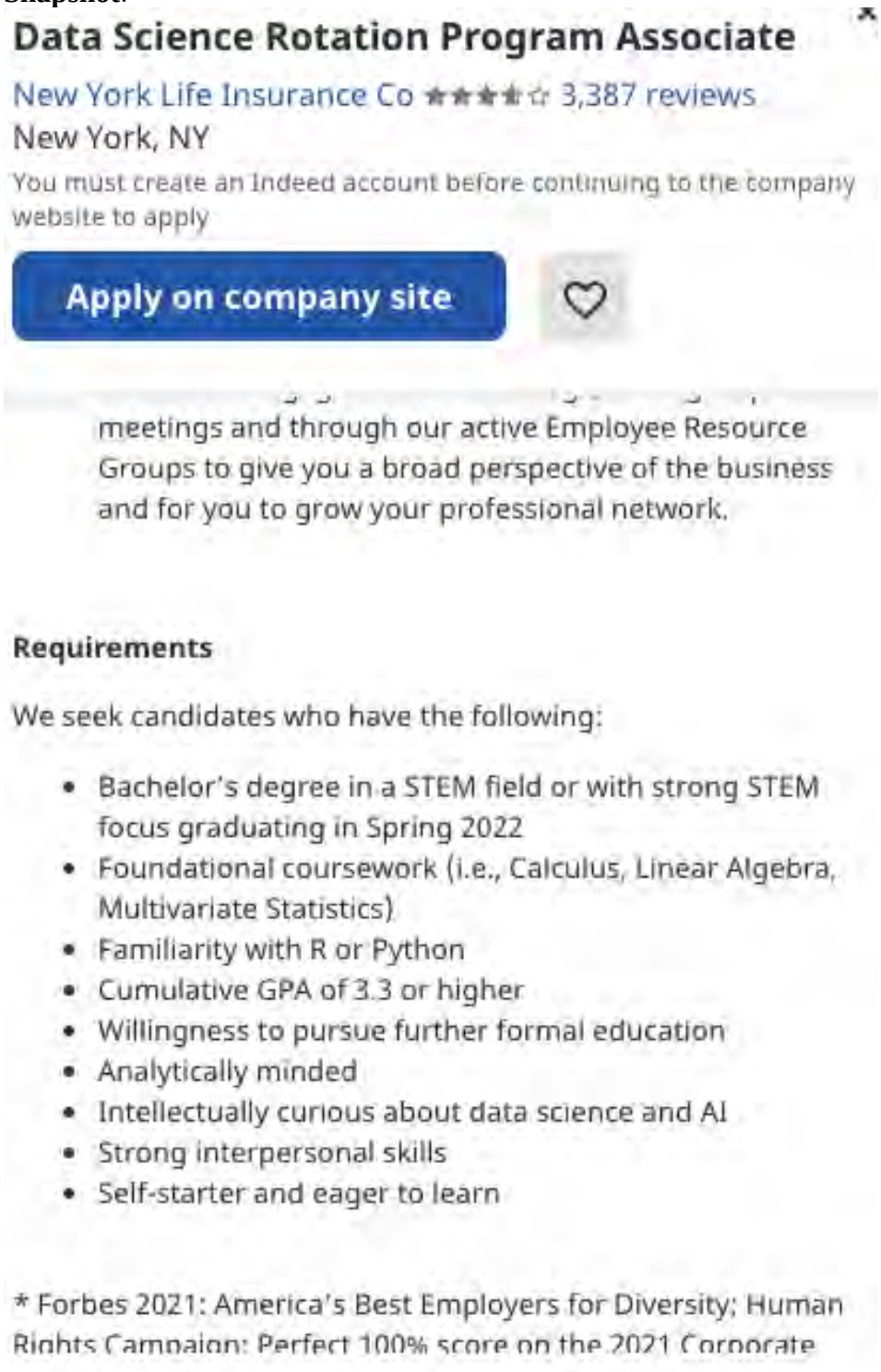
- Bachelor's degree in Computer Science, Mathematics, or related field
- Experience or relevant coursework in Java, HTML, SQL Server, and Python
- C# experience preferred but not required
- Proficient in Microsoft Office Products
- Ability to analyze problems and produce viable solutions
- Good verbal and written communication skills
- Eager to learn and collaborate with a team

Why you should bring your career to UDC

UDC is a recognized leader in geospatial, asset management, and operational technologies for the gas and electric utility industries. We are expanding our service offerings internationally

Link:
https://www.indeed.com/viewjob?jk=61c19d3402d0300b&tk=1fqt8hqg9u3ak800&from=serp&vjs=3

Snapshot:



Data Science Rotation Program Associate

New York Life Insurance Co ★★★★☆ 3,387 reviews

New York, NY

You must create an Indeed account before continuing to the company website to apply

Apply on company site

meetings and through our active Employee Resource Groups to give you a broad perspective of the business and for you to grow your professional network.

Requirements

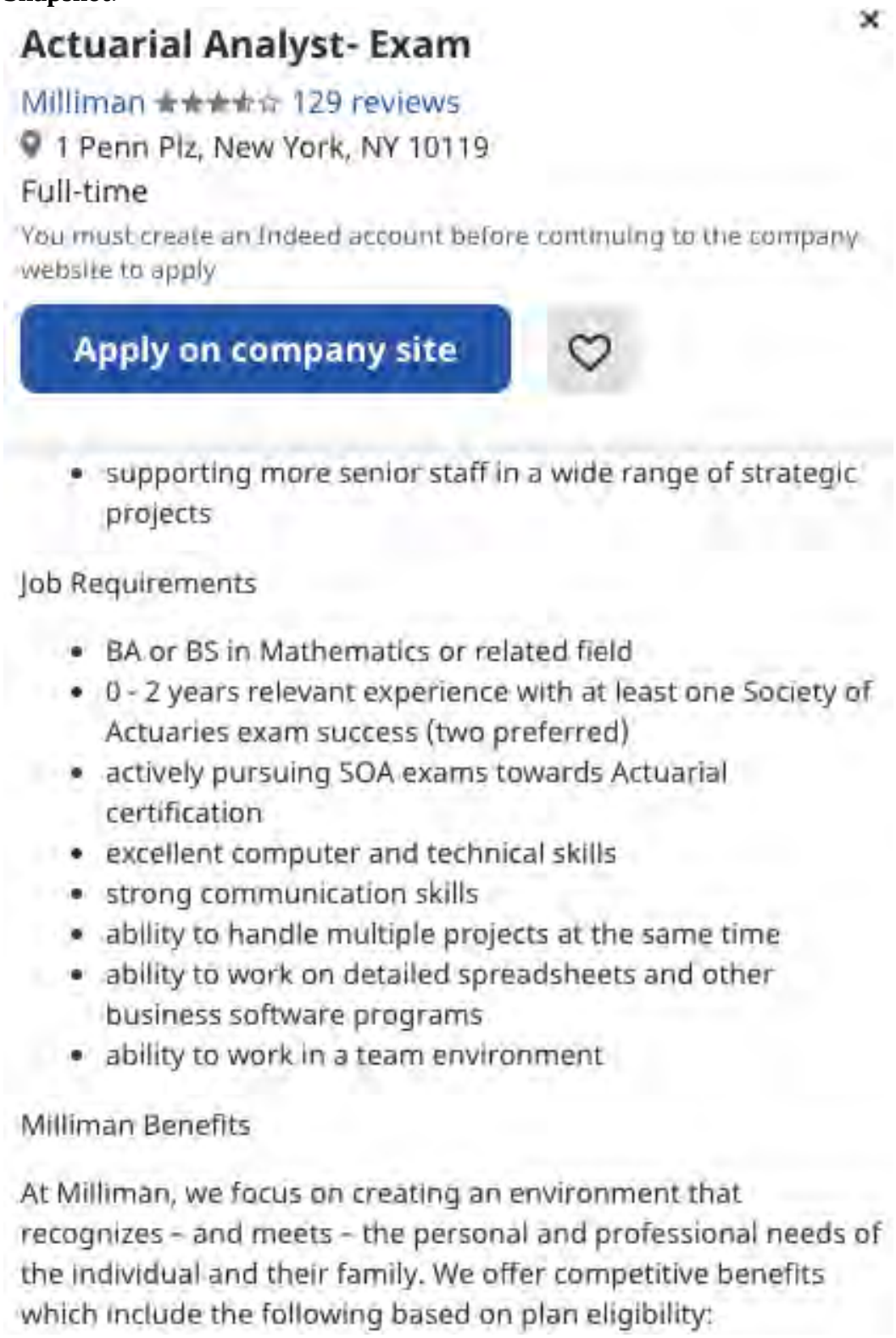
We seek candidates who have the following:

- Bachelor's degree in a STEM field or with strong STEM focus graduating in Spring 2022
- Foundational coursework (i.e., Calculus, Linear Algebra, Multivariate Statistics)
- Familiarity with R or Python
- Cumulative GPA of 3.3 or higher
- Willingness to pursue further formal education
- Analytically minded
- Intellectually curious about data science and AI
- Strong interpersonal skills
- Self-starter and eager to learn

* Forbes 2021: America's Best Employers for Diversity; Human Rights Campaign: Perfect 100% score on the 2021 Corporate

Link:
https://www.indeed.com/viewjob?jk=aa12bd90361aefbc&tk=1fqt8hqg9u3ak800&from=serp&vjs=3

Snapshot:



Actuarial Analyst- Exam

Milliman ★★★★☆ 129 reviews

1 Penn Plz, New York, NY 10119

Full-time

You must create an Indeed account before continuing to the company website to apply

Apply on company site

- supporting more senior staff in a wide range of strategic projects

Job Requirements

- BA or BS in Mathematics or related field
- 0 - 2 years relevant experience with at least one Society of Actuaries exam success (two preferred)
- actively pursuing SOA exams towards Actuarial certification
- excellent computer and technical skills
- strong communication skills
- ability to handle multiple projects at the same time
- ability to work on detailed spreadsheets and other business software programs
- ability to work in a team environment

Milliman Benefits

At Milliman, we focus on creating an environment that recognizes - and meets - the personal and professional needs of the individual and their family. We offer competitive benefits which include the following based on plan eligibility:

Link:
https://www.indeed.com/viewjob?jk=9b3c9ea81d779ec7&tk=1fqt8hqg9u3ak800&from=serp&vjs=3

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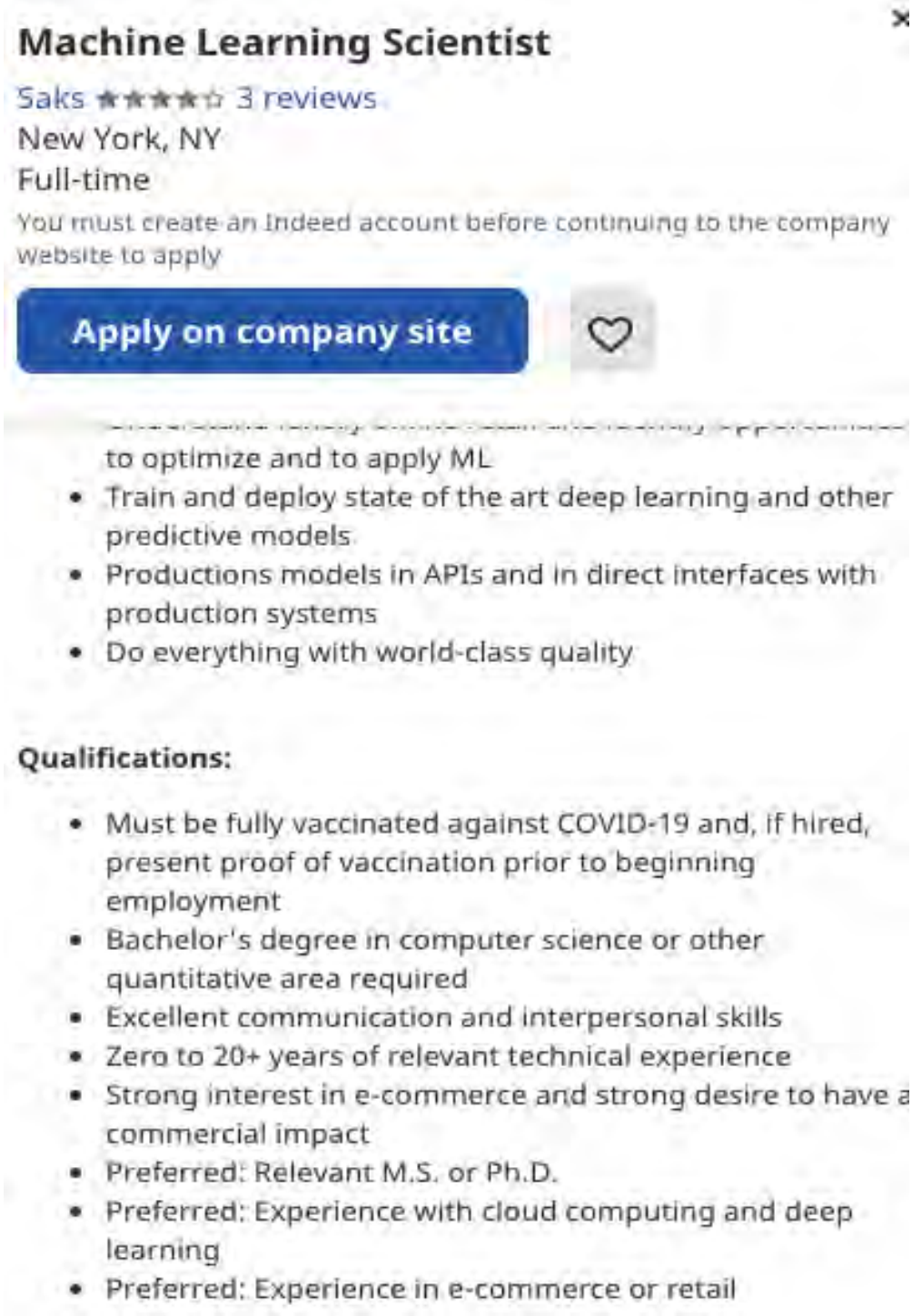

Link:
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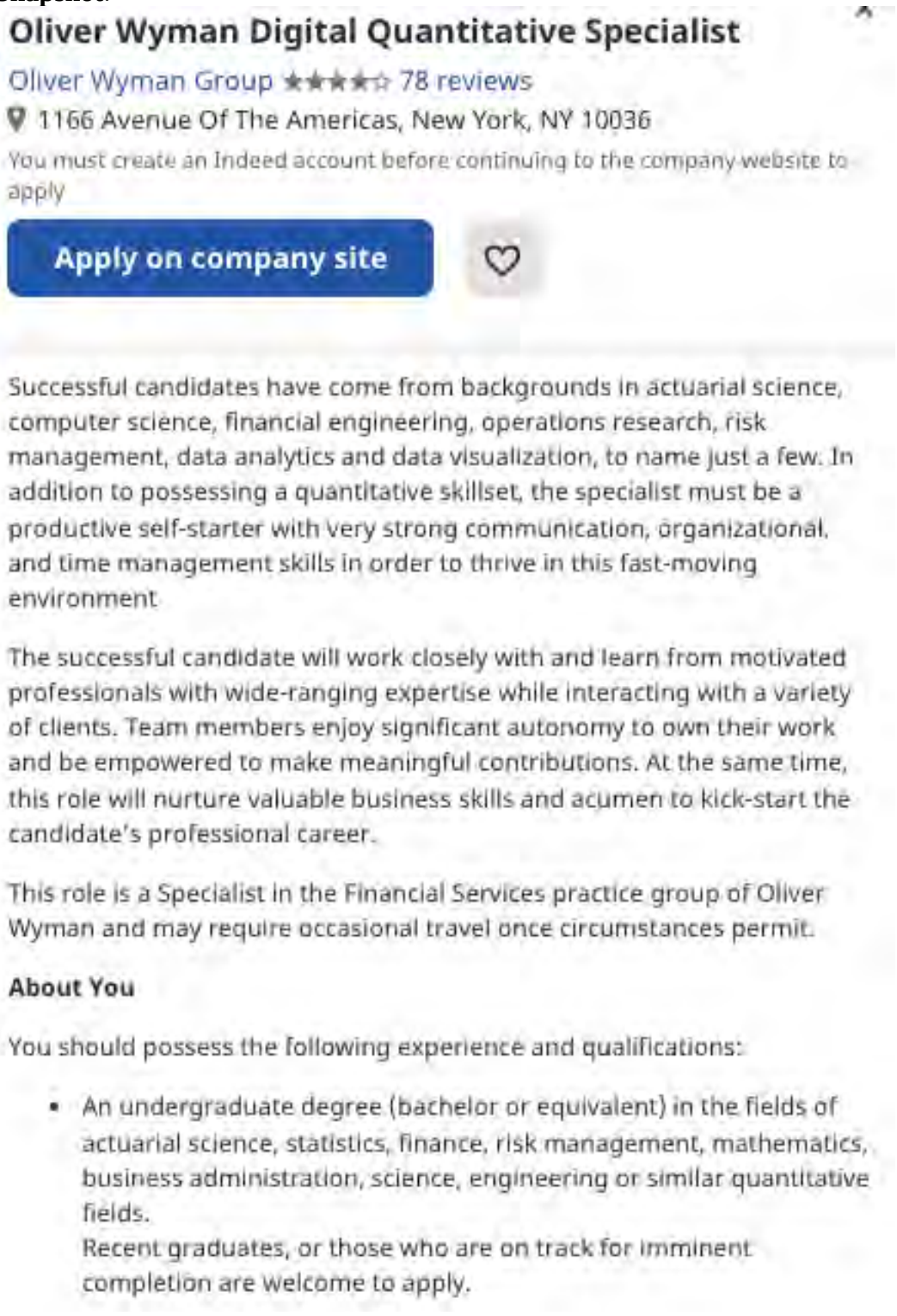


Oliver Wyman Digital Quantitative Specialist

Oliver Wyman Group ★★★★☆ 78 reviews

1166 Avenue Of The Americas, New York, NY 10036

You must create an Indeed account before continuing to the company website to apply

Apply on company site

Successful candidates have come from backgrounds in actuarial science, computer science, financial engineering, operations research, risk management, data analytics and data visualization, to name just a few. In addition to possessing a quantitative skillset, the specialist must be a productive self-starter with very strong communication, organizational, and time management skills in order to thrive in this fast-moving environment

The successful candidate will work closely with and learn from motivated professionals with wide-ranging expertise while interacting with a variety of clients. Team members enjoy significant autonomy to own their work and be empowered to make meaningful contributions. At the same time, this role will nurture valuable business skills and acumen to kick-start the candidate's professional career.

This role is a Specialist in the Financial Services practice group of Oliver Wyman and may require occasional travel once circumstances permit.

About You

You should possess the following experience and qualifications:

- An undergraduate degree (bachelor or equivalent) in the fields of actuarial science, statistics, finance, risk management, mathematics, business administration, science, engineering or similar quantitative fields.
  Recent graduates, or those who are on track for imminent completion are welcome to apply.

Link:
https://boards.greenhouse.io/coneyislandprep/jobs/3758554Teacher

Snapshot:

High School Math Teacher (2022-2023 School Year)

at Coney Island Prep (View all jobs)

Brooklyn, New York, United States

An Invitation to Apply for the Position of

High School Math Teacher

Coney Island Preparatory Public Charter School

Brooklyn, New York

What is the Role?

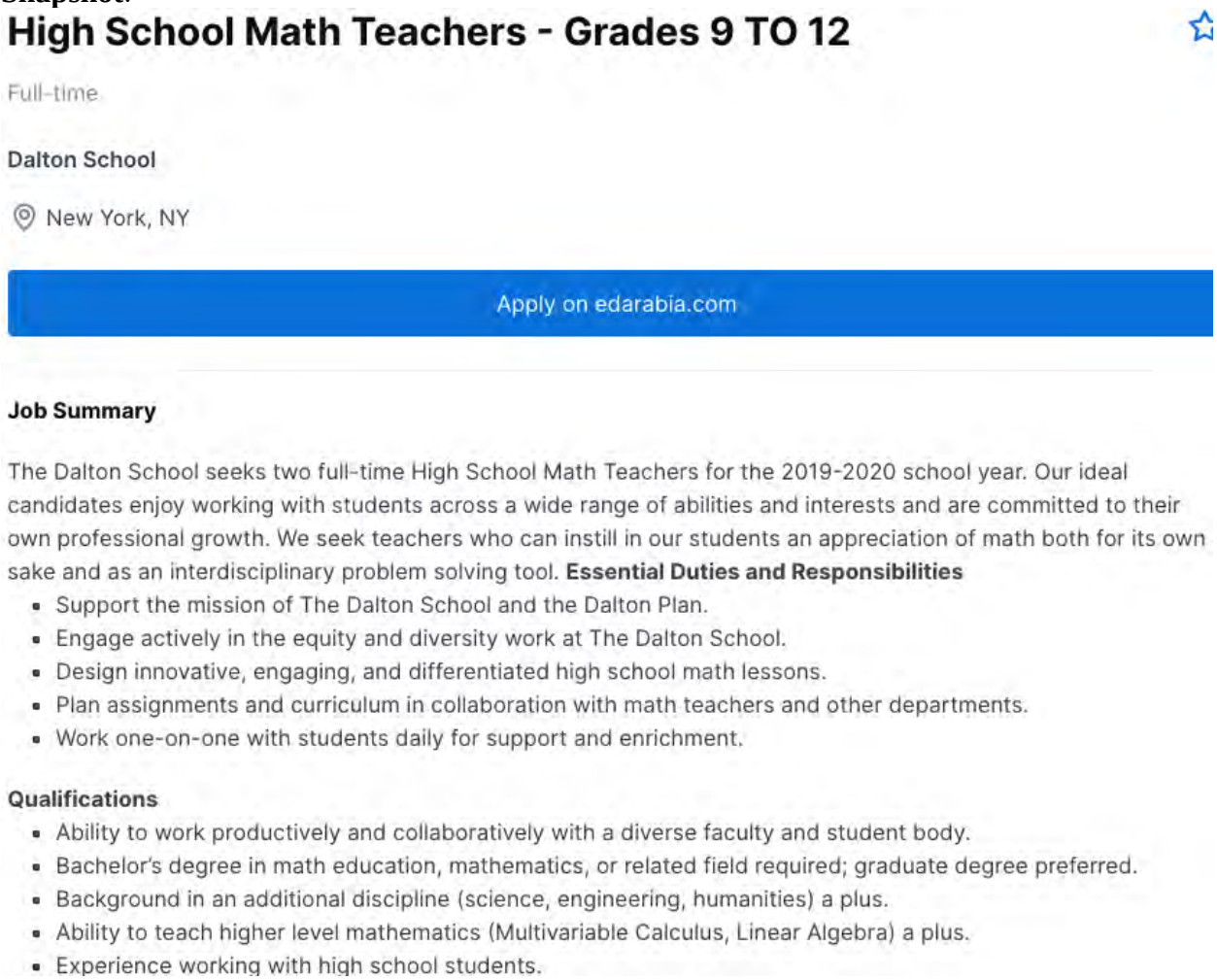
Coney Island Prep is looking for an amazing High School History Teacher to join us for the 2022-2023 school year! Located in the Gravesend neighborhood of Brooklyn, our high school was founded in 2013 and operates grades ninth through twelfth grade. Teachers teach engaging lessons created from the research-based, standards-aligned, curriculum (UnboundEd/Quill for English, Agile Minds for math, and Teacher Created for science). These curricula aim to serve as windows and mirrors for our students to help them understand more about the world and themselves.

What is it like to teach with us? At CIPHS, teachers are afforded the opportunity to teach on a modified block schedule. This means most days are a standard 50-minute class period, but all contents get at least one longer block period in a given week. This allows teachers to get creative with their lessons and take deep dives into content with exploratory lessons, science labs, Socratic Seminars, and other deep intellectual tasks. To prepare adequately for these engaging lessons, teachers at CIPHS can expect about three planning periods in a day, as well as time to collaborate with colleagues on their grade level and within content team meetings. Working together, CIPHS teachers create dynamic and engaging lessons that build scholars' intellectual curiosity and prepare them for college and careers. Courses offered include but are not limited to:

- Geometry
- Algebra I & II
- Pre-Calculus
- A.P. Calculus
- Statistics

Link:
https://jooble.org/jdp/7152040275184703521/High-School-Math-Teachers-+-Grades-9-TO-12-New-York%2C-NY?utm_campaign=google_jobs_apply&utm_source=google_jobs_apply&utm_medium=organic

Snapshot:



High School Math Teachers - Grades 9 TO 12

Full-time

Dalton School

New York, NY

Apply on edarabia.com

Job Summary

The Dalton School seeks two full-time High School Math Teachers for the 2019-2020 school year. Our ideal candidates enjoy working with students across a wide range of abilities and interests and are committed to their own professional growth. We seek teachers who can instill in our students an appreciation of math both for its own sake and as an interdisciplinary problem solving tool. **Essential Duties and Responsibilities**

- Support the mission of The Dalton School and the Dalton Plan.
- Engage actively in the equity and diversity work at The Dalton School.
- Design innovative, engaging, and differentiated high school math lessons.
- Plan assignments and curriculum in collaboration with math teachers and other departments.
- Work one-on-one with students daily for support and enrichment.

Qualifications

- Ability to work productively and collaboratively with a diverse faculty and student body.
- Bachelor's degree in math education, mathematics, or related field required; graduate degree preferred.
- Background in an additional discipline (science, engineering, humanities) a plus.
- Ability to teach higher level mathematics (Multivariable Calculus, Linear Algebra) a plus.
- Experience working with high school students.

Link:
https://www.indeed.com/viewjob?jk=aa12bd90361aefbc&tk=1fqtcl7c1t4lp800&from=serp&vjs=3

Snapshot:

Actuarial Analyst- Exam

Milliman ★★★★☆ 129 reviews

1 Penn Plz, New York, NY 10119

Full-time

You must create an Indeed account before continuing to the company website to apply

Apply on company site

provides a wide range of consulting and administrative services for Employee Benefit plans. You will be joining over 100 fellow employees in a challenging, dynamic work environment and a thriving Employee Benefits practice.

Role

This entry level position provides support and assistance to actuarial consultants. Responsibilities to include but are not limited to:

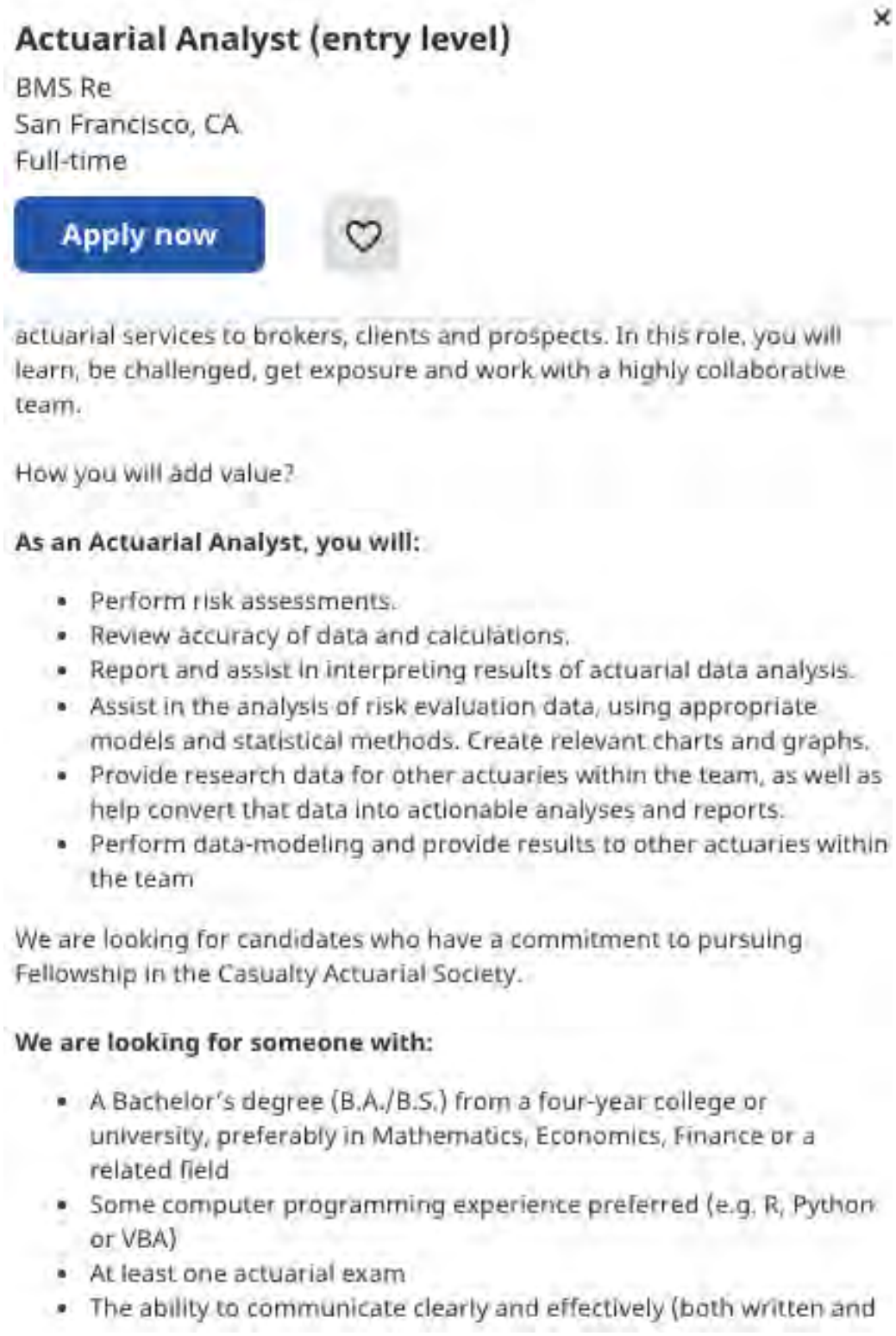
- reconciling claims data, projecting future costs, claims reserve calculations, pricing plan design changes and supporting postretirement health valuations
- supporting more senior staff in a wide range of strategic projects

Job Requirements

- BA or BS in Mathematics or related field
- 0 - 2 years relevant experience with at least one Society of Actuaries exam success (two preferred)
- actively pursuing SOA exams towards Actuarial certification

Link:
https://www.indeed.com/viewjob?jk=6585c15f852ecc76&tk=1fqtcl7c1t4lp800&from=serp&vjs=3

Snapshot:



Actuarial Analyst (entry level)

BMS Re
San Francisco, CA
Full-time

Apply now

actuarial services to brokers, clients and prospects. In this role, you will learn, be challenged, get exposure and work with a highly collaborative team.

How you will add value?

As an Actuarial Analyst, you will:

- Perform risk assessments.
- Review accuracy of data and calculations.
- Report and assist in interpreting results of actuarial data analysis.
- Assist in the analysis of risk evaluation data, using appropriate models and statistical methods. Create relevant charts and graphs.
- Provide research data for other actuaries within the team, as well as help convert that data into actionable analyses and reports.
- Perform data-modeling and provide results to other actuaries within the team

We are looking for candidates who have a commitment to pursuing Fellowship in the Casualty Actuarial Society.

We are looking for someone with:

- A Bachelor's degree (B.A./B.S.) from a four-year college or university, preferably in Mathematics, Economics, Finance or a related field
- Some computer programming experience preferred (e.g. R, Python or VBA)
- At least one actuarial exam
- The ability to communicate clearly and effectively (both written and

Appendix F: Attestations and Assurances

On behalf of the institution, I hereby attest to the following:

That all educational activities offered as part of this proposed curriculum are aligned with the institutions' goals and objectives and meet all statutory and regulatory requirements, including but not limited to Parts 50, 52, 53 and 54 of the Rules of the Board of Regents and the following specific requirements:

That credit for study in the proposed program will be granted consistent with the requirements in §50.1(o).

That, consistent with §52.1(b)(3), a reviewing system has been devised to estimate the success of students and faculty in achieving the goals and objectives of the program, including the use of data to inform program improvements.[12]

That, consistent with §52.2(a), the institution possesses the financial resources necessary to accomplish its mission and the purposes of each registered program, provides classrooms and other necessary facilities and equipment as described in §52.2(a)(2) and (3), sufficient for the programs dependent on their use, and provides libraries and library resources and maintains collections sufficient to support the institution and each registered curriculum as provided in §52.2(a)(4), including for the program proposed in this application.

That, consistent with 52.2(b), the information provided in this application demonstrates that the institution is in compliance with the requirements of §52.2(b), relating to faculty.

That all curriculum and courses are offered, and all credits are awarded, consistent with the requirements of §52.2(c).

That admissions decisions are made consistent with the requirements of §52.2(d)(1) and (2) of the Regulations of the Commissioner of Education.

That, consistent with §52.2(e) of the Regulations of the Commissioner of Education: overall educational policy and its implementation are the responsibility of the institution's faculty and academic officers, that the institution establishes, publishes and enforces explicit policies as required by §52.2(e)(3), that academic policies applicable to each course as required by §52.2(e)(4), including learning objectives and methods of assessing student achievement, are made explicit by the instructor at the beginning of each term; that the institution provides academic advice to students as required by §52.2(e)(5), that the institution maintains and provides student records as required by §52.2(e)(6).

That, consistent with §52.2(f)(2) of the Regulations of the Commissioner of Education, the institution provides adequate academic support services and that all educational activities offered as part of a registered curriculum meet the requirements established by state, the Rules of the Board of Regents and Part 52 of the Commissioner's regulations.

CHIEF ADMINISTRATIVE or ACADEMIC OFFICER/ PROVOST	
Signature	Date
Type or print the name and title of signatory Sandra Palmer, Interim Provost and Vice President of Academic Affairs	Phone Number 718-281-5731

[12] The Department reserves the right to request this data at any time and to use such data as part of its evaluation of future program registration applications submitted by the institution.

Board of Trustees of The City University of New York

RESOLUTION TO
Establish Centro De Las Américas at LaGuardia Community College of The City University of New York

June 6, 2022

WHEREAS, The borough of Queens, home of LaGuardia Community College ("LGCC"), is the third most racially and ethnically diverse counties in the United States, and Latin peoples constitute a significant portion of that diversity; and

WHEREAS, LGCC is a microcosm of Queens' abundant mix of ethnicities, nationalities, cultures, and races, particularly those of Latin heritage and Its student population represents almost every Latin country in the Americas and has earned LGCC the designation of Hispanic Serving Institution, with 47% of its credit-seeking students and 62% of its non-credit students identifying as Latin, with these staggering numbers calling for recognition and representation; and

WHEREAS, Recently there have been significant improvements in the graduation rates of Latin students, there are still challenges to be faced and providing comprehensive programming and services to support Latin students is fundamental to increasing retention and graduation; and

WHEREAS, LGCC, through its continuing education and public programming, serves as an intellectual and educational focal point for the residents of western Queens including those of Latin heritage and the College has developed partnerships with community-based organizations serving those communities; and

WHEREAS, Centro De Las Américas will focus on improving educational services and opportunities to students of Latin heritage; and

WHEREAS, It will also serve as both a conduit for partnerships between the College and community-based organizations as well as an organizing force for cultural and intellectual activities and events that celebrate all of the Latin cultures for the residents of Western Queens; and

WHEREAS, The College and its Foundation have designated money for the early years of operation and the faculty and staff of the center have begun to execute a plan to make the center financially self-sustaining; and

WHEREAS, Centro De Las Américas will adhere to the official Centers and Institutes guidelines set forth by The City University of New York Board of Trustees, including the production of annual reports, rigorous financial oversight and regular audits, and as it will not duplicate the work of other institutes, has submitted a detailed plan for evaluation, has submitted an organization chart, has submitted the curriculum vitae of its proposed staff, and will have a significant positive impact on the New York City and State region.

NOW, THEREFORE, BE IT

RESOLVED, That Centro De Las Américas be established as a single campus-based center at LaGuardia Community College, effective June 28, 2022, subject to financial ability.

EXPLANATION: The case has been made for an entity at LaGuardia Community College that both supports and celebrates its Latin students while also serving as a cultural and intellectual hub in Western Queens that celebrates the rich and varied traditions and history of the people of Latin heritage.

LAGUARDIA COMMUNITY COLLEGE
OF
THE CITY UNIVERSITY OF NEW YORK
PROPOSAL TO ESTABLISH THE
CENTRO DE LAS AMÉRICAS

EFFECTIVE JULY 1, 2022

SPONSORED BY LAGUARDIA COMMUNITY COLLEGE,
THE WORKING GROUP AND
THE COMMITTEE FOR THE FORMATION OF A CENTER

APPROVED BY
PRESIDENT KENNETH ADAMS

APRIL 26th, 2022

College Representative: Nayelli Valencia Turrent, Chief of Staff

Contact:
nvalenciaturrent@lagcc.cuny.edu
718.730.7458

RUBRIC FOR
NEW CENTER PROPOSALS

College Name: **LaGuardia Community College**					
Center Name: **Centro de las Americas**		*This section to be completed by Office of Academic Affairs*			
Director Name: **Ryan Mann-Hamilton and Sonia Rodriguez**	**PLEASE INSERT PDF PAGE NUMBER**	**INSUFFICIENT**	**PARTIALLY MEETS REQUIREMENT**	**MEETS REQUIREMENT**	**COMMENTS**
The proposal provides:					
i. A justification for the creation of the center that includes:					
Local, regional, or national significance of the contributions the center is intended to make	**5-6**			**X**	
Relationship, if any, to existing centers and institutes at the University and within the City and State of New York	**14-15**			**X**	
Assurance that the center does not duplicate, substantially overlap, or subsume the mission of existing programs at CUNY	**15**			**X**	
ii. A strategic plan for the proposed center that includes:					
A mission statement that supports the core mission of CUNY	**5**			**X**	
A detailed plan of scope of activities	**7**			**X**	
Indication that annual reports will be publicly available	**13**			**X**	
A detailed assessment plan to evaluate every five years	**13**			**X**	
Acknowledgement that tax-levy funding, if provided, will be limited in duration and extent	**14**			**X**	
Specifically, how the entity will aim to sustain its activities and operations through external fundraising	**14**			**X**	
iii. A staffing plan for the center that includes:					
Curriculum vitae of proposed staff members	**18**			**X**	
A succession plan including specification and enforcement of term limits	**9**			**X**	

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Assessment Plan 11

Funding Plan.....12

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INTRODUCTION

Across its campuses, CUNY excels at supporting research and scholarly Centers that examine the culture, politics, and histories of the various Latin peoples and countries of the Americas. These Centers ensure greater inclusion by providing a gathering place for CUNY students from the particular countries those Centers study, while also providing scholars the opportunity to develop and disseminate advanced research. Now, an important next step for CUNY is to create a more deeply inclusive space that focuses on all of the Latin peoples and countries in the Americas, rather than just one country, and, moreover, connects research and scholarship to the variety of services and networking opportunities that Latin students need to succeed academically and professionally.

The *Centro de las Américas* at LaGuardia Community College would be the first Center at a CUNY community college offering comprehensive academic and career services to Latin students from all countries of the Americas. It will build on and better coordinate LaGuardia's existing, but disparate efforts to support students of Latin backgrounds and develop partnerships with local cultural and community organizations to connect students with their cultural heritages as well as volunteer, internship, and job opportunities.

BACKGROUND

All five New York City boroughs are represented in the student body at LaGuardia Community College. However, the vast majority (67%), hail from Queens, the third most racially and ethnically diverse county in the United States and one of the most ethnically diverse urban areas in the world.[1] Almost half of Queens residents (47%) are foreign born and 55% of them speak languages other than English at home.[2] Latin peoples constitute a significant portion of that diversity; they are one of the largest ethnic groups in Queens at 28%, reflecting the fact the United States now has the second largest population of Latin peoples at 62 million, second only to Mexico.[3]

LaGuardia Community College is a microcosm of Queens' abundant mix of ethnicities, nationalities, cultures, and races, particularly those of Latin heritage. Its student population represents almost every Latin country in the Americas and has earned LaGuardia the designation of Hispanic Serving Institution (HSI), with 47% of credit students and 62% of non-credit students identifying as Latin, almost double the 25% quota required to qualify as an HSI.[4] It is a highly diverse community, not only among its student body, but its faculty and staff as well.

Those staggering numbers call for recognition and representation. While the amount of Latin students attending and graduating from college has been increasing in recent years, there are still significant inequities in college completion rates. In 2020, for example, only 24% of Latin adults older than 25 had ever earned an associate's degree or higher; in comparison, 46% of white, non-Latin adults in the United had earned such degrees.[5] College enrollment rates are increasing among younger Latin students, but even still, their graduation rates remain 2% lower than their white non-Latin counterparts.[6] In the Northeast region, LaGuardia ranked second, in

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[1] "LaGuardia Community College Institutional Profile 2021," LaGuardia Community College, accessed April 11 2022, https://www.laguardia.edu/uploadedfiles/main_site/content/ir/docs/institutional-profile-2021.pdf; Kaia Hubbard, "The 15 Most Diverse Counties in America," *U.S. News and World Reports*, August 24, 2021, https://www.usnews.com/news/health-news/slideshows/the-15-most-diverse-counties-in-the-us.

[2] "Quick Facts: Queens County, NY," United States Census Bureau, accessed April 11, 2022, https://www.census.gov/quickfacts/fact/table/queenscountynewyork/PST04; "Queens County, NY," Census Reporter, accessed April 11, 2022, https://censusreporter.org/profiles/05000US36081-queens-county-ny/.

[3] "Quick Facts: Queens County, NY," United States Census Bureau, accessed April 11, 2022, https://www.census.gov/quickfacts/fact/table/queenscountynewyork/PST04.

[4] "LaGuardia Community College Institutional Profile 2021," LaGuardia Community College, accessed April 11 2022, https://www.laguardia.edu/uploadedfiles/main_site/content/ir/docs/institutional-profile-2021.pdf.

[5] "Latino College Completion in the United States," The Postsecondary National Policy Institute, accessed April 11, 2022, https://pnpi.org/latino-college-completion-in-the-united-states/.

[6] "Latino College Completion: United States," Excelencia in Education!, accessed April 11, 2022, https://www.edexcelencia.org/research/latino-college-completion.

2019-2020, across institutions with the highest number of granted associate degrees to Hispanic/Latino students[7], despite facing enormous challenges navigating a pandemic while striving to provide our students with quality education.

Providing programming and services to support Latin students is fundamental to increase graduation rates among Latin students in general, and at LaGuardia in particular. The education students gain at LaGuardia Community College positively impacts their lives. LaGuardia is ranked number five among U.S. two-year colleges in economic mobility—moving low-income people to the middle class and beyond.[8] It is important to continue to expand those benefits to the college's Latin student population. The *Centro de las Américas* will offer a welcoming space for those students, connecting them with cultural, academic, and career opportunities, allowing Latin students and community residents to become empowered, educated, unified, and mobilized and to share the richness of the complex and far-reaching Latin history and influence with the entire Queens community and beyond.

HISTORY

LaGuardia has a history of offering such programming and services to Latin students. Established in 1971 with a 25% Hispanic student population, LaGuardia Community College has been a Hispanic Serving Institution since its inception, before this designation was established in 1998 under Title V of the Higher Education Act.[9] In 1974 LaGuardia received the first of several Department of Education awards under Title VII, the Bilingual Education Act of 1968, in order to develop career ladders for Hispanic students in the field of education. LaGuardia has also received three NEH awards (1982-84, 2002 and 2018-21) for the creation and refinement of a Latin American Studies concentration focused on career and academic opportunities for Hispanics/Latin peoples in this relevant field. However, these efforts, along with many others, have often been disconnected from each other and suffered from the lack of a centralized office coordinating activities, events, and services. The *Centro de las Américas* will correct this and build on these existing efforts to become a nucleus of comprehensive services, information, academic and cultural activities, events and support for students and community members of diverse Latin heritage and extending to anyone who has an interest.

STEPS TAKEN FOR THE CREATION OF THE CENTER

- September 2021. Open call from President Adams to all Faculty and staff who wanted to participate in the creation of the Center
- November 2021. Creation of the Planning Committee
- December 2021. Creation of the Working Group
- December 2021. Identification of the space
- January 2022. Creation of Mission Statement
- January 2022. Creation of Sub Committees to write the proposal
- February 2022. Conversation with various Centers and Institutes around CUNY to learn about best practices
- February 2022. Meeting with Kenneth Norz, University Director of Academic Affairs, for advice

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[7] "Top 25 Community Colleges for Hispanics," *Hispanic Outlook on Education Magazine*, February 2022, https://www.hispanicoutlook.com/articles/top-25-community-colleges-hispanics.

[8] Reber, Sarah. & Sinclair, C."Opportunity Engines: Middle-Class Mobility in Higher Education" *Brookings, 19 May 2020. Accessed April 12, 2022,https://www.brookings.edu/research/opportunity-engines-middle-class-mobility-in-higher-education/.*

[9] "Hispanic Serving Institutions,"The Postsecondary National Policy Institute, accessed April 11, 2022, https://pnpi.org/wp-content/uploads/2021/09/HSI-Primer_Updated_September2021.pdf.

MISSION STATEMENT

The *Centro de las Américas* seeks to engage LaGuardia Community College students, faculty, and staff and Queens residents of Latin heritage and other intersectional communities to promote and celebrate the many accomplishments of the Indigenous, African, Asian, European and mixed expressions of Latin cultures.

Partnering with community organizations and institutions across New York and beyond, the Centro serves as a hub for Latin-related activities, providing opportunities to educate and advance Latin community members and supporting them as they become lifelong learners, professionals and activists, contributing towards the betterment of the College, their communities, their nations, the Americas and the world.

The Centro will serve communities and partner with organizations from the Caribbean, Central America, North America and South America.

GOALS

Welcoming Space / Heritage Celebration / Inclusion and Belonging:

- Provide a safe and welcoming space to celebrate, engage with, and research the linguistic and cultural richness of our students, and community members through experiential learning
- Disseminate knowledge about the national and global achievements of people of Latin American, Caribbean, and US Latin backgrounds
- Critically examine the process and impact of mestizaje and other historically constructed racial and ethnic discourses in the Americas
- Develop and implement strategies for greater inclusion of underrepresented identities in Latin communities
- Increase opportunities for partnership building and mentorship among students, faculty, staff, and the community
- Promote and support diversity, equity and inclusion at LaGuardia and across CUNY campuses

Education, Enrollment, and Career Opportunities

- Draw inspiration from Latin and other cultures of the Americas and the diaspora to enhance LaGuardia students' global awareness and leadership capabilities
- Foster understanding of the cultural, socio-economic and historical forces that have contributed to the exclusion of the various groups that comprise Latin heritage
- Support academic and professional research opportunities
- Promote linguistic, ethnic, environmental, and gender justice
- Expand the GED/high school/LaGuardia/4-year/graduate college pipeline
- Provide opportunities for Latin community members to enter, advance, and excel in multifaceted professional arenas for career and economic upward mobility

Partnerships and Community Outreach

- Build global connections with academic centers, institutes, and community organizations to empower Latin communities and foster continuing awareness and pride in the Latin heritage
- Create greater awareness among immigrant groups of the role of a community college in educational and professional development and promote the wide range of courses and services available on the LaGuardia campus relevant to Latin participants

FOCUS AREAS

To achieve the goals outlined above, the Centro will focus its efforts on the following areas:

1) Create a safe and inclusive space for all members of the communities of the Americas, particularly undocumented, LGBTQIA+, Afro-Latino and Indigenous peoples, and other often historically excluded and underserved members.
2) Organize regular conferences, exhibits, performances, film screenings, speaker series, workshops, and networking events with scholarly, advocacy, cultural, and career foci.
3) Develop Spanish Language programming such as informal conversation hours, workshops for service providers, conferences, and Continuing Education programming
4) Act as a liaison and resource center for Community Based Organizations (CBOs) for the promotion of cultural, educational, and social programming for students and the larger Latin community in Queens and all of New York City.
5) Facilitate and promote culturally appropriate advising and mentoring by collaborating with campus, CUNY, state, and national organizations which support students who are members of systematically marginalized and undocumented communities.
6) Partner with career services and the Division of Adult Education and Workforce Development to help Latin students take advantage of internships, research assistantships, and other service-learning opportunities with cultural, diplomatic, social, economic and STEM-focused institutions working with the Latin population in New York City.
7) Create methods of communication to disseminate information about Latin-focused courses and activities on campus and in the community, including a Centro website and a newsletter.
8) Promote faculty, staff, and student research on Latin history, culture, politics, etc., through conferences, events, and an open-access journal.
9) Promote, support and increase participation of Latin students/faculty/staff in STEM related fields.
10) Facilitate a CTL Seminar for faculty and staff on Latin American & Latin Studies.
11) Develop study abroad opportunities for LaGuardia Community College students.
12) Collaborate with the COIL (Collaborative Online International Learning) program to facilitate distance learning interactions with Latin scholars throughout the Americas.

ACTIVITIES

During the first five years of operation, the Centro will work toward achieving the goals and objectives outlined above by creating, organizing, and conducting the following activities:

Year 1

Grand Opening Event/Ribbon Cutting

Implement the Centro's Staffing & Fundraising Plans

- Recruit Student Ambassadors
- Recruit Assistant Director
- Create Advisory Board
- Identify and prioritize grants opportunities
- Organize Gala*

Strengthen the Centro's outreach and communications

- Develop a website (on the LaGuardia Community College Website)
- Conduct survey and focus groups (staff, students, faculty)
- Partner with campus entities
- Collaborate with other CUNY Centers and Institutes

Conduct community outreach

Develop Centro's initial ongoing programs

Create support groups for first generation Latin students

Organize annual cultural programming:

Latinx Heritage Month Celebration*

Latinx Emerging Artist series*

Year 2

Conduct a "Centro Open House" *

Develop Centro's ongoing programs

Explore COIL program opportunities with Latin American universities

Develop CTL Seminar for faculty and staff on Latin American & Latin Studies

Develop partnerships with Community Based Organizations

Organize annual cultural programming:

Latinx Heritage Symposium*

Centro Arts Exhibition*

Tertulias Culturales in conjunction with Consulates*

Expand the Centro's Fundraising Plans

Apply for grant opportunities identified during first year

Year 3

Coordinate Centro's ongoing programs

Implement COIL programs with Latin American universities*

Conduct CTL Seminar for faculty and staff on Latin American & Latin Studies

Partnering with Community Based Organizations (CBO's)

Organize annual cultural programming:

CUNY-wide LatinX Symposium**

Coordinate the Centro's Fundraising Plans

Apply for grant opportunities

Year 4

Create and coordinate Centro's ongoing programs:

Develop experiential learning abroad programming

Maintain partnerships with CBO's

Organize annual cultural programming

Continue activities outlined in previous years

Coordinate the Centro's Fundraising Plans

Continue activities outlined in previous years

Year 5

Prepare for five-year assessment

Create and coordinate Centro's ongoing programs

Continue activities outlined in previous years

Organize annual cultural programming

Continue activities outlined in previous years

Coordinate the Centro's Fundraising Plans

Continue activities outlined in previous years

** Annual Activity*

*** Biennial Activity*

PLAN OF OPERATIONS

Governance

El *Centro de las Américas* will be housed in the President's Office. The governance structure of El Centro will consist of an Executive Committee and a Director or Co-Directors. The Executive Committee shall consist of eleven full members initially from the Working Group who developed this plan. The Director(s) shall be an ex-officio member of the Executive Committee with a vote and shall also serve as Chairperson of the Executive Committee. Other members of the Executive Committee shall include at minimum the current college President (or his designee), six LaGuardia faculty, two students, and two staff members.

The Director(s) of El Centro shall be a member of LaGuardia faculty or staff voted in by the full Committee, and appointed by the President of LaGuardia Community College. The Director(s) will report to the President of LaGuardia Community College or his designee. The Founding Co- Directors will be appointed for a period of two years, subject to annual reappointments in that title, will no longer serve as directors upon their separation from employment. Unless directly specified by college governance rules, directors of centers will serve a maximum of two five-year terms. Additional five-year terms may be requested by a letter from the college president explaining the rationale for the request.

The Director(s) will be evaluated every year with respect to their service as director(s).

Subsequent Director(s) shall be selected through a publicized search and appointed by the President.

The Director(s) shall be the chief executive officer of El Centro as well as the official representative of El Centro and an ex-officio voting member of all committees. S/he/they shall be responsible for (1) the administrative work of El Centro including budget and programming, (2) the assignment of tasks to committees, (3) the coordination of El Centro's programs, (4) the general supervision of El Centro, and (5) the preparation of El Centro's annual report, which will be presented to the President of LaGuardia Community College and reviewed by the Executive Committee before presentation at El Centro's annual meeting. The Director(s) shall prepare the annual budget of El Centro in consultation with the Executive Committee. The annual budget shall be presented at the annual meeting.

Executive Committee members shall be elected during El Centro's annual meeting (comprising the Executive Committee and the Advisory Board). They shall serve a two-year term. Executive Committee members may be re--elected (with a three term limit). For the pilot year of El Centro, one half of the executive committee will be elected for a two year term and one half for a one year term, thus enabling future staggering of the Executive Committee elections.

The Executive Committee shall meet at least three times a year or as needed. Additional meetings may be called by the Director(s) of El Centro or at the written request of three Executive Committee members.

The Executive Committee shall advise the Director(s) on seeking funding for all policy and program issues, including but not limited to programs, invited speakers, grant proposals, budgetary items, and the creation of committees to facilitate operational functions.

A quorum of the Executive Committee for the conduct of business shall consist of seven members of the Executive Committee. All actions including recommendations of committees shall be approved by a majority vote of those Executive Committee members present.

Staffing

Pilot year (year 1)

- Director(s)
    - 12 hours of reassigned time/academic year and summer salary.
- Assistant Director subject to funding
- LaGuardia Student Ambassadors/*"Embajadores del Centro"*
    - Eight Ambassadors ("*Embajadores"*): funded through LaGuardia Foundation.

Years 2-5

- Director(s) –2-5 yrs
    - 12 hours of reassigned time/academic year and summer salary.
- Assistant Director
- LaGuardia Students Ambassador/*"Embajadores del Centro"*
    - Eight Ambassadors ("*Embajadores"*) funded through LaGuardia Foundation
- Additional staff subject to funding
- At least two Fellows *("Colegas del Centro")* per year subject to funding

Affiliates/ *"Familiares del Centro"*

El Centro will be supported by Familiares del Centro, LaGuardia faculty and staff who will work on a volunteer basis to help the Director(s) organize events and perform community outreach.

List of Current "Familiares del Centro":

- Pablo Avila, Associate Director of ePorfolio and Digital Learning ***(Working Group Member)***
- Anita Baksh, Associate Professor – English
- Olga Calderon, Professor – Natural Sciences
- Loretta Capuano, Director of Student Information Services – Division of Enrollment Management ***(Working Group Member)***
- Cheri Carr, Associate Professor – Humanities
- Soraya Ciego-Lemur, Deputy Director – LaGuardia and Wagner Archives
- Milena C. Cuellar, Professor – MEC ***(Working Group Member)***
- Hugo Fernandez, Professor – Humanities ***(Working Group Member)***
- Hector Fernandez, Professor – Business and Technology
- Alcira Forero-Pena, Adjunct Assistant Professor – Social Science
- Liesl Fores-Iza, Director of Communications – Division of Adult and Continuing Education ***(Working Group Member)***
- Belkis Gonzalez, Associate Professor – English
- Ana Maria Hernandez, Professor – Education and Language Acquisition ***(Working Group Member)***
- Elsie Hernandez, Production Coordinator/Administrative Assistant
- Rosa Herrera-Rodriguez, Senior College Lab Tech and Adjunct Assistant Professor – Education and Language Acquisition
- John Hunt, Interim Assistant Dean – Division of Adult and Continuing Education
- Ryan Mann-Hamilton, Assistant Professor – Anthropology-Social Science ***(Working Group Member)***
- Ian McDermott, Associate Professor – Librarian
- Deborah Nibot, Admissions Manager – Division of Enrollment Management

- Wendy Nicholson, Executive Director of Diversity, Equity and Inclusion
- Arianna Pina, Assistant Director – Student Financial Services
- Joy Sanchez-Taylor, Associate Professor – English ***(Working Group Member)***
- Javier Serna, Lecturer – Business and Technology
- Elizabeth Streich, Public Relations Manager – Division of Institutional Advancement
- Rebecca Tally, Associate Professor – History-Social Science ***(Working Group Member)***
- Nathan Tosh, Program Coordinator – Women's Center and LGBTQIA Safe Zone Hub - Division of Student Engagement
- Ingrid Veras, Associate Professor – Natural Sciences ***(Working Group Member)***

Advisory Board/ *"Asesores del Centro"*

El Centro will also be guided by an Advisory Board. The Advisory Board will provide a forum for the discussion of El Centro's activities and mission and ensure its continued relevance to the community and its interests. The Advisory Board shall meet twice per academic year. The Advisory Board will be comprised of local and NYC community members with experience and expertise in supporting the needs and issues relating to the people and cultures of *Las Americas.*

Fellows/ *"Colegas del Centro"*

Subject to funding, El Centro will draw on the expertise of faculty or staff at LaGuardia Community College whose research and practice align with the mission of El Centro, multidisciplinary professionals with extensive experience working with students from the Americas. They will collaboratively examine success and challenges, identify opportunities, and collaborate on finding innovative approaches to accomplish the mission of the center and the College.

The *"Colegas del Centro"* will be an important constituent of the center, especially in Year 2 to 5, where they will collaborate and participate in achieving Centro goals and activities. The goal of the *"Colegas del Centro"* is to provide El Centro with resources to support students of Latin backgrounds and develop partnerships with local cultural and community organizations in the region. Additionally, the *"Colegas del Centro"*will become assets for LaGuardia to create a more deeply inclusive space that focuses on all of the Latin peoples and countries in the Americas.

Students Ambassadors/"*Embajadores del Centro"*

The *"Embajadores del Centro"* are LaGuardia students that will assist the Director and Assistant Director in all the activities related to El Centro. They will serve as liaisons among our campus' clubs or organizations that offer Latin related activities as well as become the links to local artistic/literary community centers (Spanish Repertory Theater, Talía, various CUNY/SUNY Latin Cultural Centers) literary cafés, local art galleries, film and arts festivals, and salient Latin cultural figures at the local, national and international levels.

OPERATIONAL TIMELINE

Centro Approval (Spring/Summer 2022):

- Final proposal goes to President Adams for approval (March 21)
- Proposal first draft sent to CUNY for approval (March 28)
- CAPPR approval (June 6th, 2022)
- CUNY Board of Trustees approval (June 27th, 2022)
- Appointment of Director(s) (June 8th, 2022) (2 year term)

Launch of El Centro (Summer 2022):

- Appointment of Assistant Director subject to funding (2-3 year term)
- Appointment of Executive Committee (1-2 year term)
- Organization of an opening event to introduce El Centro to LaGuardia and the Queens Community
- Outreach to community organizations

Year One (Fall I 2022-Spring II 2023):

- Appointment of Advisory Board/ *Asesores del Centro*
- Appointment of Student Ambassadors/ *Embajadores*
- Appointment of working groups for event planning, research, outreach, and fundraising efforts
- Opening Event (Fall 2022)
- Programming provided by El Centro foundation members and volunteers
- Submit a support grant for faculty and staff on the fundraising committee

Years 2-5 (Fall I 2023-Spring II 2027):

- Appointment of Director(s) (2-5 year term)
- Partner with at least one Latin focused CUNY center on programming for year 2
- Submit an HSI-focused grant proposal in year 2
- Partner with at least one Latin focused Queens community organization on programming in year 3
- Conference in year 4
- Fiscal independence of Tax-Levy funds by year 6

ASSESSMENT PLAN

The Center will produce an annual assessment report prepared and submitted by the Center's Director(s) and made publicly via the Center's webpage so that other constituents can access it. The assessment report will consist of a summary of activities, quantitative descriptions of events held over the course of the year as well as qualitative descriptions of the perceptions of the community about the Center's activities. For all events, this report will include numbers of students, faculty, and staff engaged, Center personnel engaged in programming, and the number of community organizations that the Center collaborated with. This annual report will highlight the following:

- Assessment of the mission of the Center and its core goals;
- The confirmation of the Advisory Board of the continuing value of the Center and its role supporting and advancing the mission of the College;
- The assessment of the Center's progress towards meeting its goals as stated in the strategic plan;
- A report regarding the status of directors and other personnel given their term limits according to the center's staffing plan;
- A description of current and projected activities as well as target audiences (students, faculty, staff, and community organizations);
- A current and projected budget including individual project budgets, a tax-levy budget showing expenditures of these funds, a chart indicating the sources of staff and faculty salaries, and a plan that specifies how the center will aim to sustain its activities and operations.

In addition to this annual assessment report, the Center will conduct an evaluation of its core activities and goals every five years. Following the guidelines established for 5-year reports, the college president will coordinate with the Center's Director(s) and the Advisory Board regarding the evaluation process following the assessment plan established in the annual report. This evaluation will be conducted by at least two evaluators. The evaluation will include a summary of financial support and investments as well as progress towards fiscal self-sufficiency. College

leaders have the discretion to select an appropriate combination of evaluators for each evaluation: whether internal and/or external, local and/or non-local.

FUNDING PLAN

Consistent with CUNY Guidelines on Centers, funding will be secured through a combination of external sponsored program funds and campus-based support. El Centro recognizes the University's policy that tax levy support for El Centro should be limited in extent and duration so that it does not constitute a burden on the instructional budget of campuses, and it will aim to achieve financial self-sufficiency through its sponsored programs within three years from foundation.

Initial (Pilot year):

- $30,000 of recovery money from grants allocated by the President's Office
- Funding from LaGuardia Community College in the form of in-kind support: course releases (twelve per year) and summer pay for Director (s), and an equipped office/space for programming.
- $10,000 Corporate Sponsorship M&T Bank
- LaGuardia College Association funds for programing of events and activities
- LaGuardia Foundation will provide stipends for eight student ambassadors/*embajadores* to support the activities of El Centro

Years Two-Five:

- $30,000 of recovery money from grants allocated by the President's Office and supplanting funding for general operating expenses from other sources (years two-three)
- Increasing grants and gifts for general operating expenses (for example: Mellon, Surdna, Ford and Brodsky Foundations)
- Identification of benefactor for Institute coupled with naming opportunity
- Funding from LaGuardia Community College in the form of in-kind support: course releases (twelve credit hours per year) and Summer Salary for Director (s), and an equipped office/space for programming.
- Evaluate and prioritize the submission of the following grant opportunities: NEH, NSF, DoD and Ed National Resources for programming, operating costs
- LaGuardia College Association funds for programing of events and activities
- LaGuardia Foundation will provide stipends for eight student ambassadors/*embajadores* to support the activities of El Centro

Year Six:

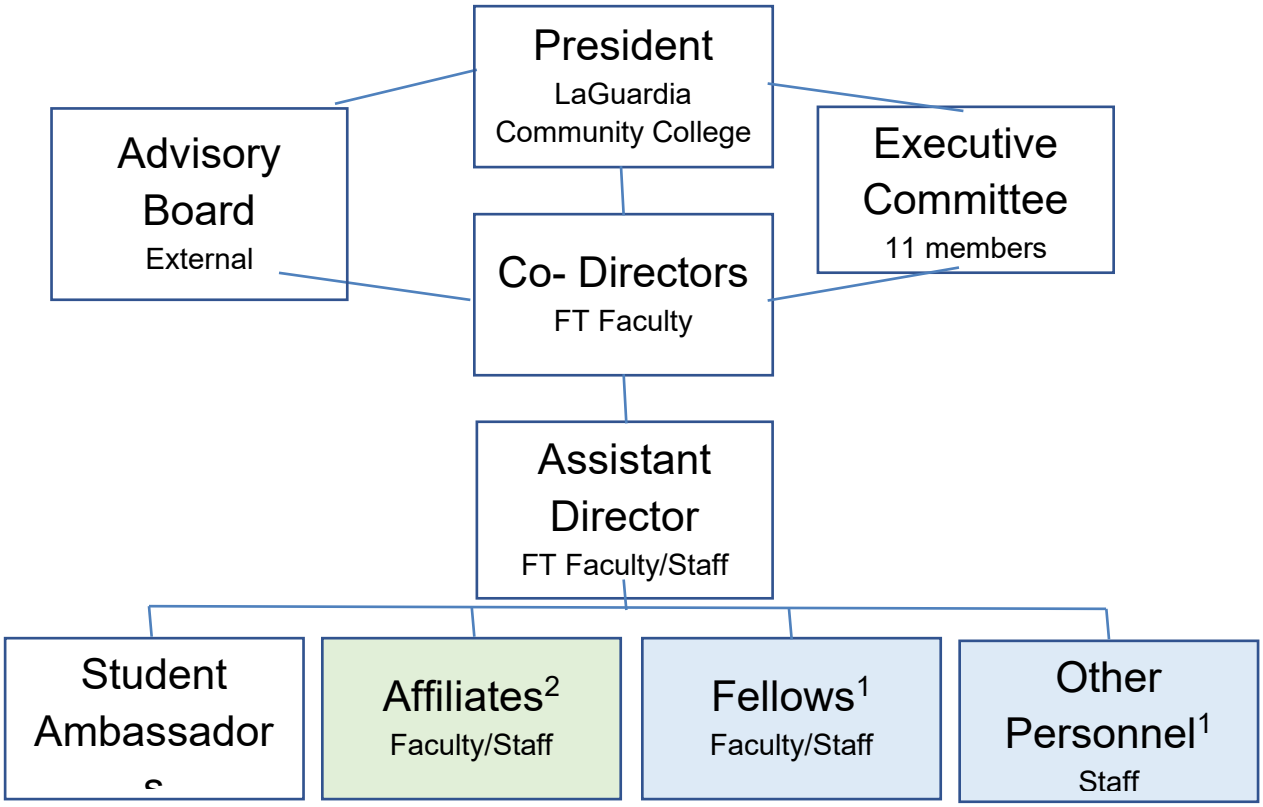
- All the above (except tax levy funding)

JUSTIFICATION AND ASSURANCE

The *Centro de las Américas* at LaGuardia Community College will be the first Center at a CUNY community college providing comprehensive services, information, and support to students of diverse Latin heritage. LaGuardia is an Hispanic Serving Institution (HSI), located in a borough with a significant Latin population. Over 47% of its credit students and 62% of its non-credit students identify as Latinos, from many backgrounds and countries. That diversity is reflected in Queens, where 67% of LaGuardia students reside; almost one-third of the population of Queens is of Latin origin or descent. Yet students from these backgrounds are often marginalized in their public schools and communities. Their linguistic and cultural heritage is frequently erased or disparaged. Countering that marginalization is essential to their success at LaGuardia and beyond. Thus, the Centro will empower these students as well as community members through programs, services and community connections designed to foster a greater sense of inclusion and pride and poised to offer opportunities that will help them advance in society.

The Centro will be a space for Latin students to call home on campus and for Latin community members to be welcomed. Moreover, it will serve as a resource and hub for anyone who has an interest in Latin related matters and activities, regardless of their background. Cultural, academic and career-oriented programming and services will highlight and celebrate their varied heritages and histories while supporting their educational and professional aspirations. These offerings will supplement a growing Latin focused curriculum at LaGuardia; increase opportunities for partnership and mentorship among students, faculty, staff, community residents, and organizations within Queens and beyond; and raise awareness of the national and global achievements of Latin people throughout history.

The proposed Centro does not duplicate any work of existing centers at the University because of its multi-ethnic, multi-national and multi-racial focus and its emphasis on student services and connections with the community. Where several other CUNY Centers focus on one nationality (Puerto Rico, Mexico, Haiti, or the Dominican Republic), the Centro will welcome and serve students, faculty, staff and residents from countries and ethnicities throughout North, Central, and South America, and the Caribbean. It will reflect the Latin diversity at LaGuardia rather than focus on one particular ethnic, national or racial group. The Centro will also be different from the other CUNY Centers that do have a hemispheric or broad Latin emphasis in that those Centers emphasize research and advanced scholarship, while the Centro at LaGuardia will include research, but also focus on student services and community partnerships. There is no other CUNY Center that offers the extensive and inclusive approach that the Centro will offer, in terms of promoting diverse Latin culture, heritage and awareness, and serving the Latin community at LaGuardia, in Queens and beyond on various levels.



[1] The blue boxes represent appointments subject for the fiscal years 2 to 5 and subject to availability of funds in the future.
[2] The green box represents faculty and staff who will work in a volunteer basis.

Revenue and Expenditure for Centro de las Americas - LaGuardia Community College - Updated 4/26/2022

Revenue	**Year 1** FY2023	**Year 2** FY2024	**Year 3** FY2025	**Year 4** FY2026	**Year 5** FY2027
Potential Grants and Contracts**	$ 10,000	$ 150,000	$ 350,000	$ 400,000	$ 400,000
LaGuardia Foundation	$ 12,000	$ 12,000	$ 12,000		
Direct Contribution - Indirect Cost Recoveries (RF)	$ 30,000	$ 16,718	$ 14,143		
In Kind College contribution	$ 96,895	$ -	$ -	$ -	$ -
Indirect Return approx 8% of F&A to Center	$ -	$ 9,711	$ 12,289	$ 25,333	$ 27,739
Subtotal	**$ 148,895**	**$ 188,429**	**$ 388,432**	**$ 425,333**	**$ 427,739**
Total Revenue	**$ 148,895**	**$ 188,429**	**$ 388,432**	**$ 425,333**	**$ 427,739**
Expenditures	**Year 1** FY2023	**Year 2*** FY2024	**Year 3*** FY2025	**Year 4*** FY2026	**Year 5*** FY2027
Faculty/Staff	**Salary & Fringe**	**Salary & Fringe**	**Salary & Fringe**	**Salary & Fringe**	**Salary & Fringe**
Faculty Released Time - Replacement adjuncts cost	$ 12,540	$ 24,764		$ -	$ -
Director (RF)			$ 184,734	$ 188,429	$ 192,198
*Assistant Director (RF or HEA)**		$ 95,788	$ 97,704	$ 99,658	$ 101,651
Non-Teaching Adjuncts for summers	$ 13,154	$ 13,417	$ 13,685	$ 13,959	$ 14,238
Stipends for student ambassadors	$ 12,000	$ 12,000	$ 12,000	$ 26,119	$ 27,322
Subtotal Faculty/Staff	***$ 37,694***	***$ 145,969***	***$ 308,123***	***$ 328,165***	***$ 335,409***
Other Than Personnel Services (OTPS)	**Year 1**	**Year 2***	**Year 3***	**Year 4***	**Year 5***
OTPS Startup Cost (Furniture, Equipment)	$ 79,380	$ -	$ -	$ -	$ -
OTPS	$ 12,400	$ 17,882	$ 29,644	$ 41,690	$ 36,538
Subtotal OTPS	***$ 91,780***	***$ 17,882***	***$ 29,644***	***$ 41,690***	***$ 36,538***
Total Direct Costs	**$ 129,474**	**$ 163,851**	**$ 337,767**	**$ 369,855**	**$ 371,947**
Indirect 15%	**19,421**	**24,578**	**50,665**	**55,478**	**55,792**
Total Expenditure	**$ 148,895**	**$ 188,429**	**$ 388,432**	**$ 425,333**	**$ 427,739**

LaGuardia Community College

DARE TO DO MORE

Dear members of the search committee,

We are writing to submit a letter of interest for the position of co-directors of LaGuardia Community College's Centro de las Américas.

Dr. Sonia Alejandra Rodríguez received her PhD in English from the University of California Riverside and completed her undergraduate degree in English and Latinx Studies at the University of Illinois at Urbana-Champaign. Her areas of teaching and research are twentieth and twenty-first century American literature, children's literature, Latinx Studies, and Gender and Sexuality studies. She is currently an untenured Associate Professor of English at LaGCC.

Dr. Ryan Mann-Hamilton received his PhD in Anthropology from the CUNY Graduate Center with a concentration in Africana Studies, and holds a Masters in Environmental Systems and an undergraduate degree in International Studies from Humboldt State University. His areas of teaching and research focus on the Caribbean and Latin America and engage with multiple themes around displacement, nation making, environmental justice, AfroLatinx social movements and more recently, food sovereignty. His scholarly interests in the intersections of history, politics, the environment, culture, and race are reflected in his research, classroom practice and his work across the campus. He is currently an Assistant Professor of Social Science at LaGCC.

Dr. Rodríguez' research within the Latinx Studies field can be a great asset to the role of co- director at El Centro. Her scholarly work has been published in *Children's Literature* and *Children's Literature in Education*, two significant peer-reviewed journals in the study of children's and young adult literature. She has also published several book chapters that focus on decolonial healing practices and gender and sexuality as they relate to children's and young adult books within US Latinx Literature. Dr. Rodríguez' research interests give her an excellent perspective to better serve the students, faculty, and staff at LaGuardia with which El Centro hopes to engage. The intersectional and interdisciplinary approach to her research means she is versed in the history, culture, and sociopolitical circumstances that impact Latinx peoples and are represented in LaGCC's Latinx community.

The timeliness of Dr. Rodríguez' research has been recognized by several institutions and funding agencies who have awarded her competitive fellowships and grants for her research. In 2021, the Andrew W. Mellon Foundation & the American Council of Learned Societies named Dr. Rodríguez a Mellon/ACLS Community College Faculty Fellow, a competitive research fellowship, to continue working on her monograph in progress, *Conocimiento Narratives: Healing Practices in Latinx Children's and Young Adult Literature*. In 2020, Dr. Rodríguez received a Mellon Emerging Faculty Leaders Award from the Andrew W. Mellon Foundation & Institute for Citizens and the Scholars for her commitment to service and research in the humanities. Dr. Rodríguez was the only community college faculty member to receive this national recognition. Additionally, she has received several internal grants from CUNY to support her research and conference travel, including multiple PSC CUNY research grants. Dr. Rodríguez' skills for finding, applying, and winning grants to fund her research will certainly be of benefit to El Centro. If she were to

serve as co-director, she will use her skill sets to find resources to secure the successful future of El Centro.

Dr. Mann-Hamilton has been active in disseminating his research. His long-term project in the Dominican Republic was highlighted in the *New York Times* in an article titled "Preserving Black American History through Song in the Dominican Republic". Most recently, he was invited to write the foreword for a new book project titled *Ethnographic Refusals, Unruly Latinidades* (March 2022) published by the University of New Mexico Press. In addition to his publications, Dr. Mann-Hamilton has extensive research experience and connections to Afrodescendant communities in Bolivia, Ecuador, Colombia, Puerto Rico and the Dominican Republic that can connect to the work done at El Centro. He has ample experience applying and winning grants to fund his research; and those skills can also be used in benefit of El Centro. He has led two international projects related to Coastal and Fisheries Conservation. The first in the community of Playa de Ponce in Puerto Rico, the second as the Principal Investigator for a two year National Oceanic and Atmospheric Administration funded project in the Bahamas and the Dominican Republic developing community campaigns to change behaviors regarding the fishing of key species. In recognition of his work, Dr. Mann-Hamilton was selected to serve as a Faculty Lead of the 2020-22 Seminar on Public Engagement and Collaborative Research funded by the Andrew W. Mellon Foundation and housed at the Center for Humanities at the CUNY Graduate Center. As part of the grant he has developed multifaceted, public-facing projects and conversations that offer new ways of understanding and solving urgent social issues. This year he hosted a series of events geared towards both the campus and larger community. The first on Puerto Rican coastal ecologies, followed by *"Healers: decolonizing Afro Indigenous Knowledge"* in collaboration with the LaGCC's Women's Center, and *"Environmental Justice in Black Communities*" in support of LaGCC's Black Lives Matter Summit.

Additionally, Dr. Rodríguez' service responsibilities demonstrate her commitment to diversity, equity, and inclusion, which will certainly contribute to her success as co-director of El Centro. At LaGCC, she served as the chair of the Latinx Literature Committee in the English Department where she was responsible for organizing events relating to Latinx culture, including the college- wide Latinx Symposium. Dr. Rodríguez often brought authors and guest speakers to campus to speak with students on Latinx related topics and on pursuing a career like theirs. Most recently, Dr. Rodríguez served as the Program Director for the Creative Writing Program. In this more administrative role, she was responsible for curriculum updates, program assessment, and student advisement. Additionally, Dr. Rodriguez has collaborated on a variety of LaGCC campus-wide events with the Women's Center, the LGBTQIA Safe Zone Hub, the Library, Student Affairs, and the Wagner Archives. Currently, Dr. Rodríguez is the co-editor in chief for the open-access journal *Research on Diversity in Youth Literature*. Prior to completing her PhD and joining LaGCC, Dr. Rodríguez worked as a community coordinator at Elevarte Arts, a grassroots arts organization in Pilsen, Chicago. Her responsibilities included connecting with community members to share the resources of the organization. Additionally, because of her creative writing background, Dr. Rodríguez also served as a teaching artist through Elevarte Arts at elementary schools in the area. As a graduate student at UCR, Dr. Rodríguez worked at a community youth center as a creative writing instructor and a community liaison. Dr. Rodríguez was responsible for creating teen friendly programming for the predominantly Mexican and Central American, first generation, low-income community. As an undergraduate, Dr. Rodríguez was instrumental in creating the university's first community-based program that brought 12–17-year-olds to campus to participate in STEM and Humanities related activities meant to break down the barriers the local Black and Latinx residents experienced in getting into college. For Dr. Rodríguez, being an academic and community work go hand in hand. Her previous and on-going experiences with service and community engagement will be a valuable contribution to her role as co-director of El Centro and to LaGCC's larger DEI goals.

As an activist-scholar, Dr. Mann-Hamilton believes deeply that scholarship should be shared with a larger public. He has had the opportunity to share his work with multidisciplinary scholars in various venues and forums, which has strengthened his commitment to public scholarship. In 2019 he was selected by Provost Paul Arcario as one of three Faculty Co-Directors for the President's Society Environment Program (PSE), a three-year program that provides passionate and outspoken LaGCC students the opportunity to be a part of community-led solutions and projects to address local environmental issues. Through these events and campus-based initiatives like the PSE, he has further developed networks to continue expanding future collaborations among campus entities and El Centro. Prior to being faculty at LaGCC, Dr. Mann- Hamilton worked for five years in higher education student support services administration and helped to develop mentoring programs for low-income first-generation students. Throughout his career he has been engaged in organizing public events, symposiums and conferences that aim to bring together activists, scholars and communities to further strengthen the work of all those involved. He has also been heavily involved with the AfroLatin@ Forum in organizing two AfroLatin@s Now Conferences held at multiple locations in NYC, alongside other smaller events related to AfroLatinx communities in the context of the U.S.

We have worked together in the past at LaGCC when we organized an event focused on Afro- Latinx experiences: "Voices of the Unheard: The Afro-Latinx Experience." In this partnership, we collaborated in a way that highlighted our strengths in order to execute a successful event. Dr. Rodríguez took the lead in promoting the event and working with the business office to secure funding for the speakers. Dr. Mann-Hamilton reached out to his networks for funding through the Transformative Learning in the Humanities project at CUNY. Both of us applied for and secured internal and external grants to cover guest speaker honorarium and purchase learning materials on Afro-Latinidad that were donated to LaGCC's library for future college use. As possible co-directors, we are excited to use our experiences and strengths to successfully launch El Centro, to develop cultural programming, expand networks across the city, and pursue opportunities that reflect the diversity of the Latinx community within and outside of LaGCC.

We believe we are strong candidates for this position not only because of our research, service, and teaching experiences but also because much of our own bilingual and bicultural upbringings reflect that of the population El Centro wishes to serve.

Sinceramente,

Sonia Alejandra Rodríguez, PhD (she/they) Email: sorodriguez@lagcc.cuny.edu
Cell phone: (951) 321- 9857

Ryan Mann-Hamilton, PhD (he/they)
Email:rmann-hamilton@lagcc.cuny.edu
Cell phone: (516) 765-6250

Ryan Mann-Hamilton

406 Monroe St. Apt. 1 Brooklyn, NY 11221
ryanamhamilton@gmail.com (516) 765-6250

EDUCATION

PhD. Cultural Anthropology

CUNY Graduate Center, New York, NY May '16
Title: What the Tides May Bring: Political 'Tigueraje', Disposession and Popular Dissent in Samaná, Dominican Republic. Chair: Dr. Donald Robotham. Committee: Dr. Herman Bennett, Dr. Julie Skurski, Dr. Ismael Garcia-Colon

Graduate Certificate in Africana Studies
Institute for Research on the African Diaspora, CUNY Graduate Center, New York, NY May '12

M.A. in Philosophy
CUNY Graduate Center, New York, NY May '12

M.S. in Environmental Systems
Humboldt State University, Arcata, CA May '05

B.A. in International Studies
Humboldt State University, Arcata, CA May '01

PUBLISHED WORKS

Peer-Reviewed Journal Articles:

"Forgotten Migrations from the United States to Hispaniola," *The Trotter Review* Vol. 19, No. 1 Winter/Spring University of Massachusetts: Boston, (2010): 124-142.

"What rises from the Ashes" as part of the Caribbean Gardener series. *ASAP Journal*, August 2, 2021. https://asapjournal.com/caribbean-gardener-what-rises-from-the-ashes-ryan-mann-hamilton/

Book Chapters:

"Afterword: Uncertain Futures: Latinidad, Anthropology, Institutions" in *Ethnographic Refusals, Unruly Latinidades* eds. Gina Perez and Alex Chavez. University of New Mexico Press, 2022.

"Rhythm of Life: Reggae, Blackness and Identity Politics in Puerto Rico" Accepted in *Black Diasporas: Essays on being Black and Bicultural* ed. Msia Kibona, Routledge Press, 2018.

"What privilege? Mestilegio, Blackness and the contours of solidarity" in *White Latino Privilege and the Ideology of Whiteness in the Spanish Caribbean* ed. Gabriel Haislip-Viera, 149-158. Latino Studies Press, 2018

"What rises from the Ashes: Nation and Race in the African American enclave of Samaná". *Migrant Marginality: A Transnational Perspective*, Phil Kretsedemas, Jorge Capotillo-Ponce, 222-238. Routledge Press, 2013.

"Retracing Migration: From Samaná to New York and back again". *AfroLatin@s in the U.S.: A reader*; Juan Flores and Miriam Jimenez-Roman, 422-425. Durham: Duke University Press, 2010.

Popular Press:

"Considering the Transnational: Student and Activists in NY address Violence and the Denationalization of Dominicans of Haitian Descent in Dominican Republic. *Anthropology News*, May 2015.

"A Whale of a Tale" *Repeating Islands: News and Commentary on the Caribbean.* February, 2015.

Book Reviews:

"The Dictators Seduction: Politics and the Popular Imagination in the era of Trujillo," *Journal of Latin American and Caribbean Anthropology*. Vol. 16 Issue 2 483-485, 2011.

"Return to Innocence," *Humboldt Journal of Social Relations*. Arcata: Humboldt State University, Spring 2006.

Works in Progress:

"Do you hear the beak: Community centered conservation of the parrotfish on the North coast of the Dominican Republic" *Island Anthropologies* ed. Kiran Jayaram, 2022.

"Cortijo y el Caribe" in *De coco y anis* ed. Cesar Colon Montijo and Marisel Hernandez. Beta Local, 2022.

Manuscript in Preparation:

"What the tides may bring: Navigating Power across the boundaries of the Dominican Nation-State"

FELLOWSHIPS AND GRANTS

- 2020-2021 Principal Investigator CUNY Collaborative Grant
- 2021 Transformative Learning in the Humanities Grant (Spring 21)
- 2021 PSC CUNY Faculty Publication Program (Spring 21)
- 2020-2022 Faculty Leader Mellon Seminar for Public Engagement CUNY Grad Ctr.
- 2020 Spring- CUNY Humanities Alliance Classroom Instruction Grant
- 2019-2022 Faculty Co-Leader Presidents Society Environment Program Rauschenberg Foundation CUNY LaGuardia.
- 2016-2018 Mellon Cogut Center for the Humanities Post-Doctoral Fellow Afro-Latin History, Culture and Literature, Brown University.
- 2016-2018 National Oceanographic and Atmospheric Administration Coral Reef Conservation Research Award ($180,000)
- 2018 Ford Environmental Grants for Latin America Award
- 2017 Dominican Studies Institute Archive and Library Research Grant
- 2017 Summer Research Fellowship on Black Europe-Amsterdam
- 2015-2017 National Fish and Wildlife Foundation Seagrass Research Conservation Award ($95,000)
- 2015-2016 Mellon Inter University Program for Latino Research Fellow.
- 2013-2015 Presidential Research Fellow at the Center for the Humanities, CUNY Graduate Center.
- 2013-2014 Research Fellow Institute for Research of the African Diaspora and the Caribbean, CUNY Graduate Center.
- 2012-2013 Research Fellow Center for Place, Culture and Politics, CUNY Graduate Center.
- 2013 Archival Research Fellowship from the Advanced Research Collaborative, CUNY Graduate Center.
- 2013-2014 Doctoral Student Council Dissertation Fellowship, CUNY Graduate Center.
- 2008-2011 National Science Foundation Graduate Fellow.
- 2012 National Endowment for the Humanities "American Maritime Studies" Summer Fellowship.
- 2008 Inter American Foundation Research Travel Grant (Ecuador).
- 2010-2015 CUNY Black Male Initiative Fellow and Mentor,
- 2008Alliance for Graduate Education and Research Summer Research Grant, CUNY Grad Center.
- 2005 Awarded Who's Who Amongst America's Teachers, Humboldt State University.

COURSES TAUGHT

- Seminar on Food Inequality, Insecurity and Justice, Center for Teaching and Learning, LaGuardia, Fall 21.
- Music of Latin America and the Caribbean, Latin American Studies CUNY LaGuardia, Spring 2020.
- Peoples of the Caribbean, Anthropology, CUNY LaGuardia, Fall 2018-21.
- Anthropology of Latin America, CUNY LaGuardia, Fall 2019.
- Introduction to Cultural Anthropology, CUNY LaGuardia, Spring/Fall 2018-21.
- Rhythm and Resistance, Africana Studies, Brown University, Fall 2017.
- Transnational Hispaniola (Co-taught with Amelia Hintzen), Africana Studies, Brown University, Spring 2017.
- Race and Nation in the Spanish Caribbean, (Graduate) Africana Studies, Brown University, Fall 2016.
- Latin American and Caribbean Peoples*,* Latin American Studies Department. City University of New York, Spring 2015.
- AfroLatin@s in the U.S., Teaching Assistant for Dr. Juan Flores, Department of Social and Cultural Analysis. New York University, Fall 2008.
- Introduction to Human Development, Stony Brook University, Fall 2006
- Rhythm and Resistance, Ethnic Studies Department, Humboldt State University, Spring 2004 and Fall 2005.
- AfroLatino: The Forgotten Roots, Ethnic Studies Department, Humboldt State University, Spring 2005
- Black Radical Tradition (Co-taught Dr. Christina Acomando and Dr. Manuel Callahan) Ethnic Studies Department, Humboldt State University, Spring 2004.
- Race, Class, Gender and Power in the U.S.*,* Ethnic Studies Department, Humboldt State University Fall 2003-2005.

APPLIED RESEARCH

Principal Investigator, "Forecast skill in vulnerable communities in the context of a changing climate" funded by the CUNY Collaborative Research Grant Feb. 2021-Feb. 2022. ($40,000)

Principal Investigator, "Understanding the ecology and social perceptions of commercially important fisheries for the development of long-term education and enforcement strategies to support sustainable fisheries in Bahamas and the Dominican Republic," ISER Caribe project funded by National Oceanographic and Atmospheric Administration. Bahamas and Dominican Republic, Oct. 2016-Sept. 2018. ($180,000)

Investigator, "Advancing the Conservation of Seagrass Habitats at an Anthropogenically- impacted Location in Southern Puerto Rico" ISER Caribe community project funded by National Fish and Wildlife Foundation. Playa de Ponce, Puerto Rico, Oct. 2015-Sept. 2017 ($95,000).

Consultant, "Building resiliency in Puerto Rico Northeast reserves by addressing Land based sources of pollution, restoring coral reef habitat," Protectores de Cuenca. Culebra and Fajardo, Puerto Rico, Nov. 2015-May 2016.

Consultant, "Laudes Infantes," Program Evaluation and Ethnographic Research for Educational Access Program Non Profit. Bogotá, Colombia, May 2014.

Consultant, "Information Technology," Program Evaluation and Ethnographic Research for Educational Access Program Non-Profit. Distrito Federal, México, March 2014.
Researcher "Humpback Whale Identification Project," Center for the Conservation an Eco-Development of the Bay of Samaná. Samaná, Dominican Republic, 2012-2014

Researcher "American Maritime History," National Endowment for the Humanities Seminar: Mystic, CT. June-July 2012.

Researcher “The First Africans in the New World: Slavery and Resistance in Hispaniola 1493-1600,” Researcher for the Dominican Studies Institute at City College, New York, Jan 2008-Dec 2009.

Consultant “Samaná Summer Abroad Program,” Researcher, facilitator and presenter in program for undergraduate students offered by Hostos Community College, July 2009.

Project Director, “Community-based Rural Photovoltaic Energy Sources in Samaná, Dominican Republic,” Aug 2003-May 2005.

PROFESSIONAL EXPERIENCE

Co-Founder and Director of Public Programs, Institute for Socio-Ecological Research

La Parguera, Puerto Rico January ’14- Current

Manage, coordinate and design programs with focus on environmental education, community history, racial identity and sustainable development that align with the organization's mission and support the organization's goals. Schedules and oversees planning for special events that publicize the organization and its programs to the community. Establish fundraising and development goals, identify potential donors or sources of funding, plan outreach strategies and assist in the development of grants applications or proposals.

INVITED LECTURES AND PRESENTATIONS

“AfroLatinx social movements” Invited virtual lecture, UC Riverside. August 25, 2020.
“Coral reef conservation and parrotfish fisheries management in the Dominican Republic” Invited presentation for Honors College Advisory committee, LaGuardia April 2021.

“AfroLatin@ Reader at 10” Invited Presentation, NY. June 2020.

Director and Undergraduate Advisor of the College of Human Development

Stony Brook University, NY Sep. ‘06- May ‘07

Provided academic advising to over 2,000 undergraduates. Coordinated the newly-created learning community, College of Human Development (HDV) through the programming of co-curricular events, orientations, and management of the operating budget. Assisted in the curriculum development for "First Year Seminars,” including the textbook and the training and supervision of a 20-person team of instructors. Supervised and mentored 6 "Academic Peer Advisors" in teaching, advising and orientation programming.

Academic Advisor, Educational Opportunity Program (EOP)

Humboldt State University, Arcata, CA May ‘04 – Jul. ‘06

Provided academic advising and support services for new and continuing program students. Assisted in coordinating weeklong Summer Bridge Orientation programs, fall academic preparation programs, and academic assessments. Developed programs to increase student leadership development and social justice education.

Assistant Director of New Student Programs

Humboldt State University, Arcata, CA Aug. ‘02 - May ‘03

Coordinated the orientation program for all incoming transfer and first-year students. Supervised, recruited, hired, trained and advised 50 new orientation counselors and 20 current counselors.

Coordinated the parent and family programming, including Family Weekend, Parent Listserv, Parent Handbook and the Parent Newsletter. Implemented advising, registration, financial aid and social justice presentations for 2,000 incoming students.

Coordinator of Outreach & Community Development, Multicultural Center

Humboldt State University, Arcata, CA Aug. ’00 – Jul. ‘02

Coordinated cultural workshops, planned and implemented campus-wide activities. Organized, facilitated, and advised student cultural organizations and helped them maintain their budgets. Identified and secured funding from a variety of agencies through various grants that supplemented 30% of our operating budget. Provided diversity and social justice training for faculty and administrators.

“Anthropological Methods and the Environment” Invited Lecture at the Island Anthropologies Workshop, Santo Domingo, DR. March, 2019.

“Black Social Movements in the Americas” Invited Lecture Union College, NY. February, 2019.”

“Community led Sustainable Agriculture in the Caribbean” Invited Lecture at Kingsborough Community College, NY. November, 2018

“Disposession and Displacement in the Spanish Caribbean.” Invited presentation at Brown University International Advanced Research Institute on Forced Population Displacement and the making of the Modern World, Providence, RI. June, 2018.

Keynote Lecture at the CUNY Pipeline Program Research Colloquium held at the CUNY Graduate Center. April, 2018.

“AfroLatinx Political Movements” Invited lecture at Union College. March, 2018.

“Displacement and Development.” Invited presentation at Brown University International Advanced Research Institute on Forced Population Displacement and the making of the Modern World, Providence, RI. June, 2017.

“Suffering and Smiling: Navigating Graduate School and the Academy.” Invited presentation at MAGNET Doctoral Fellows Program CUNY Graduate Center, NY. May, 2017.

“What’s Blackness got to do with it: The Dominican Republic and Haiti.” Invited presentation at Depaul University, Chicago, IL. May, 2017.

“What the Tides May Bring: Antillean Politics a Maritime Maroonage in Samaná, Dominican Republic.” Presentation at Africana Studies, Brown University, Providence, RI. March, 2017.

“The long durée: Agency, Redemption and the Voices of those that came before.” Invited Lecture Consortium on High Achievement and Success Black and Latino Male Conference, Providence College, Providence, RI. November, 2016.

“What the tides may bring: Race, Nation and the African American Experience.” Invited Lecture in Introduction to Africana Studies course taught by Dr. Francoise Hamlin, Brown University, Providence, RI. November, 2016.

“AfroLatinx and Colorism in Latino Communities.” Invited presentation Latino Heritage Series at Brown University sponsored by the Center for Students of Color at Brown. Providence, RI. October, 2016.

“Samaná: Humpback Whales, Tourism and Dispossession.” Invited lecture Sea Grant Program at the University of Puerto Rico, Mayaguez. October, 2015.

“Las Ballenas jorobadas, cultura y acción comunitaria.” Presentation Mayaguez Children’s Library as part of a series of events sponsored by the Puerto Rico Foundation for the Humanities. April, 2016.

"Rethinking the History of Samaná: Antillean Connections." Invited Lecture Bates College, ME. February, 2015.

"AfroLatinos in the US." City College of the University of New York, Dominican Students Association. March, 2015.

"The African American migration to Haiti." College of Staten Island, NY. November, 2014.

"Latinos in Higher Education." Panelist, Department of Social and Cultural Analysis, New York University, October, 2010.

"Introduction to Dominicans in the U.S." Panelist, City College of the University of New York. February, 2009.

"Proposals for a Climate Change Tribunal." Panelist, Bluestockings Bookstore, New York City. August, 2010.

"The AfroLatino Experience." The National Conference of La Raza, San Diego, CA. July, 2008. "Lineages and

Linkages." Schomburg Center for Research in Black Culture, Harlem, NY. May, 2008. "Activists as Academics."

The Pacific Sociological Association Conference, Los Angeles, CA. April, 2006.

"Strategies for Curricular Transformation." Faculty Development Series, Humboldt State University, CA. March, 2006.

"Forced sterilization of Puerto Rican Women." Celebración Latina, Humboldt State University, CA. April, 2004.

"Islands in Resistance: Experiences from Puerto Rico" Celebración Latina, Humboldt State University, CA. April, 2002.

"Rhythm, Resistance and Education." The Education Encounter, Humboldt State University, CA. March, 2007.

"AfroLatino: Reclaiming our Trans-racial histories." North Coast Education Summit, CA. February, 2006.

PAPER PRESENTATIONS:

"African American migrations to Hispaniola" Dominican Studies Conference, CUNY Hostos. December 5, 2021.

"What rises from the Ashes: Destruction and Disposession in Samana, DR." Caribbean Studies Association Conference, Colombia. June, 2019.

"If you build it, they will come: State sponsored destruction in Samana, DR." Global Urban History Project Conference, Puerto Rico. June, 2019.

"El Pueblo de Samaná and Projects of Rule" Cogut Center for the Humanities, Brown University, RI. April, 2017.

"What the tides may bring: Political Tigueraje and Dispossession in Samaná, Dominican Republic." Inter University Project for Latino Research, Notre Dame, South Bend, IN. April, 2015.

"What Rises from the Ashes: State Machinations and Popular Dissent" Research Symposium for the Institute for Research of the African Diaspora and the Caribbean (IRADAC) New York City, NY. March, 2014.

"Dominican State Power: Destruction, Reconstruction, of Samaná, Dominican Republic." First Conference on the Spanish Caribbean, Santo Domingo, Dominican Republic. May, 2013.

"Dominican Anthropology." Invited Session, *American Anthropological Association Annual Conference*. New Orleans, LA. November, 2010.

"What Rises from the Ashes: Development and Race in Samaná, Dominican Republic." Rethinking the Mangrove Conference on Cultural Studies, University of Puerto Rico, Mayaguez, Puerto Rico. October, 2009.

"What Rises from the Ashes: Identity in Samaná, Dominican Republic." Race, Space and the African Diaspora Conference, University of California Los Angeles, CA. March, 2008.

CONFERENCE PARTICIPATION

"Teaching Climate Justice using Participatory Budgeting across the disciplines." CUNY Conference on Climate Change, CUNY LaGuardia. April 23, 2021.

"AfroLatin@s Now: Race Counts." Organizer and Moderator, CUNY Graduate Center, Museo del Barrio and Schomburg Center for Research in Black Culture, New York City, NY. November, 2014.

"The Black Atlantic." Organizer and Moderator, CUNY Graduate Center, New York City, NY. October, 2014.

"AfroLatin@s Now." Organizer and Moderator, CUNY Graduate Center, Museo del Barrio and Schomburg Center for Research in Black Culture, New York City, NY. November, 2014.

"States of Violence." Organizer and Moderator, CUNY Graduate Center. March, 2015.

"The Struggles of Caribbean Latino Artist." Organizer and Moderator, CUNY Graduate Center. April, 2015.

"Tierralismo Good Earth Film Tour." Organizer and Moderator, CUNY Graduate Center. April, 2015.

"A Question of Africa." Curator and Moderator for a three-part series of conversations between writers of the African Diaspora. CUNY Graduate Center, 2013-2014.

"Caribbean Epistemologies Seminar." Organizer and Participant, Center for the Humanities, CUNY Graduate Center, 2010-2012

EXHIBITIONS, MEDIA AND PERFORMANCE PROJECTS

"Samaná virtual Archive". Dominican Studies Archive, City College. June 2020-ongoing.

"Voices of the Unheard: AfroLatinx experience". Screening and Discussion, New York, April 2021.

"Just strategies: Pathways to water, food and wellness". CUNY Graduate Center, October 30, 2020.

"Agua para el Pueblo" Design and installation of Rainwater catchment and filtration systems for public consumption in collaboration with BembaPR artist collective. Mayaguez, PR. August, 2020.

"Young Lords at 50" Co-Organizer for three part forum on the influence of the Young Lords. LaGuardia College, NY. Fall, 2019.

"Marching in Stillness" Historical Consultant for a Dance performance on Puerto Rican Economic crisis, Identity politics and the Diaspora working with the Danza Organica Dance Troupe in Boston, MA. May 2017-2019.

"Caribe Negro." Curator and Organizer of a three-day series that engages in and utilizes performance and music to examine the interwoven dynamics of race and national construction in the making of the Spanish-speaking Caribbean. Africana Studies/Rites and Reason Theatre, Brown University. March, 2017.

"Semillas para la Comunidad." Organizer of the ten-event series of Public Humanities programs in Mayaguez, Puerto Rico. Sponsored by the Puerto Rico Foundation for the Humanities. Oct. 2015-June, 2016.

"Rostros de Samaná." Community Photo Installation, Samaná, Dominican Republic. January, 2015.

"Afrika Bambaata Hip-Hop Archive." Research Assistant for the Cornell Hip Hop Collection. August, 2013.

"Xamana Presente." Community Photography Exhibit. Queens College Latin American and Latino Studies Center. April 3rd-28th, 2013.

"Samaná: Images of the Dominican Republic." Photo Exhibit at Longwood Art Gallery at Hostos Community College, Bronx, NY. September 28-November 7, 2009.

"Tato Laviera: A Nuyorican Poet." Life Histories Documentary on YouTube 2009

"This Progress." Exhibitor and Facilitator. The Guggenheim Museum, NYC. October-December, 2009.

"AfroLatino Film Seminar Series." Stony Brook University. March, 2007.

"Sabor Latino." Executive Director and on-air voice and technician for weekly radio program on KHSU 90.5 FM. Public Radio, Arcata, CA. May, 2001- June, 2003.

PROFESSIONAL SERVICE

Staff and Faculty of Color Collective, CUNY LaGuardia 2019-present Laitinx Heritage Committee, CUNY LaGuardia. 2019- present

Black Male Initiative Advisory Board LAGCC. 2018-present

Faculty Advisor Dominican Students Association at Brown 2015-2016 We are all Dominican Co-Founder and Facilitator, NYC 2015-2017

Mayaguez Children's and Community Library Board Member and Grant Writer, Mayaguez, Puerto Rico, 2015-2020

Doctoral Students Admissions Committee, Department of Anthropology, CUNY Graduate Center, 2012. AfroLatin@ Forum. Founding Member and Researcher, New York, NY, 2007-present.

CUNY Pipeline Recruiter and Mentor, CUNY Graduate Center, 2013-2015. Presidential Taskforce for Diversity, Humboldt State University, 2004-2006.

PROFESSIONAL AFFILIATIONS

American Anthropological Association
Caribbean Studies Association
Association for the Study of the Worldwide African Diaspora Association of
Black Anthropologists
Association of Latino Anthropologists Latin
American Studies Association CANARI
Environmental Network

RELATED SKILLS

Native fluency in English and Spanish, including writing, translation and interpretation.

SONIA ALEJANDRA RODRÍGUEZ, PhD
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sorodriguez@lagcc.cuny.edu | soniaarodriguez.com

EDUCATION

City College of New York (CUNY) — New York City, NY
M.F.A. in Creative Writing (Fiction) — August 2018-December 2021 Thesis: *Querida & Other Stories*

University of California Riverside — Riverside, CA
Ph.D. in English — August 2011-August 2015
Dissertation: *Conocimiento Narratives: Challenging Oppressive Epistemologies Through Healing in Latina/o Children's and Young Adult Literature*

University of California Riverside — Riverside, CA
M.A. in English — August 2009-June 2011

University of Illinois at Urbana-Champaign — Champaign, IL
B.A. in English; Minor in Latina/o Studies — August 2005-May 2009

ACADEMIC PUBLICATIONS

Articles

"Conocimiento Narratives: Creative Acts and Healing in Latinx Children's and Young Adult Literature." *Children's Literature*. John Hopkins University Press. Vol 47, no. 1, 2019, pp. 9-29.

"School Fights: Students Resisting Oppression in Latina/o Children's and Young Adult Literature." Journal of *Children's Literature in Education*. Vol 49, no. 1, 2018, pp. 61-72.

Book Chapters

"Fierce and Fearless: Dress and Identity in Rigoberto Gonzalez's *The Mariposa Club*." *meXicana Fashions: Self-Adornment, Identity Constructions, and Political Self-Presentations*, eds. Norma Cantu and Aida Hurtado, University of Texas Press, 2020, pp. 216-234.

"More than Esperanza: Revisiting Sandra Cisneros's *The House on Mango Street." Critical Exploration of Young Adult Literature: Identifying and Critiquing the Canon,* eds. Victor Malo- Juvera and Crag Hill, Routledge, 2019.

"You wanna be a chump/or a champ?": Constructions of Masculinity, Absent Fathers, and Conocimiento in Juan Felipe Herrera's *Downtown Boy*. *Voices of Resistance: Essays on Chican@ Children's Literature,* eds. Laura Alamillo, Larissa M. Mercado-Lopez, and Cristina Herrera, Rowman and Littlefield Education, 2017, pp.91-104.

Reviews

"Encarnación: Illness and Body Politics in Chicana Feminist Literature by Suzanne Bost." *Aztlán: A Journal of Chicano Studies*, vol. 39, no. 2, 2014.

"Children's and Young Adults Literature." *Encyclopedia of Latino Culture: From Calaveras to Quinceañeras,* ed. Charles Tatum, ABC-CLIO (Greenwood Press Imprint), 2013.

WORKS IN PROGRESS

Edited Collection: Ethnic Studies and Youth Literature: A Critical Reader, co-edited with Marilisa Jimenez Garcia. Contract with SUNY Press.

Book Chapter: "'Let me tell you a story': Storytelling and Resistance in Mark Oshiro's *Each of Us a Desert.*" *Ethnic Studies and Youth Literature: A Critical Reader*, co-edited with Marilisa Jimenez Garcia. Contract with SUNY Press.

Book chapter: "Race, Empire, and Latinx Children's Literature." *Latinx Literature and Critical Futurities, 1992-2020, Vol. 3 of Latinx Literature in Transition Series,* ed. William Orchard.
Contract with Cambridge University Press.

Book chapter: "'Everyone is Gay': Queer Latina Identity in the Graphic Novel *Juliet Takes a Breath.*" *Atravesados: Essays on Queer Latinx Young Adult Literature,* eds. Trevor Boffone and Cristina Herrera. Contract with University of Mississippi Press.

Book Project: Conocimiento Narratives: Healing Practices in Latinx Children's and Young Adult Literature

TEACHING EXPERIENCE

LaGuardia Community College — Long Island City, NY
Associate Professor (Untenured) — September 2019-Present

LaGuardia Community College — Long Island City, NY
Assistant Professor — September 2016-June 2019

St. Augustine College — Chicago, IL
Adjunct Professor — August 2015- May 2016

University of California Writing Program — Riverside, CA
Associate Instructor — August 2010-May 2014

COURSES TAUGHT

LaGuardia Community College, New York City, NY

ENG 288	English Internship	Spring 2022
ENF 101	First Year Seminar	Fall 2021
English 235	Cultural Identity in American Literature	Fall 2019
English 280	Children's Literature I	Fall 2019-Present
ENN 198	Introduction to Creative Writing	Spring 2019, Fall 2019
English 248	Latinx Literature	Spring 2017, Fall 2020
English 276	Fiction Writing Workshop	Fall 2017-Present
English 102	Writing Through Literature	2016-Present
English 101	Composition I	2016-Present

St. Augustine College, Chicago, IL

English 203	American Cultures and Literature	Spring 2016
English 162	Composition II	Fall 2015, Spring 2016
Spanish 222	Latin American History & Literature	Fall 2015, Spring 2016
English 160	Composition I	Fall 2015

SELECT ACADEMIC FELLOWSHIPS, GRANTS, AND AWARDS

Mellon/ACLS Community College Faculty Fellow	2021-2022
Andrew W. Mellon Foundation & American Council of Learned Societies	
Mellon Emerging Faculty Leaders Award	2020-2021
Andrew W. Mellon Foundation & Institute for Citizens & Scholars	
PSC CUNY GRANT	2019-2020
Research Foundation of CUNY	
Faculty Fellowship Publication Program	2017-2018
Office of the Dean for Recruitment and Diversity, CUNY	
PSC CUNY Grant	2017-2018
Research Foundation of CUNY	
UC Dissertation Year Fellowship	2014-2015
Office of the President, UC	
Community Service Award	2014
Graduate Students in English Association, UCR	
Friends of English Award	2014
Department of English, UCR	
Graduate Research Mentoring Program Fellowship	2014
Graduate Division, UCR	
Ford Foundation Dissertation Fellowship (Honorable Mention)	2014
National Academies	
UC MEXUS Dissertation Research Grant	2014
UC MEXUS, UC	
Queer Lab Research Grant	2013
Queer Lab, UCR	
Eugene Cota-Robles Fellowship	2009 & 2012
Graduate Division, UCR	
Institute for Research on Labor and Employment Mini-Grant	2012
University of California, Los Angeles	

SELECT CONFERENCE PRESENTATIONS

"(Un)Documented Resistance: Immigration and Latinxs Children's Literature." Individual Paper. "New and Future Directions in Latinx Studies" at NEH-LAS Latinx Symposium at LaGuardia Community College, CUNY. Virtual Panel. April 2021.

"(Im)migration in Chicanx and Central American Children's Literature." Individual Paper. "The Color Line Belts the World: Race, US Empire, and Children's Literature." Lehigh University.
Virtual Panel. September 2020.

"Como te gusta la mala vida: Legacies of Being a Malcriada in Latinx Young Adult Literature." International Research Society on Children's Literature Biennial Conference. Stockholm, Sweden. August 2019.

"School Fights: Chicanas Resisting Oppression in Classrooms in Chicanx Children's and Young Adult Literature" Individual paper. American Educational Research Association (AERA). San Antonio, TX. May 2017.

"'I'm okay': Depression and Suicide in Latinx Young Adult Literature." Individual paper. Disability Studies Conference hosted by University of California Los Angeles. April 2017.

"Incorporating Quality Latina/o Literature in the Classroom." Speaker. Youth Literature Festival at the

University of Illinois at Urbana-Champaign. October 2016.

"Beyond Esperanza: From Children Narrators to Children's Literature in Chicanx Literature." Keynote Address. Latina/o Studies & YWCA at the University of Illinois at Urbana-Champaign. October 2016.

"'Fierce and Fearless": Dress and *Conocimiento* in Rigoberto González's Young Adult Novels." The Imagining Latina/o Studies Conference: Imagining Past, Present, and Future. Chicago, Illinois. July 2014.

"*Conocimiento* Narratives: (Re)imagining the Künstlerroman for Latina Girls in Latina/o Children's and Young Adult Literature." Children's Literature Association Conference. University of South Carolina. June 2014.

"'But not even the monkey garden would have me': Suicide and Depression in Latina/o Young Adult Novels by Sandra Cisneros, Rigoberto Gonzalez, and Gloria Velasquez." Critical Ethnic Studies Conference: Decolonizing Future Intellectual Legacies and Activist Practices. University of Illinois, Chicago. September 2013.

"(Re)Imagining America: Immigration Narratives in Latina/o Children's Literature." 1st Biennial U.S. Latina/o Literary Theory and Criticism Conference. John Jay College, New York. March 2013.

"A Very *Que Sad* Story: Representation of Bodily Self-Harm in Chicana Literature." Contemporary Women's Writing Association. National Taiwan University. July 2012.

"The Roosevelt High Series: A Focus on Chicana/o Youth Literature." Pacific Ancient and Modern Language Association. Scripps College, Claremont. November 2011.

"Searching for Chicana/Latina Identity: Conversations on Immigration and Healing Practices in Chicana/o Latina/o Children's Literature." Critical Ethnic Studies & The Future of Genocide: A Major Conference. University of California, Riverside. March 2011.

SELECT PUBLIC SCHOLARSHIP

"Girlhood in Latinx Children's and Young Adult Literature." *Smithsonian Magazine*. Forthcoming March 2022.

"*US Empire, Puerto Rico, and the Roots of American Youth Literature and Culture* by Marilisa Jimenez-Garcia." Book Review. *The Latinx Project,* New York University. May 2021.

"Generational Trauma and Learning to Love in Anna-Marie McLemore's *Wild Beauty*." *Latinxs in Kid Lit*. April 2018.

"Recommended Books with Latinx Characters." *Queer Books for Teens: A Comprehensive Database of all LGBTQIAP+ YA Literature 2000-2017.*

Book Review of *The Smell of Old Lady Perfume* by Claudia Martinez. *De Colores: The Raza Experience in Books for Children*. August 2017.

Book Review of *Gaby, Lost and Found* by Angela Cervantes. *De Colores: The Raza Experience in Books for Children*. December 2016.

"Good Men & Bad Men: On Latino Masculinities in Joe Jimenez's Bloodline." *Latinos in Kid Lit.* November 21, 2016.

"Latinx Gay YA." *Gay YA*. June 2016.

"*Juliet Takes a Breath*: A How-To Guide for Young Queer Latinas." *Gay YA*. June 2016.

"The Pura Belpre Award: Continuing Belpre's Legacy of Lighting the Storyteller's Candle."
Co- author with Sujei Lugo. *Latinos in Kid Lit*. May 2016.

"Poetry in the Lives of Children and Young Adults." *Latinos in Kid Lit*. April 2016.

"*Shadowshaper*: Art Can Change the World." *Latinos in Kid Lit*. January 2016.

"Life-Changing Teachers: On Juan Felipe Herrera's Reading in Chicago." *Latinos in Kid Lit*. November 2015.

"'I'm okay': Resilience & Depression in Cindy L. Rodriguez's *When Reason Breaks*." *Latinos in Kid Lit*. April 2015.

"Happiness as a Social Justice Issue in Latin@ Kid Lit." *Latinos in Kid Lit*. March 2015.

"5 Reasons to Love Benjamin Alire Saenz's *Aristotle and Dante Discover the Secrets of the Universe*." *Gay YA*. March 2015.

"'A poet, America knows, belongs everywhere': Healing & Latin@ Children's Literature."
Latinos in Kid Lit. December 2014.

"Resilient Butterflies: On Rigoberto Gonzalez's *The Mariposa Club*." *Gay YA*. November 2014.

"YA Latina Lesbians: On Mayra Lazara Dole's *Down to the Bone*." *Gay YA*. January 12014.

SERVICE EXPERIENCE

Research on Diversity in Youth Literature Journal Co-Editor in Chief	St. Catherine University, MN 2021-Present
Creative Writing Program Program Director	LaGuardia CC, NY 2018-2021
Research on Diversity in Youth Literature Journal Book Review Editor	St. Catherine University, MN 2018-2021
Latinx Heritage Committee Member	LaGuardia CC, NY 2017-2020
Women, Gender, & Sexuality Studies Committee Social Media Director	LaGuardia CC 2017-2019
Creative Writing Committee Member	LaGuardia CC, NY 2017-2020
Latinx Literature Committee Co-Chair	LaGuardia CC, NY 2016-2019
Liberal Arts Advising Team Team member	LaGuardia CC, NY 2017-2018
Composition I Committee Member	LaGuardia CC, NY 2016-2018

CREATIVE WRITING PUBLICATIONS

Fiction

"Florists at the End of the World." *Hobart After Dark*. March 2022.

"Unknown." *Mixed Mag*. February 2022.

"Sing with Me." *Reckon Review*. January 2022.

"This is a Sign, Right?" *Nurture: A Literary Journal.* July 2021.

"Bromelia." *Strange Horizons*. November 2020.

"Micheladas." *Reflex Fiction.* September 2020.

"Lily." *Hispanecdones*. May 2019.

"El Sol." *Newtown Literary*. December 2018.

"Libertad. "*Acentos Review*. May 2018.

"Reyna." *Hispanecdotes.* May 2018.

"La Campana." *Everyday Fiction*. July 2015.

Poetry

"Arroz Con Leche." *Okay Donkey*. September 2021.

"Velcro Shoes." *Lost Balloon.* July 2020.

"Pies Are Not WIC Approved." *No Tender Fences: An Anthology of Immigrant & First- Generation American Poetry"* eds. Marina Carreira, Carla Sofia Ferreira, and Kim Sousa. September 2019.

"Sundays at La Carniceria" *Huizache: The Magazine of Latina/o Literature*, University of Houston-Victoria. September 2017.

Creative Non-Fiction

"TV Time: The One Where I Ugly Cry." *Reckon Review*. February 2022.

"Arroz Con Leche." *Okay Donkey*. October 2021.

"Witness Mami Roar." *Longreads.* December 2019.

"$2 Bills Are Good Luck." *So to Speak: A Journal of Language, Feminist, and Art.* July 2019.

PROFESSIONAL ORGANIZATIONS

Latin American Studies Association Modern Language Association Children's Literature Association International Society of Research on Children's Literature

DONOVAN RICHARDS
President

CITY OF NEW YORK
OFFICE OF THE
PRESIDENT OF THE BOROUGH OF QUEENS
120-55 QUEENS BOULEVARD
KEW GARDENS, NEW YORK 11424

718.286.3000
www.queensbp.org
info@queensbp.org

April 22, 2022

President Kenneth Adams
LaGuardia Community
College 31-10 Thomson
Avenue, E-501 Long
Island City, NY 11101

Dear President Adams,

I am pleased to support LaGuardia Community College in its proposal to establish the "Centro de las Américas," a first-of-its-kind center located within a CUNY school designed to provide comprehensive services, information, events and support to Latin American students and community members.

Through these events and activities, the Centro de las Américas will serve as a key resource for countless borough students and residents by empowering our Latin communities, fostering continuing awareness, promoting our various cultural heritages, creating greater awareness of the role of a community college in educational and professional development and advancement and providing critical experiential learning and mentorship opportunities.

Queens residents would benefit greatly from such a center being located within LaGuardia Community College. In turn, my office would welcome the opportunity to share information on the services we offer with LaGuardia students, staff and visitors alike.

Past collaborations with LaGuardia have been fruitful, and I have no doubt that the establishment of such a center would represent a massive step forward in the partnership we share to best meet the needs of our students and the wider Queens community as fully and effectively as possible.

Sincerely,

Donovan Richards
President
Borough of Queens

DISTRICT OFFICE

47-01 QUEENS BLVD, STE 205
QUEENS, NY 11104
TEL: (718) 383-9566
FAX: (718) 383-9076

CITY HALL OFFICE

250 BROADWAY, SUITE 1833 NEW YORK, NY 10007
TEL: (212) 788-7370
FAX: (212) 513-7195

April 12, 2022

President Kenneth Adams

JULIE WON

COUNCIL MEMBER
26TH DISTRICT, QUEENS

LaGuardia Community College
31-10 Thomson Avenue, E-501
Long Island City, NY 11101

Dear President Adams,

I am pleased to support LaGuardia Community College in its proposal for the Centro de las Américas, the first Center at a CUNY community college to provide comprehensive services, information, events and support to students and community members of diverse Latin heritage.

Through Latin-related events and activities, the Centro will serve as a resource for Queens residents and beyond, empowering Latin communities and fostering continuing awareness and pride in the Latin heritage; creating greater awareness of the role of a community college in educational and professional development and advancement; and providing experiential learning and mentorship opportunities.

Residents in my council district would benefit from such positive interaction on a college campus. In turn, we welcome the opportunity to share information on our services with LaGuardia students and Centro visitors and participants.

Past collaborations with LaGuardia have been fruitful, and we look forward to continued mutual referrals, support and opportunities for more partnership in order to serve the Queens community as fully and effectively as possible.

Sincerely,

The City College of New York

CUNY Dominican Studies Institute

April 7, 2022

Dr. Kenneth Adams, President
LaGuardia Community College 31-
10 Thomson Avenue
Long Island City, NY 11101 USA

Querido President Adams,

I am writing to express my most enthusiastic support for the creation of the proposed "Centro de las Américas" at LaGuardia Community College.
As a CUNY alum, long-time Professor of Sociology at The City College of New York, and the Director of the CUNY Dominican Studies Institute at the same institution, I have had the opportunity to witness over the years, the proliferation of academic research institutes, centers, programs, and academic departments throughout CUNY dedicated to the production and dissemination of knowledge related to people of Latin American ancestry. These, in my experience, tend to focus on one or a handful of Latino subgroups.

The proposed Centro de las Américas has positioned itself to fill a vacuum and provide an altogether fresh contribution within CUNY. If established, the proposed Centro de las Américas will serve as the first and only hub for student life and community engagement within the university system that bolsters, nurtures, and imparts knowledge about Latinos and Latin Americans. In fact, when it comes to the mission of representing all people of the Americas, the only entity that is remotely comparable is the Masters in the Study of the Americas housed in the Center for Worker Education at The City College of New York. Given the types of programs they are, however, the proposed center and extant MA program serve very distinct students, providing grounds for collaboration.

The proposed Centro de las Américas will serve as a site for all students with an interest in Latin America to study, learn, create, and spend time in community. It will also provide necessary services such as academic and career mentorship and highly sought activities such as Spanish-language conversation hours. In this sense, the proposed Centro de las Américas has the potential to serve as a model for CUNY, an example of a new entity that creates value and complements the work of those already in existence.

As you know, Mr. President, the task of establishing a new program within the university is no small feat; in this regard, the proposed Centro de las Américas will not be an exception. The level of consideration and planning, however, that has already been exerted to bring forth this proposal makes me confident that the current organizers have the drive and acuity necessary to bring the proposed Centro de las Américas to fruition.

To date, the model they have followed—in the pursuit of the establishment of a center—is reliable and makes sense. They are cognizant that the student population served at LaGuardia CC, from an academic point of view, has more needs than those found at senior colleges. The proposed Centro de las Américas will provide services that impact, expand, and enhance the student experience for a population that already enters La Guardia CC with disadvantages. By seeking to serve students of Latino descent, the proposed Centro de las Américas promises to impact the academic achievements of the same population in positive ways.

Given its emphasis on engaging the people of the Americas, a population whose contributions to humanity are as abundant as they are diverse, the proposed Centro de las Américas is ripe with potential. At its very core lies the one-of-a-kind opportunity to provide concrete evidence of the legacy of these groups represented at LaGuardia CC in all their splendor. If there is a place in CUNY where a center of this kind should be housed, it is La Guardia, a college that has boasted a significantly higher percentage of diversity within the CUNY system since the day that it opened its doors.

As the only university-based research institute devoted to the study of people of Dominican descent in the United States and other parts of the world, the CUNY Dominican Studies Institute is willing to share its knowledge and experience with LaGuardia CC's team to help institutionalize the proposed Centro de las Américas so that it becomes an established and strong institution inside and outside of CUNY.

I am confident that the proposed Centro de las Américas will prove itself to be not only an asset to LaGuardia CC, but also to CUNY at large.

Please feel free to contact me at (212) 650-7496 or by email at rhernandez@ccny.cuny.edu if you need any further reference or clarification.

Abrazos,

Ramona Hernandez, Ph.D.
Director, CUNY Dominican Studies Institute &
Professor of Sociology, The City College of New York &
Doctoral Faculty, The CUNY Graduate Center, Sociology Department

Brooklyn College The City University of New York

CUNY Haitian Studies Institute

2900 Bedford Ave. · Brooklyn, NY 11210 1108 Boylan Hall
tel 718-951-5000 x 5187
hsi@brooklyn.cuny.edu www.brooklyn.cuny.edu

April 14, 2022

Dr. Kenneth Adams, President LaGuardia Community College 31-10 Thomson Avenue
Long Island City, NY 11101 USA Onè President Adams:

It is with tremendous pleasure that I write to express our support for the creation of **Centro de las Americas at LaGuardia Community College**.

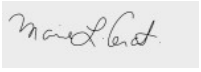
The CUNY Haitian Studies Institute (HSI) is the youngest ethnic institute of the City University of New York (CUNY). We will turn six years old this July 2022, having opened our doors in July 2016 on the campus of Brooklyn College. Though young, compared to our much-seasoned sister institutes, the HSI is already playing a unique and leading role in being an intellectual space that provides scholars in Haitian Studies with the support to access, produce, and disseminate research. We are equally an important resource for the New York Haitian diasporic community at large.

Centro de las Americas at LaGuardia Community College is poised to play an equally important role for the Latine population on the LaGuardia Community College campus and surrounding communities. **Centro de las Americas** will be an asset and resource for the students at LaGuardia as well as the broader communities of Queens, the most ethnically diverse urban area in the world.

The CUNY Haitian Studies Institute (HSI) is looking forward to welcoming **Centro de las Americas at LaGuardia Community College** and partnering on various events and programmatic initiatives.

Feel free to contact me at marie.cerat@brooklyn.cuny.edu or (347) 426-8475.

Respè,



Marie Lily Cerat, Ph.D.
Associate Director, CUNY Haitian Studies Institute

CUNY

DISTRICT COUNCIL 37 EDUCATION FUND 75 BROAD
STREET ROOM 2204, NEW YORK, NY 10004 TEL: (212) 815-1700 | FAX:
(212) 815-(x1700/ x1668)
www.dc37.net/Education | edfund@dc37.net

April 7, 2022

Kenneth Adams President
LaGuardia Community College 31-10
Thomson Avenue
Long Island City, NY 11101 Dear

President Adams:

DC 37 Education fund is pleased to support LaGuardia Community College in its proposal for the Centro de las Américas, the first Center at a CUNY community college to provide comprehensive services, information, events and support to students and community members of diverse Latin heritage.

Through Latin-related events and activities, we understand the Centro will serve as a resource for Queens residents and beyond, empowering Latin communities and fostering continuing awareness and pride in the Latin heritage; creating greater awareness of the role of a community college in educational and professional development and advancement; and providing experiential learning and mentorship opportunities.

DC 37 clients would benefit from such positive interaction on a college campus. In turn, we welcome the opportunity to share information on our services with LaGuardia students and Centro visitors and participants.

Past collaborations with LaGuardia, including participation in LaGuardia's Literacy Zone network, referrals to the HSE Tuition program, and awareness raising campaigns to support adult education via the NYC Coalition for Adult Literacy, have been fruitful, and we look forward to continued mutual referrals, support and opportunities for more partnership in order to serve the Queens community as fully and effectively as possible.

Sincerely,

Patty Punch Assistant Director
DC 37 Education Fund
75 Broad St. Room 2204 New York, NY 10004 ppunch@dc37.net 646.369.6509

CENTRO CENTER FOR PUERTO RICAN STUDIES HUNTER CUNY
695 Park Ave | New York, NY 10065
www.centropr.hunter.cuny.edu

March 24th, 2022

Dr. Kenneth Adams, President
LaGuardia Community College
31-10 Thomson Avenue
Long Island City, NY 11101 USA

RE: Support for the creation of the Centro de las Américas at LaGuardia Community College

Dear President Adams:

I write to lend our support for the creation of **Centro de las Américas at LaGuardia Community College**. This initiative reminds us of the initial efforts to found the **Center for Puerto Rican Studies** nearly fifty years ago. CENTRO was founded in 1973 by a coalition of faculty, students, and community leaders who saw the need for representation in their college classrooms and campuses, and it is this history that motivates me to support the proposal.

The goal of empowering students at LaGuardia Community College and the neighboring community through programs, services and community connections is a worthwhile one. Our own experience has shown us the existing demand and evident desire to connect the college with the surrounding as well as broader communities, even as our focus has centered on academic research. Moreover, growing evidence indicates the value of cultural affirmation in the process of student empowerment and acquisition of cultural and human capital. It is our belief that this college-based center would be a beneficial addition to the college and community at large.

The Latine population of LaGuardia Community College reflects the ever growing population of the borough of Queens. In creating the Centro de las Américas, those communities will find themselves valued and reflected in educational, instructional, and cultural programming throughout the college and the University.

We know that CENTRO often serves as a model for other institutes and centers throughout CUNY. We have been supportive of the creation of other such institutes, providing guidance and advice, and partnering on events and programmatic initiatives. We are willing to provide similar guidance to Centro de las Américas.

Should you have any questions, I may be reached at centrodirector@hunter.cuny.edu or (212) 772-5695.

Respectfully,

Dr. Yarimar Bonilla
Director, Center for Puerto Rican Studies

April 11, 2022
92-10 Roosevelt Avenue
Jackson Heights, New York 11372

Kenneth Adams, President
LaGuardia Community College
31-10 Thomson Avenue
Long Island City, NY 11101

Dear President Adams:

Make the Road New York is pleased to support LaGuardia Community College in its proposal for the Centro de las Américas, the first Center at a CUNY community college to provide comprehensive services, information, events and support to students and community members of diverse Latin heritage.

Through Latin-related events and activities, we understand the Centro will serve as a resource for Queens residents and beyond, empowering Latin communities and fostering continuing awareness and pride in the Latin heritage; creating greater awareness of the role of a community college in educational and professional development and advancement; and providing experiential learning and mentorship opportunities.

Make the Road clients would benefit from such positive interaction on a college campus. In turn, we welcome the opportunity to share information on our services with LaGuardia students and Centro visitors and participants.

Past collaborations with LaGuardia, including participation in LaGuardia's Literacy Zone and joint referrals via LaGuardia's NYC Welcome Back Center for healthcare professionals, have been fruitful, and we look forward to continued mutual referrals, support and opportunities for more partnership in order to serve the Queens community as fully and effectively as possible.

Sincerely,

Julie Quinton, Director of Adult Literacy Make the Road New York

April 11, 2022

Kenneth Adams President
LaGuardia Community College
31-10 Thomson Avenue
Long Island City, NY 11101

Dear President Adams:

World Education Services (WES) is pleased to support LaGuardia Community College in its proposal for the Centro de las Américas, the first Center at a CUNY community college to provide comprehensive services, information, events and support to students and community members of diverse Latin heritage.

We understand the Centro will serve as a resource for Queens residents and beyond, empowering Latin communities and fostering continuing awareness and pride in the Latin heritage; creating greater awareness of the critical role of a community college in educational and professional development and advancement; and providing experiential learning and mentorship opportunities.

WES has many clients who would benefit from such positive interaction on a college campus. In turn, we welcome the opportunity to share information with LaGuardia students and Centro visitors and participants on the services we can provide to support their academic and professional success.

WES has enjoyed a longstanding partnership with LaGuardia, which is a member of our Global Talent Bridge NYC partner network and has joined us in joint webinar presentations for our Skilled Immigrant Integration Program. We have long made mutual referrals for immigrant clients who might benefit from programs such as LaGuardia's Literacy Zone and its NYC Welcome Back Center for immigrant nurses, as well as for WES credential evaluations.

We look forward to reaching even greater levels of partnership in order to serve the Queens community as fully and effectively as possible through mutual referrals and support, as well as the development of more opportunities to advance student success and community well-being.

Sincerely,

Paul Feltman
Deputy Executive Director, Global Talent Programs and Policy
P.O. Box 5087, Bowling Green Station, New York, NY 10274-5087
T 212.966.6311 **W** wes.org

NEW YORK CITY HOUSING AUTHORITY
90 CHURCH STREET • NEW YORK, NY 10007
TEL: (212) 306-3000 • http://nyc.gov/nycha

NEW YORK CITY HOUSING AUTHORITY

GREG RUSS
CHAIR & CHIEF EXECUTIVE OFFICER

April 26, 2022

Dear Chancellor Matos-Rodriguez and CUNY Board of Trustees Members:

The New York City Housing Authority is pleased to support LaGuardia Community College in its proposal for the opening of *Centro de las Américas*, the first Center at a CUNY community college to provide comprehensive services, information, events and support to students and community members of diverse Latin heritage.

Through Latin-related events and activities, the Centro will: serve as a resource for Queens residents and beyond, empower Latin communities and foster continuing awareness and pride in the Latin heritage, create greater awareness of the role of a community college in educational and professional development and advancement, and provide experiential learning and mentorship opportunities.

Queensbridge and Ravenswood Housing residents would especially benefit from such positive interaction from the nearby college campus. In turn, we welcome the opportunity to share information on our services with LaGuardia students and Centro visitors and participants. Past collaborations with LaGuardia have been fruitful, for nearly thirty years the LaGuardia and Wagner Archives has been the custodians of our archives, we have had a wonderful relationship. We look forward to continued mutual referrals, support and the opportunities for more partnership in order to serve the Queens community as fully and effectively as possible.

Sincerely,

Greg Russ
Chair/Chief Executive Officer

LaGuardia Community College

DARE TO DO MORE

April 13, 2022

The College Senate of LaGuardia Community College enthusiastically supports the proposal for creating the Centro de las Américas at our college.

We, the faculty, staff, student, and alum senators of this governance body are proud to be part of Hispanic-serving institution, and we believe our college is ideally suited to form this center that will partner with community organizations and institutions across New York and beyond to serve as a hub for Latin-related activities, and provide opportunities to educate and advance Latin community members and support them as they become lifelong learners, professionals and activists.

The Centro de las Américas will benefit our college in our work to strengthen the equity and inclusion of our diverse community. It will also benefit Queens and beyond by empowering Latin communities and fostering continuing awareness and pride in the Latin heritage, creating greater awareness of the role of a community college in educational and professional development and advancement, and providing experiential learning and mentorship opportunities.

The College Senate looks forward to working with the Centro de las Américas at LaGuardia for the good of our college and the wider Queens community.

Respectfully,

The College Senate of LaGuardia Community College

HANOVER RESEARCH

CENTRO DE LAS AMERICAS - CALENDAR/FORECASTING

Prepared for CUNY LaGuardia Community College

FEBRUARY 2022

In the following report, Hanover Research provides a breakdown of funding prospects aligned with the interests of the Centro de las Americas at CUNY LaGuardia Community College.

EXECUTIVE SUMMARY: KEY FINDINGS

CUNY La Guardia Community College has requested Hanover's support identifying funding prospects aligned with its proposed Centro de las Americas The *Centro* will support a range of activities that celebrate Latin American culture, advance the educational and career aspirations of Latin American community members at La Guardia Community College, Queens, and beyond, and build collaborative partnerships with similarly oriented organizations.

We conducted a broad search of funding opportunities that can generally be divided into two categories: programs that support specific educational opportunities for students of Latin American heritage, and programs that would fund academic activities concerning Latin American culture. Our research into the most suitable funding opportunities for this project led to the following notable funders and key findings.

KEY FINDINGS: PROSPECTS

We identify 17 opportunities, including 13 federal programs and four foundations:

- The **National Endowment for the Humanities (NEH)** is especially well represented, with nine programs that would support the various interests of the *Centro*. Eligible programs include general humanities support, such as **Humanities Initiatives at Community Colleges**, and support for specific humanities projects, such as **NEH Media Projects**. The NEH has a particular interest in supporting digital humanities projects.
- We include two programs with the **National Science Foundation (NSF)**. **Improving Undergraduate Education: Hispanic Serving Institutions** supports STEM education at HSIs, and the **Louis Stokes Alliances for Minority Participation** funds programs improving the two-year to four-year college pipeline for minority students.
- The **Department of Defense's (DoD) Research and Education Program for Historically Black Colleges and Universities and Minority Serving Institutions** may be of interest.
- The **Department of Education's (ED) National Resource Centers Program** is particularly well-aligned with the interests of the Centro. Note that the next competition will likely not be until 2025 or 2026.
- For private foundations, the **Morf Foundation** and the **Daniel and Estrellita Brodsky** Foundation concentrate their giving in New York state; the **Ford Foundation, Surdna Foundation,** and **Andrew W. Mellon Foundation** all give on a national scale.

KEY FINDINGS: MARGINAL

We also include 10 marginal opportunities:

- The Department of Education offers a Title V Developing Hispanic-Serving Institutions program and a Title III Strengthening Institutions program. The former is likely to hold a competition in 2022. However, because it already has Title III and Title V grants, the College would need to check its eligibility for both programs; furthermore, these programs are designed for holistic student support at specific institutions, not activities directly relevant to Latin American culture or students of Latin heritage.
- We exclude several NEH opportunities that only accept individual applications. These may be of interest to faculty members involved with the Centro once it has been established. They include: Awards for Faculty at HSIs; Fellowships; NEH-Mellon Fellowships for Digital Publication; Summer Stipends; and Public Scholars.
- The **New York State Education Department** has a Teacher Opportunity Corps program to support students from minority backgrounds interested in pursuing teaching careers; however, the program was last offered for 2014-2017.
- The Kresge Foundation works to improve college access and success for underrepresented students. However, LaGuardia Community College is outside the Foundation's geographic focus areas.
- The **Say Yes to Education Foundation** supports higher education in the Northeast (mostly New York and Connecticut). However, it gives only to preselected organizations, and its grants to higher education institutions do not involve Latin American culture or heritage. Similarly, the **Morf Foundation** supports higher education in New York but seems to concentrate on environmental education.
- The John Ben Snow Memorial Trust funds higher education, arts, and culture in New York; however, it has a limited history of supporting Latin American culture, and it doesn't appear to support arts and culture programs at institutions of higher education.

EXECUTIVE SUMMARY: OVERVIEW OF PROSPECTS

FUNDERS PROFILED IN THIS REPORT

For each of the opportunities reviewed in this report, we evaluate viability based on alignment with funder focus areas and funding history, in addition to providing background information necessary for developing an approach. The summary table on the next slide provides an overview of key information regarding the opportunities reviewed in this report. While our research suggests that the funders profiled below are strong fits based on focus area alignment and funding history, an approach to each funder should take into account not only the published guidelines, but the need to establish contact: in all cases, we recommend that LaGuardia Community College reach out to a relevant staff member to discuss project scope and parameters before developing an approach.

FUNDER	RECOMMENDED REQUEST RANGE	APPROACH	FOCUS AREAS	DEADLINE
NEH-Humanities Initiatives at Community Colleges	Up to $150,000, over 1-3 years	Contact PO; apply online	Teaching and study of humanities at community colleges	May 9, 2022
NEH-Humanities Initiatives at Hispanic-Serving Institutions	Up to $150,000, over 1-3 years	Contact PO; apply online	Teaching and study of humanities at HSIs	May 9, 2022
NEH-Infrastructure and Capacity Building Challenge Grants	Up to $750,000, for up to 5 years	Contact PO; await RFP	Infrastructure development and capacity building for humanities activities	May 17, 2022
NEH-Humanities Connections	Up to $150,000, for up to 36 months	Contact PO; await RFP	Interdisciplinary curriculum development involving the humanities	September 1, 2022
NEH-Collaborative Research	Up to $250,000, for up to 3 years	Contact PO; await RFP	Collaborative humanities research	December 7, 2022
NEH-Preservation Assistance Grants for Smaller Institutions	$10,000, for up to 18 months	Contact PO; await RFP	Preservation and care of humanities collections	January 12, 2023
NEH-Institutes for Advanced Topics in the Digital Humanities	Up to $250,000, for up to 36 months	Contact PO; apply online	Training in the digital humanities	March 2, 2022

EXECUTIVE SUMMARY: OVERVIEW OF PROSPECTS

FUNDER	RECOMMENDED REQUEST RANGE	APPROACH	FOCUS AREAS	DEADLINE
NEH-Digital Humanities Advancement Grants	Up to $350,000, for up to 36 months	Contact PO; apply online	Digital projects on the humanities; research on the impact of digital culture on society	June 24, 2022
NEH-Media Projects	Up to $1 million, for up to 3 years	Contact PO; await RFP	Development, production, and distribution of media projects involving the humanities	August 10, 2022
NSF-Improving Undergraduate STEM Education: Hispanic-Serving Institutions	Up to $800,000, for 2-5 years	Contact PO; apply online	Enhanced STEM education at HSIs	Depends on track; next Track 1 deadline March 28, 2022
NSF-Louis Stokes Alliances for Minority Participation	$1.5 million over 3 years	Contact PO; apply online	Minority student success; STEM	November 18, 2022
DoD-Research and Education Program for Historically Black Colleges and Universities and Minority Serving Institutions	No set range	Contact PO; apply online	Research and education opportunities at eligible institutions in STEM and areas of national defense	April 30, 2024
ED-National Resource Centers Program	$200,000-$250,000	Await RFP	Language and area or international studies centers; foreign language instruction	Projected late 2025 or 2026
Andrew W. Mellon Foundation	$50,000-$100,000	Submit inquiry online	Inclusive humanities education; diversity, equity, and inclusion	Rolling
Surdna Foundation	$25,000-$50,000	Contact PO	Healthy environments, inclusive economies, and thriving cultures guided by social justice	Contact PO for deadline information
Ford Foundation	$50,000-$200,000	Contact PO; await RFP	Social justice initiatives	Contact PO for deadline information

EXECUTIVE SUMMARY: OVERVIEW OF PROSPECTS

FUNDER	RECOMMENDED REQUEST RANGE	APPROACH	FOCUS AREAS	DEADLINE
Daniel and Estrellita Brodksy Family Foundation	$10,000-$25,000	Contact PO	Arts and culture, Hispanic cultural organizations, and education in New York, New York	Projected November 2022

Humanities Initiatives at Community Colleges

NATIONAL ENDOWMENT FOR THE HUMANITIES

Humanities Initiatives at Community Colleges strengthen the teaching and study of the humanities at community colleges by developing new humanities programs, resources (including those in digital format), or courses, or by enhancing existing ones.
Projects must be organized around a core topic or set of themes drawn from such areas of study in the humanities as history, philosophy, religion, literature, and composition and writing skills.
NEH welcomes applications for projects that are modest in scope, duration, and budget, as well as applications for expansive, long-term projects.

FAST FACTS

DEADLINE	May 9, 2022
AWARD SIZE	Grants are up to $150,000, for one to three years.
CONTACT	Division of Education Programs Telephone: (202) 606-2324 Email: hi@neh.gov
RESOURCES	• Program Website

Humanities Initiatives at Hispanic-Serving Institutions

NATIONAL ENDOWMENT FOR THE HUMANITIES

Humanities Initiatives at Hispanic-Serving Institutions strengthen the teaching and study of the humanities at Hispanic-Serving Institutions by developing new humanities programs, resources (including those in digital format), or courses, or by enhancing existing ones.
Projects must be organized around a core topic or set of themes drawn from such areas of study in the humanities as history, philosophy, religion, literature, and composition and writing skills.
NEH welcomes applications for projects that are modest in scope, duration, and budget, as well as applications for expansive, long-term projects.

FAST FACTS

DEADLINE	May 9, 2022
AWARD SIZE	Grants are up to $150,000, for one to three years.
CONTACT	Division of Education Programs Telephone: (202) 606-2324 Email: hi@neh.gov
RESOURCES	• Program Website

Infrastructure and Capacity Building Challenge Grants

NATIONAL ENDOWMENT FOR THE HUMANITIES

The purpose of the Challenge Grants program is to strengthen the institutional base of the humanities by enabling infrastructure development and capacity building. Awards aim to help institutions secure long-term support for their core activities and expand efforts to preserve and create access to outstanding humanities materials. The program funds two distinct types of projects, each with its own Notice of Funding Opportunity:

- **Capital Projects** supports the design, purchase, construction, restoration, or renovation of facilities for humanities activities.
- **Digital Infrastructure** supports the maintenance, modernization, and sustainability of existing digital scholarly projects and platforms.

FAST FACTS

DEADLINE	May 17, 2022
AWARD SIZE	Grants are up to $750,000, over five years.
CONTACT	Office of Challenge Programs Telephone: (202) 606-8309 Email: challenge@neh.gov
RESOURCES	• Program Website

Humanities Connections

NATIONAL ENDOWMENT FOR THE HUMANITIES

The Humanities Connections program seeks to expand the role of the humanities in undergraduate education at two- and four-year institutions. Awards support innovative curricular approaches that foster partnerships among humanities faculty and their counterparts in the social and natural sciences and in pre-service or professional programs (such as business, engineering, health sciences, law, computer science, and other technology-driven fields), in order to encourage and develop new integrative learning opportunities for students.

FAST FACTS

DEADLINE	September 1, 2022
AWARD SIZE	Planning Grants: Up to $35,000, over 12 months. Implementation Grants: Up to $150,000, over 18-36 months.
CONTACT	Division of Education Programs Telephone: (202) 606-8337 Email: humanitiesconnections@neh.gov
RESOURCES	• Program Website

Collaborative Research

NATIONAL ENDOWMENT FOR THE HUMANITIES

The Collaborative Research program aims to advance humanistic knowledge by supporting sustained collaboration between two or more scholars. Collaborators may be drawn from one or more institutions. International collaboration is encouraged, but the project director must be based at a U.S. institution, and project teams must include an equitable balance of scholars based at U.S. institutions and scholars based at non-U.S. institutions. The program encourages projects that propose diverse approaches to topics, incorporate multiple points of view, and explore new avenues of inquiry in the humanities.

The program allows projects that propose research in a single field of study, as well as interdisciplinary work. Projects that include partnerships with researchers from the natural and social sciences are encouraged but must employ a humanistic research agenda. Collaboration among different types of institutions is welcome.

FAST FACTS

DEADLINE	December 7, 2022
AWARD SIZE	Planning International Collaboration Awards: $25,000, over 6-12 months Conference Awards: Up to $50,000/year, for up to two years Manuscript Preparation and Scholarly Digital Project Awards: Up to $250,000, for one to three years (maximum $100,000/year for years one and two)
CONTACT	Division of Research Programs Telephone: (202) 606-8200 Email: collaborative@neh.gov
RESOURCES	• Program Website

Preservation Assistance Grants for Smaller Institutions

NATIONAL ENDOWMENT FOR THE HUMANITIES

Preservation Assistance Grants help small and mid-sized institutions improve their ability to preserve and care for their significant humanities collections. These may include special collections of books and journals, archives and manuscripts, prints and photographs, moving images, sound recordings, architectural and cartographic records, decorative and fine art objects, textiles, archaeological and ethnographic artifacts, furniture, historical objects, and digital materials. The program encourages applications from small and mid-sized institutions that have never received an NEH grant; community colleges, Hispanic-Serving Institutions, Historically Black Colleges and Universities, and Tribal Colleges and Universities; and Native American tribes and Native Alaskan and Native Hawaiian organizations with significant humanities collections. Organizations or collections that represent the contributions of under-represented communities are highly encouraged.

FAST FACTS

DEADLINE	January 12, 2023
AWARD SIZE	$10,000, for up to 18 months
CONTACT	Division of Preservation and Access Team Telephone: (202) 606-8570 Email: preservation@neh.gov
RESOURCES	• Program Website

Institutes for Advanced Topics in the Digital Humanities

NATIONAL ENDOWMENT FOR THE HUMANITIES

The Institutes for Advanced Topics in the Digital Humanities program supports national or regional (multistate) training programs for scholars, humanities professionals, and graduate students to broaden and extend their knowledge of digital humanities. There is wide latitude in the form and content of institutes. They may focus on a particular computational method, such as network or spatial analysis, or target the needs of a particular humanities discipline or audience. They could be offered only once or offered multiple times to different audiences. They may be as short as a few days or as long as six weeks, held at a single site, multiples sites, or virtually, but the format and duration of a program should allow for full and thorough treatment of the topic and be appropriate for the intended audience. Institutes could be scheduled before or after regularly occurring scholarly meetings, during the summer months, or during appropriate times of the academic year.

FAST FACTS

DEADLINE	March 2, 2022
AWARD SIZE	Grants are up to $250,000, for up to 36 months.
CONTACT	Office of Digital Humanities Email: odh@neh.gov
RESOURCES	• Program Website

Digital Humanities Advancement Grants

NATIONAL ENDOWMENT FOR THE HUMANITIES

The Digital Humanities Advancement Grants program (DHAG) supports innovative, experimental, and/or computationally challenging digital projects, leading to work that can scale to enhance scholarly research, teaching, and public programming in the humanities. The program also supports research that examines the history, criticism, ethics, and philosophy of digital culture or technology and its impact on society. DHAG applicants must respond to one or more programmatic priorities, one of which is research that examines the history, criticism, ethics, or philosophy of digital culture or technology and its impact on society, including racial, religious, and/or gender biases.

FAST FACTS

DEADLINE	June 24, 2022
AWARD SIZE	Level 1: Up to $50,000, for up to 24 months Level 2: $50,001-$150,000, for up to 24 months Level 3: $150,001-$350,000, for up to 36 months
CONTACT	Office of Digital Humanities Email: odh@neh.gov
RESOURCES	• Program Website

Media Projects

NATIONAL ENDOWMENT FOR THE HUMANITIES

The Media Projects program supports the development, production, and distribution of radio programs, podcasts, long-form documentary films, and documentary film series that engage general audiences with humanities ideas in creative and appealing ways. Projects must be grounded in humanities scholarship and demonstrate an approach that is thoughtful, balanced, and analytical. Media Projects offers two levels of funding: Development and Production.

FAST FACTS

DEADLINE August 10, 2022

AWARD SIZE Development Awards: Up to $75,000, for 6-12 months
Production Awards: Up to $700,000, for one to three years.

CONTACT Division of Public Programs Team
Telephone: (202) 606-8269
Email: publicpgms@neh.gov

RESOURCES

- Program Website

Improving Undergraduate STEM Education: Hispanic-Serving Institutions

NATIONAL SCIENCE FOUNDATION

The goals of the HSI program are to enhance the quality of undergraduate science, technology, engineering, and mathematics (STEM) education and to increase the recruitment, retention, and graduation rates of students pursuing associate's or baccalaureate degrees in STEM. Intended outcomes include broadening participation of students that are historically underrepresented in STEM and expanding students' pathways to continued STEM education and integration into the STEM workforce.
Track 1 Planning or Pilot Projects provide a funding opportunity for institutions that are new to NSF or are Primarily Undergraduate Institutions (PUIs), including community colleges. The PPP track seeks to enhance undergraduate STEM education and build capacity at less-resourced institutions and to increase these institutions' ability to compete for NSF funding from other programs.

FAST FACTS

DEADLINE Depends on track. The next deadline for Track 1 proposals is March 28, 2022; future deadlines are August 31, 2022, and February 8, 2023.

AWARD SIZE Track 1: Up to $200,000, for two years
Track 2: Up to $500,000, for three to five years
Track 3: Up to $3 million, for five years
More funding is available for collaborative projects.

CONTACT Erika Tatiana Camacho
Telephone: (703) 292-2834
Email: ecamacho@nsf.gov

RESOURCES

- Program Website

Louis Stokes Alliances for Minority Participation

NATIONAL SCIENCE FOUNDATION

The overall goal of this program is to assist universities and colleges in diversifying the nation's STEM workforce by increasing the number of STEM baccalaureate and graduate degrees awarded to populations historically underrepresented in these disciplines. Bridge to the Baccalaureate (B2B) Alliances track involves associate degree producing institutions for which the lead institution must be a community college. These projects focus on activities that provide effective educational preparation of community college students from underrepresented minority populations for successful transfer to four-year IHE in STEM degree programs.

FAST FACTS

DEADLINE	November 18, 2022
AWARD SIZE	B2B awards are up to $1.5 million, over up to three years ($500,000/year).
CONTACT	LSAMP Program Team Telephone: (703) 292-8640 Email: lsamp_national@nsf.gov
RESOURCES	• Program Website

Research and Education Program for Historically Black Colleges and Universities and Minority Serving Institutions

U.S. DEPARTMENT OF DEFENSE

The Army has a long history of supporting research and education at Historically Black Colleges and Universities and Minority-Serving Institutions. DoD, through the CCDC Army Research Laboratory, as the Army's corporate laboratory, is leading new initiatives to provide assistance to HBCUs and MSIs to assist DoD in defense-related research, development, testing and evaluation activities. The DoD will support innovative research and education programs that encourage students to pursue careers in science, technology, engineering and mathematics (STEM), particularly at covered educational institutions.

FAST FACTS

DEADLINE	Rolling, until April 30, 2024.
AWARD SIZE	Grant amounts depend on Government budget appropriations and project needs.
CONTACT	Evelyn Kent Email: Evelyn.W.Kent.civ@mail.mil
RESOURCES	• Funding Opportunity Notice

National Resource Centers Program

U.S. DEPARTMENT OF EDUCATION

The program provides grants to establish, strengthen, and operate language and area or international studies centers that will be national resources for teaching any modern foreign language. Grants support: instruction in fields needed to provide full understanding of areas, regions or countries; research and training in international studies; work in the language aspects of professional and other fields of study; and instruction and research on issues in world affairs.

FAST FACTS

DEADLINE
This program is offered every four years, and the 2022 application recently closed on February 14, 2022. We project the program will accept new applications again in late 2025 or 2026.

AWARD SIZE
Grants are typically $200,000-$250,000/year, for four years.

CONTACT
Carolyn Collins, Senior Program Officer
Telephone: (202) 453-7854
Email: carolyn.collins@ed.gov

RESOURCES
- Program Website

Andrew W. Mellon Foundation

As the largest supporter of the arts and humanities in the US, the Mellon Foundation seeks to build just communities where ideas and imagination can thrive. The Foundation makes grants in four core program areas: Higher Learning; Arts and Culture; Public Knowledge; and Humanities in Place. Higher Learning supports inclusive humanities education and diverse learning environments. The Foundation works with colleges, universities, and other organizations that embrace equity in higher learning, with a focus on historically underserved populations, including nontraditional and incarcerated students. Alongside its investment at the undergraduate and graduate levels in the work and health of core humanities fields, Mellon offers robust support for paradigm-shifting interdisciplinary studies that are necessary to the evolution of those traditional disciplines.

FAST FACTS

DEADLINE
Rolling deadline.

AWARD SIZE
Recent grants to higher education range from $6,000 to $15 million; we recommend requesting $50,000-$100,000.

CONTACT
The Andrew W. Mellon Foundation
140 E. 62nd Street
New York, NY 10065
Telephone: (212) 838-8400
Email: inquiries@mellon.org

RESOURCES
- Program Website

Surdna Foundation

The Surdna Foundation supports social justice reform, healthy environments, inclusive economies, and thriving cultures across the United States. It dismantles the barriers that limit opportunity to create more prosperous, culturally enriching, and sustainable communities. There are three programs: inclusive economies, sustainable environments, and thriving cultures. The Thriving Cultures Program is organized across three interconnected grantmaking approaches:

•*Create* invests (through regranting organizations) in artists of color who work with communities of color to imagine and build racially just systems and structures at a local scale.

•*Clarify* invests in researchers and cultural critics of color to interpret and disseminate knowledge about the work of artists and to build a more equitable research and criticism infrastructure.

•*Connect* advances the role of artists and communities of color in shaping public policy, narrative change, and philanthropic practices that advance racial justice.

FAST FACTS

DEADLINE The Foundation does not accept unsolicited proposals, so CUNY LaGuardia will need to establish contact with the PO in order to determine deadline information.

AWARD SIZE Grants for Thriving Cultures range from $10,000 to $1.5 million. We recommend requesting $25,000-$50,000.

CONTACT
The Surdna Foundation
200 Madison Avenue, 25th Floor
New York, NY 10016
Telephone: (212) 557-0010

RESOURCES
- Program Website

The Ford Foundation

The Ford Foundation is guided by social justice principles in its mission to reduce poverty and injustice, strengthen democratic values, promote international cooperation, and advance human achievement. The Foundation believes that social movements are built upon individual leadership, strong institutions, and innovative, often high-risk ideas. While the specifics of what Ford works on have evolved over the years, investments in these three areas have remained the touchstones of everything it does and are central to its theory of how change happens in the world. The Foundation focuses on strengthening civil society at every level through supporting participation by people of diverse backgrounds and life experiences. Ford closely collaborates with governments, the private sector, academia, and the creative community.

FAST FACTS

DEADLINE The Foundation does not accept unsolicited proposals and there are no currently aligned RFPs, so CUNY LaGuardia will need to establish contact with the PO in order to determine deadline information.

AWARD SIZE Recent grants for undergraduate education have ranged from $10,000 to $1.6 million; we recommend requesting $50,000-$200,000.

CONTACT
Ford Foundation
320 E 43rd St
New York, NY 10017
Telephone: 1 (212) 573-5000

RESOURCES
- Program Website

Daniel and Estrellita Brodksy Family Foundation

The Daniel and Estrellita Brodksy Family Foundation gives primarily to arts and culture, particularly including museums and Hispanic cultural institutions. It also supports elementary, secondary, and higher (including undergraduate) education, health associations, and social services. The Foundation is based in New York, New York, and conducts most of its grantmaking there.

FAST FACTS

DEADLINE	Projected November 2022.
AWARD SIZE	Recent grants for higher education have ranged from $4,000-$100,000, with most being $25,000 or less. We recommend requesting $10,000-$25,000.
CONTACT	Daniel Brodksy 400 West 59th Street Suite 3RD FL New York City, NY 100191105 Telephone: (212) 315-5555
RESOURCES	No program website available

METHODOLOGY

Hanover's prospecting reports use third-party search engines, Grants.gov, Foundation Center (Candid), funder websites, and other resources in order to determine appropriate funding prospects for our clients. Accordingly, our prospecting reports often contain language taken directly from the websites and published guidelines of grantmaking agencies and foundations. This language is often presented verbatim along with Hanover's analysis in order to provide as accurate a presentation of funder priorities and requirements as possible. Source materials are hyperlinked throughout the document.

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Board of Trustees of The City University of New York

RESOLUTION TO
Amend and Replace The City University of New York's
Academic Integrity Policy

June 6, 2022

WHEREAS, Academic integrity is a defining principle at the core of higher education; and

WHEREAS, Assignments given by faculty are the primary methods of assessing that learning has taken place; and

WHEREAS, Violations of the principles of academic integrity amount to theft and call into question the very essence of what higher education purports to achieve; and

WHEREAS, Said violations also diminish the character of students committing the act, and disrespect their fellow students, their faculty and those supporting them in their pursuit of a college education as well as undermines educational equity and fairness; and

WHEREAS, Emerging technologies afford students with new methods and temptations to violate integrity policies and the City University of New York ("University") must adapt and respond accordingly; and

WHEREAS, The last revision to the Board of Trustees Policy 1.03, Academic Integrity, was presented and approved by the Board of Trustees on June 27, 2011; and

WHEREAS, It is a responsibility of the University to educate and update our students with respect to what acts constitute a violation of academic integrity; and

WHEREAS, There has been much deliberation on this matter in the University's Committee on Academic Policy, which is made of Chief Officers of Academic Affairs, Student Affairs and Enrollment Management; and

WHEREAS, This policy has been shared with various faculty, student and administrative bodies to seek guidance on refinement; and

WHEREAS, The University's Council of Chief Academic Officers has approved these revisions to the policy.

NOW, THEREFORE, BE IT

RESOLVED, That the amendments to Policy 1.03, Academic Integrity, be approved effective August 25, 2022, the date on which classes are expected to begin for the Fall 2022 semester, amending, replacing and codifying the same in the Manual of General Policy.

EXPLANATION: The proposed revised Policy 1.03 will respond to emerging technologies clarify which uses constitute cheating or plagiarism.

Academic Integrity Policy – The City University of New York (cuny.edu)

ACADEMIC INTEGRITY POLICY

Academic dishonesty is prohibited in The City University of New York. Penalties for academic dishonesty include academic sanctions, such as failing or otherwise reduced grades, and/or disciplinary sanctions, including suspension or expulsion.

Academic integrity is at the core of a college or university education. Faculty assign essays, exams, quizzes, projects, and so on both to extend the learning done in the classroom and as a means of assessing that learning. When students violate the academic integrity policy (i.e., "cheat"), they are committing an act of theft that can cause real harm to themselves and others including, but not limited to, their classmates, their faculty, and the caregivers who may be funding their education. Academic dishonesty confers an unfair advantage over others, which undermines educational equity and fairness. Students who cheat place their college's accreditation and their own future prospects in jeopardy.

1. Definitions and Examples of Academic Dishonesty~~.~~:

1.1. Cheating is the unauthorized use or attempted use of material, information, notes, study aids, devices, or communication during an academic exercise. ~~Example~~Examples of cheating include:

- Copying from another student ~~during an examination~~ or allowing ~~another~~others to copy ~~your~~ work~~.~~ submitted for credit or a grade. This includes uploading work or submitting class assignments or exams to third party platforms and websites beyond those assigned for the class, such as commercial homework aggregators, without the proper authorization of a professor.
- Unauthorized collaboration on ~~a take home assignment or examination~~assignments or examinations.
- ~~Using notes during a closed book examination.~~
- Taking an examination or completing an assignment for another ~~student,~~person or asking or allowing ~~another student~~someone else to take an examination or complete an assignment for you~~.~~
- ~~Changing~~, including exams taken on a ~~graded exam and returning it for more credit~~home computer.
- ~~Submitting substantial portions of the same paper to more than one course without consulting with each instructor.~~
- ~~Preparing answers or writing notes in a blue book (exam booklet) before an examination.~~
- Allowing others to research and write your assigned papers or ~~do assigned projects~~other assignments, including using commercial term paper services.
- Submitting someone else's work as your own, including, but not limited to, material obtained in whole or in part from commercial study or homework help websites, or content generated or altered by digital paraphrasing tools.

- Fabricating and/or falsifying data (in whole or in part).
- Giving assistance to acts of academic misconduct/-dishonesty.
- ~~Fabricating data (in whole or in part).~~
- ~~Falsifying data (in whole or in part).~~
- ~~Submitting someone else's work as your own.~~
- Altering a response on a previously graded exam or assignment and then attempting to return it for more credit or a higher grade without permission from the instructor.
- Submitting substantial portions of a paper or assignment to more than one course for credit without permission from each instructor.
- Unauthorized use during an examination of notes, prepared answers, or any electronic ~~devises~~devices such as cell phones, computers, smart watches, or other technologies to copy, retrieve, or send information.

1.2. Plagiarism is the act of presenting another person's ideas, research, or writing as your own. Examples of plagiarism include:

- Copying another person's actual words or images without the use of quotation marks and ~~footnotes~~citations attributing the words to their source.
- Presenting ~~another person's~~ the ideas ~~or theories~~of others in your own words without acknowledging the source or insufficient paraphrasing, whether or not the source is cited.
- Failing to acknowledge collaborators on homework and laboratory assignments.
- Internet plagiarism, including submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, or "~~"~~cutting ~~&~~and pasting" excerpts from various sources without proper attribution.

1.3. Obtaining Unfair Advantage is any action ~~taken by a student~~ or attempted action that gives ~~that~~a student an unfair academic advantage ~~in his/her academic work~~ over another student~~, or an action taken by a student through which a student attempts to gain an unfair advantage in his~~ or ~~her academic work over another student.~~students. Examples of obtaining unfair advantage include:

- Stealing, reproducing, circulating, or otherwise gaining advance access to examination materials.
- Depriving other students of access to library materials by stealing, destroying, defacing, or concealing them.
- Retaining, using, or circulating examination materials which clearly indicate that they should be returned at the end of the exam.
- Intentionally obstructing or interfering with another student's work.

1.4. Falsification of Records and Official Documents

Examples of falsification include:

- Forging signatures of authorization.
- Falsifying information on an official academic record.
- Falsifying information on an official document such as a grade report, letter of permission, drop/add form, ID card, or other college document.
- Falsifying medical documentation that has a bearing on campus access or the excuse of absences or missed examinations and assignments.

2. Methods for Promoting Academic Integrity:

2.1. ~~Packets containing a copy of the~~ The CUNY Policy on Academic Integrity, and, if applicable, the college's procedures for implementing the Policy, ~~and information explaining the Policy and procedures shall be distributed to all current faculty and, on an annual basis to all new faculty (full and part time). These packets also~~ shall be posted ~~on~~to each ~~college's~~college's website~~.~~ with a link provided in the Learning Management System (LMS) shell. It is recommended that the link also be included in each course syllabus. Orientation sessions for all new faculty (full- and part-~~-~~time) and students shall incorporate a discussion of academic integrity.

2.2. All college catalogs, student handbooks, faculty handbooks, and college websites shall include the CUNY Policy on Academic Integrity and, if applicable, college procedures implementing the policy and the consequences of not adhering to the Policy.

2.3. Each college shall subscribe to an electronic plagiarism detection service and shall notify students of the fact that such a service is available for use by the faculty. Colleges shall ~~encourage~~make faculty ~~members to use~~aware of the availability of such services and ~~to~~faculty should inform students of their use ~~of such services~~.

3. Reporting

3.1. Each college's president shall appoint an Academic Integrity Officer in consultation with the elected faculty governance leader. The Academic Integrity Officer shall serve as the initial contact person with faculty members when they report incidents of suspected academic dishonesty. The Academic Integrity Officer may be the college's Student Conduct Officer, another student affairs official, an academic affairs official, or a tenured faculty member. Additional duties of the Academic Integrity Officer are described in Sections 4.1., 4.2.1., 4.2.2., 4.3 and 4.4.

3.2. A faculty member who suspects that a student has committed a violation of the CUNY Academic Integrity Policy shall review with the student the facts and circumstances of the suspected violation whenever ~~-~~feasible. Thereafter, a faculty member who concludes that there has been an incident of academic dishonesty sufficient to affect the student's final course grade shall report such incident on a Faculty Report Form in substantially the same format as the sample annexed to this Policy and shall submit the Form to the college's Academic Integrity Officer~~-~~, copying his/her Department Chair. Each college shall use a uniform form throughout the college, which shall contain, at a minimum, the name of the instructor, the name of the student, the course name and number, the date of the incident, an explanation of the incident and the instructor's contact information. All instances of academic dishonesty that are reported to the Academic Integrity Officer shall be recorded for documentation and tracking purposes.

3.3. The Academic Integrity Officer shall update the Faculty Report Form after a suspected incident has been resolved to reflect that resolution. Unless the resolution exonerates the student, as described in Section 4.4, the Academic Integrity Officer of each college shall place the Form in a confidential academic integrity file created for each student alleged to have violated the Academic Integrity Policy and shall retain each Form for the purposes of identifying repeat offenders, gathering data, and assessing and reviewing policies. Unless they exonerate the student, written decisions on academic integrity matters after adjudication also shall be placed in the student's academic integrity file. The Academic Integrity Officer shall be responsible for maintaining students' academic integrity files.

4. Procedures for Imposition of Sanctions

4.1. Determination on academic vs. disciplinary sanction.

The Academic Integrity Officer shall determine whether to seek a disciplinary sanction in addition to an academic sanction. In making this determination, the Academic Integrity Officer shall consult with the faculty member who initiated the case and may consult with student affairs and/or academic affairs administrators as needed. Before determining which sanction(s) to seek, the Academic Integrity Officer also shall consult the student's confidential academic integrity file, if any, to determine whether the student has been found to have previously committed a violation of the Academic Integrity Policy, the nature of the infraction, and the sanction imposed or action taken. Prior violations include both violations at the student's current college and violations that occurred at any other CUNY college. In making the determination on prior violations, the Academic Integrity Officer shall determine whether the student previously attended any other CUNY college and, if so, shall request and be given access to the academic integrity file, if any, at such other CUNY college.

The Academic Integrity Officer should seek disciplinary sanctions only if (i) there is a substantial violation; (ii) the student has previously violated the Policy; or (iii) academic sanctions may not be imposed because the student has timely withdrawn from the applicable course. Examples of substantial violations include but are not limited to: forging a grade form or a transcript; stealing ~~an~~ an examination from a professor or a university office; having a substitute take an examination or taking an examination for someone else; having someone else write a paper for the student or writing a paper for another student; sabotaging another student's work through actions that prevent or impede the other student from successfully completing an assignment; and violations committed by a graduate or professional student or a student who will seek professional licensure. The college also should consider any mitigating circumstances in making this determination.

4.2. Procedures in Cases Involving Only Academic Sanctions.

4.2.1. Student Admits to the Academic Dishonesty and Does Not Contest the Academic Sanction.

If a faculty member wishes to seek only an academic sanction (i.e., a reduced grade) and the student does not contest either his/her guilt or the particular reduced grade the faculty member has chosen, then the student shall be given the reduced grade, unless the Academic Integrity Officer decides to seek a disciplinary sanction. The reduced grade may apply to the particular assignment as to which the violation occurred or to the course grade, at the faculty member's discretion. A reduced grade may be an "F" or another grade that is lower than the grade that the student would have earned but for the

violation. The faculty member shall inform the Academic Integrity Officer of the resolution via email and the Officer shall update the applicable Faculty Report Form to reflect that resolution.

4.2.2 Student Admits to the Academic Dishonesty but Contests the Academic Sanction.

In a case where a student admits to the alleged academic dishonesty but contests the particular academic sanction imposed, the student may appeal the academic sanction through the college's grade appeal process. The student shall be allowed, at a minimum, an opportunity to present a written position with supporting evidence. The committee reviewing the appeal shall issue a written decision explaining the justification for the academic sanction imposed.

4.2.3. Student Denies the Academic Dishonesty

In a case where a student denies the academic dishonesty, a fact-finding determination shall be made, at each college's option, by an Academic Integrity Committee established by the College's governance body or by the Student-Faculty Disciplinary Committee established under Article XV of the CUNY Bylaws. Each college's Academic Integrity Committee shall adopt procedures for hearing cases. (If a college opts to use its Student-Faculty Disciplinary Committee for this purpose, that Committee shall use Article IX procedures.) These procedures, at a minimum, shall provide ~~a student~~students with (i) written notice of the charges against ~~him or her~~them; (ii) the right to appear before the Committee; and (iii) the right to present witness statements and/or to call witnesses. Those procedures also shall provide the faculty member with the right to make an appearance before the Committee~~.~~ and/or present supporting documents. The Committee may request the testimony of any witness and may permit any such witness to be questioned by the student and by the administrator presenting the case. Academic Integrity Committees and Student-Faculty Disciplinary Committees, as applicable, shall issue written decisions and send copies of their decisions to the college's Academic Integrity Officer. The Academic Integrity Officer may not serve on a college's Academic Integrity Committee.

4.3. Procedures in Cases Involving Disciplinary Sanctions.

If the college decides to seek a disciplinary sanction, the case shall be processed under Article XV of the CUNY Bylaws. If the case is not resolved through mediation under Article XV, it shall be heard by the college's Faculty-Student Disciplinary Committee.

If the college seeks to have both a disciplinary and an academic sanction imposed, the college shall proceed first with the disciplinary proceeding and await its outcome before addressing the academic sanction. The student's grade shall be held in abeyance by using the PEN grade established for this purpose, pending the Committee's action. If the Faculty-Student Disciplinary Committee finds that the alleged violation occurred, then the faculty member may reflect that finding in the student's grade. The student may appeal the finding in accordance with Article XV procedures and/or may appeal the grade imposed by the faculty member in accordance with section 4.2.2. If the Faculty-Student Disciplinary Committee finds that the alleged violation did not occur, then no sanction of any kind may be imposed.

Where a matter proceeds to the Faculty-Student Disciplinary Committee, the Academic Integrity Officer shall promptly report its resolution to the faculty member and file a record of the resolution in the

student's confidential academic integrity file, unless, as explained below, the suspected violation was held to be unfounded.

4.4. Required Action in Cases of No Violation

If either the Academic Integrity Committee or the Faculty- Student Disciplinary Committee finds that no violation occurred, the Academic Integrity Officer shall remove all material relating to that incident from the student's confidential academic integrity file and destroy the material.

5. Implementation

Each college shall implement this Policy and may adopt its own more specific procedures to implement the Policy. Colleges' procedures must be consistent with the policy and procedures described in the Policy.

CUNY BOT adopted a revised "Policy on Academic Integrity" on June 27, 2011, which went into effect on July 1, 2011 (6.27.2011.Cal.5.L).

Executive Vice Chancellor
and University Provost

205 East 42nd Street
New York, NY 10017
Tel: 646-664-8075
Fax: 646-664-2967
academicaffairs@cuny.edu

MEMORANDUM

TO: Hon. Jill O'Donnell-Tormey, Chair, CUNY Board of Trustees Committee on Academic Policy, Programs, & Research

FROM: Daniel Lemons,

Interim Executive Vice Chancellor & University Provost

CC: Hon. Henry T. Berger, Vice Chair
Hon. Herminia Palacio
Hon. Brian D. Obergfell
Prof. Martin Burke, faculty representative
Prof. Lubie G. Alatriste, faculty alternate
Vaughn Mayers, student representative
Jamie Lerner-Bercher, student alternate

SUBJECT: Proposed Revisions to the CUNY Academic Integrity Policy

DATE: May 13, 2022

Rationale to Revise the Academic Integrity Policy

The primary, but not exclusive, motivation for the changes to the policy is to be more inclusive and specific about technological tools that have widened the pool of opportunities for cheating and violations of academic integrity. The revisions were drafted, reviewed and vetted by a faculty subcommittee of the Committee on Academic Technology and presented to the Executive Vice Chancellor of Academic Affairs' Academic Policy Committee for review and revision. It was reviewed for input and comment by the University Student Senate, representatives from the University Faculty Senate, the Council of Chief Academic Officers, and the VPs of Enrollment Management and Student Affairs before final approval.

In addition to revising and clarifying some outdated language, the following are highlights of the proposed changes:

Summary of Proposed Revisions

- Adding the unauthorized contribution of a student's work to third party vendors such as commercial homework aggregators.
- Expanding the definition of plagiarism to the unauthorized use of said vendors.
- Broadening the types of electronic devices not permitted to be used during examinations.

- Including the falsification of medical documents to either gain unauthorized access to campuses or to obtain an excused absence, missed examination or assignment.
- Engaging department chairs in the reporting process.
- Providing additional guidance on promoting and distributing the Academic Integrity Policy.
- Commencing a campus tracking system of reported cases.

ACADEMIC INTEGRITY POLICY

Academic dishonesty is prohibited in The City University of New York. Penalties for academic dishonesty include academic sanctions, such as failing or otherwise reduced grades, and/or disciplinary sanctions, including suspension or expulsion.

Academic integrity is at the core of a college or university education. Faculty assign essays, exams, quizzes, projects, and so on both to extend the learning done in the classroom and as a means of assessing that learning. When students violate the academic integrity policy (i.e., "cheat"), they are committing an act of theft that can cause real harm to themselves and others including, but not limited to, their classmates, their faculty, and the caregivers who may be funding their education. Academic dishonesty confers an unfair advantage over others, which undermines educational equity and fairness. Students who cheat place their college's accreditation and their own future prospects in jeopardy.

1. Definitions and Examples of Academic Dishonesty:

1.1. Cheating is the unauthorized use or attempted use of material, information, notes, study aids, devices, or communication during an academic exercise. Examples of cheating include:

- Copying from another student or allowing others to copy work submitted for credit or a grade. This includes uploading work or submitting class assignments or exams to third party platforms and websites beyond those assigned for the class, such as commercial homework aggregators, without the proper authorization of a professor.).
- Unauthorized collaboration on assignments or examinations.
- Taking an examination or completing an assignment for another person or asking or allowing someone else to take an examination or complete an assignment for you, including exams taken on a home computer.
- Allowing others to research and write your assigned papers or other assignments, including using commercial term paper services.
- Submitting someone else's work as your own, including, but not limited to, material obtained in whole or in part from commercial study or homework help websites, or content generated or altered by digital paraphrasing tools.
- Fabricating and/or falsifying data (in whole or in part).
- Giving assistance to acts of academic misconduct/dishonesty.
- Altering a response on a previously graded exam or assignment and then attempting to return it for more credit or a higher grade without permission from the instructor.
- Submitting substantial portions of a paper or assignment to more than one course for credit without permission from each instructor.

- Unauthorized use during an examination of notes, prepared answers, or any electronic devices such as cell phones, computers, smart watches, or other technologies to copy, retrieve, or send information.

1.2. Plagiarism is the act of presenting another person's ideas, research, or writing as your own. Examples of plagiarism include:

- Copying another person's actual words or images without the use of quotation marks and citations attributing the words to their source.
- Presenting the ideas of others in your own words without acknowledging the source or insufficient paraphrasing, whether or not the source is cited.
- Failing to acknowledge collaborators on homework and laboratory assignments.
- Internet plagiarism, including submitting downloaded term papers or parts of term papers, paraphrasing or copying information from the internet without citing the source, or cutting and pasting excerpts from various sources without proper attribution.

1.3. Obtaining Unfair Advantage is any action or attempted action that gives a student an unfair academic advantage over another student or students. Examples of obtaining unfair advantage include:

- Stealing, reproducing, circulating, or otherwise gaining advance access to examination materials.
- Depriving other students of access to library materials by stealing, destroying, defacing, or concealing them.
- Retaining, using, or circulating examination materials which clearly indicate that they should be returned at the end of the exam.
- Intentionally obstructing or interfering with another student's work.

1.4. Falsification of Records and Official Documents

Examples of falsification include:

- Forging signatures of authorization.
- Falsifying information on an official academic record.
- Falsifying information on an official document such as a grade report, letter of permission, drop/add form, ID card, or other college document.
- Falsifying medical documentation that has a bearing on campus access or the excuse of absences or missed examinations and assignments.

2. Methods for Promoting Academic Integrity:

2.1. The CUNY Policy on Academic Integrity, and, if applicable, the college's procedures for implementing the Policy, shall be posted to each college's website with a link provided in the Learning Management System (LMS) shell. It is recommended that the link also be included in each course

syllabus. Orientation sessions for all new faculty (full- and part-time) and students shall incorporate a discussion of academic integrity.

2.2. All college catalogs, student handbooks, faculty handbooks, and college websites shall include the CUNY Policy on Academic Integrity and, if applicable, college procedures implementing the policy and the consequences of not adhering to the Policy.

2.3. Each college shall subscribe to an electronic plagiarism detection service and shall notify students of the fact that such a service is available for use by the faculty. Colleges shall make faculty aware of the availability of such services and faculty should inform students of their use.

3. Reporting

3.1. Each college's president shall appoint an Academic Integrity Officer in consultation with the elected faculty governance leader. The Academic Integrity Officer shall serve as the initial contact person with faculty members when they report incidents of suspected academic dishonesty. The Academic Integrity Officer may be the college's Student Conduct Officer, another student affairs official, an academic affairs official, or a tenured faculty member. Additional duties of the Academic Integrity Officer are described in Sections 4.1., 4.2.1., 4.2.2., 4.3 and 4.4.

3.2. A faculty member who suspects that a student has committed a violation of the CUNY Academic Integrity Policy shall review with the student the facts and circumstances of the suspected violation whenever feasible. Thereafter, a faculty member who concludes that there has been an incident of academic dishonesty sufficient to affect the student's final course grade shall report such incident on a Faculty Report Form in substantially the same format as the sample annexed to this Policy and shall submit the Form to the college's Academic Integrity Officer, copying his/her Department Chair. Each college shall use a uniform form throughout the college, which shall contain, at a minimum, the name of the instructor, the name of the student, the course name and number, the date of the incident, an explanation of the incident and the instructor's contact information. All instances of academic dishonesty that are reported to the Academic Integrity Officer shall be recorded for documentation and tracking purposes.

3.3. The Academic Integrity Officer shall update the Faculty Report Form after a suspected incident has been resolved to reflect that resolution. Unless the resolution exonerates the student, as described in Section 4.4, the Academic Integrity Officer of each college shall place the Form in a confidential academic integrity file created for each student alleged to have violated the Academic Integrity Policy and shall retain each Form for the purposes of identifying repeat offenders, gathering data, and assessing and reviewing policies. Unless they exonerate the student, written decisions on academic integrity matters after adjudication also shall be placed in the student's academic integrity file. The Academic Integrity Officer shall be responsible for maintaining students' academic integrity files.

4. Procedures for Imposition of Sanctions

4.1. Determination on academic vs. disciplinary sanction.

The Academic Integrity Officer shall determine whether to seek a disciplinary sanction in addition to an academic sanction. In making this determination, the Academic Integrity Officer shall consult with the faculty member who initiated the case and may consult with student affairs and/or academic affairs

administrators as needed. Before determining which sanction(s) to seek, the Academic Integrity Officer also shall consult the student's confidential academic integrity file, if any, to determine whether the student has been found to have previously committed a violation of the Academic Integrity Policy, the nature of the infraction, and the sanction imposed or action taken. Prior violations include both violations at the student's current college and violations that occurred at any other CUNY college. In making the determination on prior violations, the Academic Integrity Officer shall determine whether the student previously attended any other CUNY college and, if so, shall request and be given access to the academic integrity file, if any, at such other CUNY college.

The Academic Integrity Officer should seek disciplinary sanctions only if (i) there is a substantial violation; (ii) the student has previously violated the Policy; or (iii) academic sanctions may not be imposed because the student has timely withdrawn from the applicable course. Examples of substantial violations include but are not limited to: forging a grade form or a transcript; stealing an examination from a professor or a university office; having a substitute take an examination or taking an examination for someone else; having someone else write a paper for the student or writing a paper for another student; sabotaging another student's work through actions that prevent or impede the other student from successfully completing an assignment; and violations committed by a graduate or professional student or a student who will seek professional licensure. The college also should consider any mitigating circumstances in making this determination.

4.2. Procedures in Cases Involving Only Academic Sanctions.

4.2.1. Student Admits to the Academic Dishonesty and Does Not Contest the Academic Sanction.

If a faculty member wishes to seek only an academic sanction (i.e., a reduced grade) and students do not contest either their guilt or the particular reduced grade the faculty member has chosen, then the student shall be given the reduced grade, unless the Academic Integrity Officer decides to seek a disciplinary sanction. The reduced grade may apply to the particular assignment as to which the violation occurred or to the course grade, at the faculty member's discretion. A reduced grade may be an "F" or another grade that is lower than the grade that the student would have earned but for the violation. The faculty member shall inform the Academic Integrity Officer of the resolution via email and the Officer shall update the applicable Faculty Report Form to reflect that resolution.

4.2.2 Student Admits to the Academic Dishonesty but Contests the Academic Sanction.

In a case where a student admits to the alleged academic dishonesty but contests the particular academic sanction imposed, the student may appeal the academic sanction through the college's grade appeal process. The student shall be allowed, at a minimum, an opportunity to present a written position with supporting evidence. The committee reviewing the appeal shall issue a written decision explaining the justification for the academic sanction imposed.

4.2.3. Student Denies the Academic Dishonesty

In a case where a student denies the academic dishonesty, a fact-finding determination shall be made, at each college's option, by an Academic Integrity Committee established by the College's governance body or by the Student-Faculty Disciplinary Committee established under Article XV of the CUNY Bylaws. Each college's Academic Integrity Committee shall adopt procedures for hearing cases. (If a college opts to use its Student-Faculty Disciplinary Committee for this purpose, that Committee shall use Article IX

procedures.) These procedures, at a minimum, shall provide students with (i) written notice of the charges against them; (ii) the right to appear before the Committee; and (iii) the right to present witness statements and/or to call witnesses. Those procedures also shall provide the faculty member with the right to make an appearance before the Committee and/or present supporting documents. The Committee may request the testimony of any witness and may permit any such witness to be questioned by the student and by the administrator presenting the case. Academic Integrity Committees and Student-Faculty Disciplinary Committees, as applicable, shall issue written decisions and send copies of their decisions to the college's Academic Integrity Officer. The Academic Integrity Officer may not serve on a college's Academic Integrity Committee.

4.3. Procedures in Cases Involving Disciplinary Sanctions.

If the college decides to seek a disciplinary sanction, the case shall be processed under Article XV of the CUNY Bylaws. If the case is not resolved through mediation under Article XV, it shall be heard by the college's Faculty-Student Disciplinary Committee.

If the college seeks to have both a disciplinary and an academic sanction imposed, the college shall proceed first with the disciplinary proceeding and await its outcome before addressing the academic sanction. The student's grade shall be held in abeyance by using the PEN grade established for this purpose, pending the Committee's action. If the Faculty-Student Disciplinary Committee finds that the alleged violation occurred, then the faculty member may reflect that finding in the student's grade. The student may appeal the finding in accordance with Article XV procedures and/or may appeal the grade imposed by the faculty member in accordance with section 4.2.2. If the Faculty-Student Disciplinary Committee finds that the alleged violation did not occur, then no sanction of any kind may be imposed.

Where a matter proceeds to the Faculty-Student Disciplinary Committee, the Academic Integrity Officer shall promptly report its resolution to the faculty member and file a record of the resolution in the student's confidential academic integrity file, unless, as explained below, the suspected violation was held to be unfounded.

4.4. Required Action in Cases of No Violation

If either the Academic Integrity Committee or the Faculty- Student Disciplinary Committee finds that no violation occurred, the Academic Integrity Officer shall remove all material relating to that incident from the student's confidential academic integrity file and destroy the material.

5. Implementation

Each college shall implement this Policy and may adopt its own more specific procedures to implement the Policy. Colleges' procedures must be consistent with the policy and procedures described in the Policy.

CUNY BOT adopted a revised "Policy on Academic Integrity" on June 27, 2011, which went into effect on July 1, 2011 (6.27.2011.Cal.5.L).

Board of Trustees of The City University of New York

RESOLUTION TO
Approve the Actions in the CAPPR Dashboard

June 6, 2022

WHEREAS, The Board of Trustees of the City University of New York (the "University") who serve on the Committee of Academic Policy, Programs, and Research approve a range of academic actions presented by the Office of Academic Affairs before these actions go to the full Board of Trustees; and

WHEREAS, Proposed academic actions are submitted to the CAPPR committee for approval either through individual resolutions or in summary form; and

WHEREAS, Individual resolutions are submitted to the CAPPR committee in the case of new academic degree programs, university-wide academic or research policy, transfer of degree-granting authority, the establishment or closing of departments, and the establishment of university-wide institutes; and

WHEREAS, A summary report is submitted to the CAPPR committee in the case of changes to existing academic degree programs that require New York State Education Department approval, the creation of new certificate programs and new degree programs from existing programs, the establishment of campus-based policy, and the inclusion of approved courses in general education; and

WHEREAS, Members of the CAPPR committee have requested that the summary report be presented in a dynamic, interactive dashboard that helps to visualize academic activity from the previous month and over time; and

WHEREAS, The Office of Academic Affairs introduced its CAPPR Dashboard during the CAPPR meeting on October 7, 2019 and will continue to provide updated dashboards at every committee meeting.

NOW, THEREFORE, BE IT

RESOLVED, That the actions in the CAPPR Dashboard be approved effective June 28, 2022.

EXPLANATION: Routine academic matters, local academic policies, and course inclusions in the University's general education program are presented to the Committee of Academic Policy, Programs, and Research in summary form. The new CAPPR Dashboard makes it possible for Trustees to interact with this summary data. Using the new dashboard format, Trustees are able to manipulate and explore graphic representations and charts of the academic activity from the previous month and over time using various tools and filters.

Program Actions Summary

Year / Month: 2022 / 06

Year/Month	Institution	Action	Degree	Academic Plan	Plan Code	Program (NYSED) Code	Summary
2022 / 06	Borough of Manhattan CC	Change OR Addition of a Delivery Mode	AAS	Computer Network Technology	CNT-AAS	91518	This revision provides students with another modality to earn their degree.
2022 / 06	Borough of Manhattan CC	Create a New Concentration	AA	Psychology	PSY-AA	38147	This revision creates two concentrations for the A.A. in Psychology.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AA	English	ENG-AA	38125	This revision adds distance education format to the existing AA English program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Computer Information Systems	COMSYS-AAS	00386	This revision adds distance education format to the existing AAS Computer Information Systems program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Cybersecurity and Networking	CYBNET-AAS	39293	This revision adds distance education format to the existing AAS Cybersecurity and Networking program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Digital Design	DIGDES-AAS	87112	This revision adds distance education format to the existing AAS Digital Design program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Marketing	MKTG-AAS	00381	This revision adds distance education format to the existing AAS Marketing program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Medical Office Assistant	MEDOFF-AAS	00390	This revision adds distance education format to the existing AAS Medical Office Assistant program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AAS	Paralegal and Legal Studies	PALGST-AAS	80363	This revision adds distance education format to the existing AAS Paralegal and Legal Studies program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AS	Education	EDUC-AS	00156	This revision adds distance education format to the existing AS Education program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	AS	Public Health	PUBHLTH-AS	20558	This revision adds distance education format to the existing AS in Public Health program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	CERTGE30	Cybersecurity and Networking	CYBNT-CERT	39294	This revision adds distance education format to the existing Certificate in Cybersecurity and Networking program.
2022 / 06	Bronx CC	Change OR Addition of a Delivery Mode	CERTGE30	Paralegal Studies	PARA-CERT	82068	This revision adds distance education format to the existing Certificate in Paralegal Studies program.
2022 / 06	Bronx CC	Discontinuation of a Program	AAS	Pharmaceutical Manufacturing Technology	PHARMA-AAS	28091	The program is proposed to be discontinued due to lack of student enrollment/demand,
2022 / 06	Brooklyn College	Format Change	ADVCERPM	Bilingual Education	BILNGED-AC	31826	Starting fall 2022 the course seminars/lectures will be online; courses may require in-person fieldwork/student teaching in childhood and bilingual settings.
2022 / 06	Brooklyn College	Format Change	MS	Business Administration	BUSADM-MS	01895	Adding distance education format to most concentrations within the degree.
2022 / 06	Brooklyn College	Format Change	MSED	Childhood Education Grades 1-6: Extension to Bilingual Education	CETBE-MSED	26823	Starting fall 2022 the course seminars/lectures will be online; courses may require in-person fieldwork/student teaching in childhood and bilingual settings.
2022 / 06	Brooklyn College	Format Change	MSED	Early Childhood Education Teacher, Birth-Grade2	ECHT-MSED	26736	Starting fall 2022 the course seminars/lectures will be online; courses may require in-person fieldwork/student teaching in childhood and bilingual settings.
2022 / 06	City College	Change in a Program's Focus or Design	MUP	Urban Design	URBDSN-MUP	02121	The amendment of the program is intended to bring the program closer to national norms; to modernize the program and infuse it with current technology and tools; to offer students greater amount of design and clinical experience before graduation.
2022 / 06	Guttman CC	Create a Certificate or Advanced Certificate	CERTGE30	Cybersecurity Certificate Program	NEW	N/A	The College proposes the addition of a Cybersecurity Certificate program that draws on the coursework from the Information Technology - Cybersecurity track A.A.S. degree program.
2022 / 06	Guttman CC	Create a New Concentration	AA	Liberal Arts and Sciences	LAS-AA	34974	The College proposes a new Secondary Social Studies Education track within the Liberal Arts program of study.
2022 / 06	Hostos CC	Create a New Concentration	AA	Liberal Arts and Science	LIBARTS-AA	00906	Adding an Interdisciplinary Studies in Aging and Health concentration.
2022 / 06	Hunter College	Significant Changes to the Curriculum	ADVCERPM	Adolescence Education: Latin, Grades 7-12	LATAE-AC	34590	The proposals makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	ADVCERPM	Adolescent Special Education, Grades 7-12	ASE712-AC	37793	The proposed modifications replaces, removes, and changes existing courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	ADVCERPM	Adolescent Special Education, Grades 7-12	ASE712-AC	37793	The proposed modifications replaces, removes, and changes existing courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	BA	Early Childhood Education, Birth to Grade 2nd	ECHEDB2-BA	37691	The total number of credits to complete the major will increase from 39 to 41. Modifications to the final fieldwork and culminating clinical experience.
2022 / 06	Hunter College	Significant Changes to the Curriculum	BA	Macaulay Honors College Early Childhood Education, Birth through 2nd	MHCECB2-BA	37752	The total number of credits to complete the major will increase from 39 to 41. Modifications to the final fieldwork and culminating clinical experience.

Program Actions Summary

Year / Month: 2022 / 06

Year/Month	Institution	Action	Degree	Academic Plan	Plan Code	Program (NYSED) Code	Summary
				Grade			
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Adolescence Chinese	CHINAE-MA	32374	The proposals makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	French (Grades 7-12)	FRENAE-MA	25616	The proposal makes significant changes to required courses,
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Italian (Grades 7-12)	ITALAE-MA	25613	The proposal makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Latin (Grades 7-12)	LATINAE-MA	25607	The proposals makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Social Studies (Grades 7-12)	SOCSTAE-MA	25601	The proposals makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Spanish (Grades 7-12)	SPANAE-MA	25610	The proposal makes significant changes to required courses.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MA	Translation and Interpreting	TRNINTP-MA	40771	Major revisions to the admissions policy and curriculum.
2022 / 06	Hunter College	Significant Changes to the Curriculum	MSED	Adolescent Students with Disabilities, Grades 7-12 (Generalist)	AG712-MSED	35850	. The proposed modifications replaces, removes, and changes existing courses
2022 / 06	Hunter College	Significant Changes to the Curriculum	MSED	Adolescent Students with Disabilities, Grades 7-12 (Generalist)	AG712-MSED	35850	The proposed modifications replaces, removes, and changes existing courses.
2022 / 06	Lehman College	Change OR Addition of a Delivery Mode	ADVCERPM	Bilingual Education Extension ITI Clinically Rich Program Grades 5-12	BECRITI-AC	40619	. The distance learning format will allow students to complete the program by taking all courses online.
2022 / 06	Lehman College	Change OR Addition of a Delivery Mode	ADVCERPM	Bilingual Education Extension—Intensive Teacher Institute--Clinically Rich Program Grades Birth-6	BEITIEC-AC	41093	The distance learning format will allow students to complete the program by taking all courses online.
2022 / 06	Lehman College	Change OR Addition of a Delivery Mode	BS	Health Services Administration	HSA-BS	10113	Adding distance education format.
2022 / 06	Lehman College	Change OR Addition of a Delivery Mode	BS	Macaulay Honors College Health Services Administration	MHCHSA-BS	60207	Formally adding distance education format.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In K-12 Art Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Art in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Biology Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Biology in New York State,
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Chemistry Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Chemistry in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Earth Science Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Earth Science in New York State
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary English Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach English in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Mathematics Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Math in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Physics Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Physics in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Social Studies Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Social Studies in New York State.
2022 / 06	Lehman College	Create a Certificate or Advanced Certificate	CERTGE30	Certificate In Secondary Spanish Education	NEW	N/A	The proposed Certificate will simplify the process for earning the Initial Certificate to teach Spanish in New York State.
2022 / 06	Queens College	Eliminating a Requirement for a Program Completion	MSED	Family and Consumer Science Teacher K-12	FAMED-MSED	26422	Change in Requirement for Graduation
2022 / 06	Queensborough CC	Change in Degree Award	AAS	Computer Information Systems	DP-AAS	01527	Switch program to an A.S. degree
2022 / 06	Queensborough CC	Change of Program Name	AA	Liberal Arts and Sciences	LE-AA	26404	Change name of AA degree to Liberal Arts and Sciences (Childhood Education)
2022 / 06	Queensborough CC	Discontinuation of a Program	AAS	Office Administration and Technology	BS-AAS	01526	Discontinue the AAS in Office Administration Technology
2022 / 06	Queensborough CC	Discontinuation of a Program	CERTGE30	Computer Information Systems	BD-CERT	79418	Discontinue the certificate in Computer Information Systems
2022 / 06	Queensborough CC	Discontinuation of a Program	CERTGE30	Health Care Office Administration	BH-CERT	27290	Discontinue the certificate in Health Care Office Administration
2022 / 06	Queensborough	Discontinuation of a	CERTGE30	Office Administration	BW-CERT	81027	Discontinue the certificate in Office

Program Actions Summary

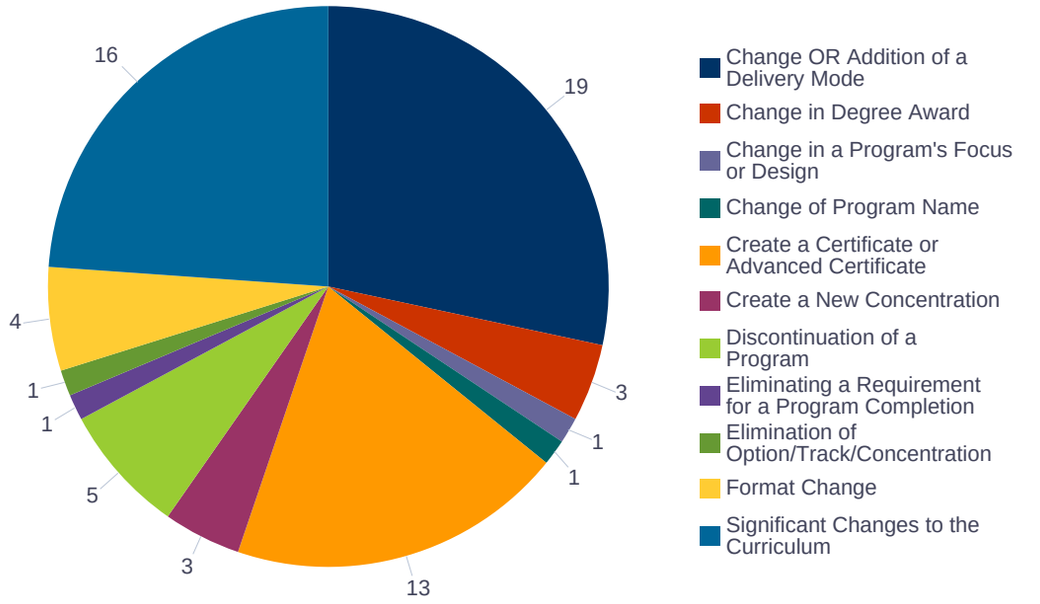
Year / Month: 2022 / 06

Year/Month	Institution	Action	Degree	Academic Plan	Plan Code	Program (NYSED) Code	Summary
	CC	Program		Assistant			Administration Assistant
2022 / 06	Queensborough CC	Elimination of Option/Track/Concentration	AA	Liberal Arts and Sciences	LA-AA	01522	Elimination of three concentrations, addition of a new Spanish language concentration.
2022 / 06	Queensborough CC	Significant Changes to the Curriculum	AAS	Internet and Information Technology	EM-AAS	25539	Major changes to the AAS in Internet and Information Technology
2022 / 06	School of Labor&Urban Studies	Change OR Addition of a Delivery Mode	ADVCERPB	Organizing And Social Change-Advanced Certificate	NEW	N/A	Adding Distance Learning for creation of new advanced certificate in Organizing and Social Change
2022 / 06	School of Labor&Urban Studies	Change OR Addition of a Delivery Mode	ADVCERPB	Workplace Democracy and Community Ownership	WDCO-AC	41405	Adding Distance Learning for Workplace Democracy and Community Ownership - Advanced Certificate
2022 / 06	School of Labor&Urban Studies	Change OR Addition of a Delivery Mode	CERTLT30	Organizing And Social Change-Certificate	NEW	N/A	Adding Distance Learning for creation of new certificate in Organizing and Social Change
2022 / 06	School of Labor&Urban Studies	Create a Certificate or Advanced Certificate	ADVCERPB	Organizing And Social Change	NEW	N/A	The new Advanced Certificate in Organizing and Social Change provides students with the theoretical and historical foundations as well as with the practical skills required to advance in their careers as organizers for social change in their communities and workplaces.
2022 / 06	School of Labor&Urban Studies	Create a Certificate or Advanced Certificate	CERTLT30	Organizing And Social Change-Certificate	NEW	N/A	The new Certificate in Organizing and Social Change provides students with the theoretical and historical foundations as well as with the practical skills required to pursue careers as organizers for social change in their communities and workplaces.
2022 / 06	York College	Change in Degree Award	BS	English Teacher Education	ENGTCH-BA	24939	This major has been modified to meet the New York State Department of Education (NYSED) mandate that Student Teaching Seminar must be 12 credits..
2022 / 06	York College	Change in Degree Award	BS	History Teacher Education	HISTTCH-BA	24941	The major has been modified to meet the New State Department of Education (NYSED) mandate that Student Teaching Seminar must be 12 credits.
2022 / 06	York College	Create a Certificate or Advanced Certificate	CERTGE30	Real Estate Investment	NEW	N/A	The Certificate Program in Real Estate Investment is designed for those seeking to build foundational knowledge to pursue a career in real estate investment and management.
2022 / 06	York College	Significant Changes to the Curriculum	BS	Public Health	PUBHLT-BS	37703	The proposed changes show a pathway for students interested interested in participating in the York College/CUNY Graduate School of Public Health 4+1 Program.

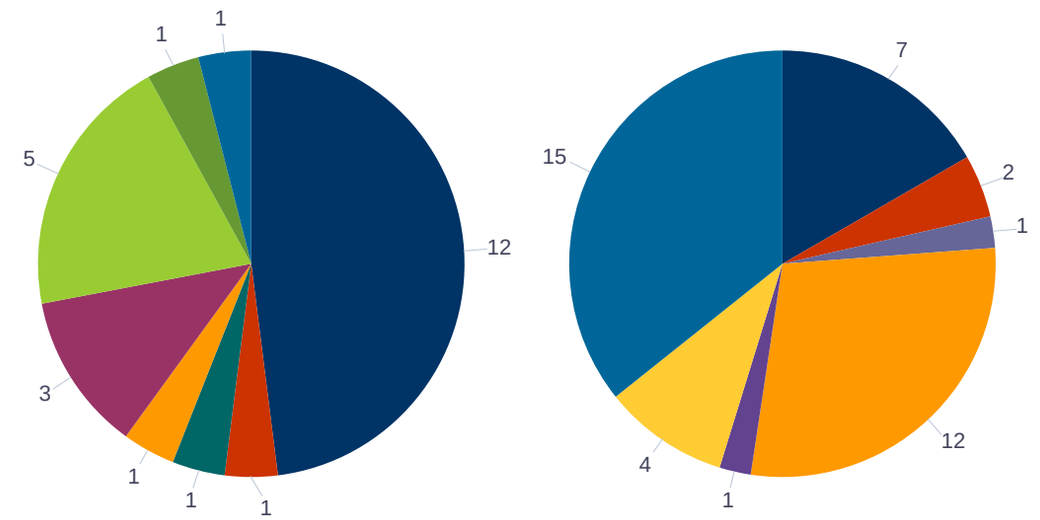
Program Actions

Year / Month: 2022 / 06

Overall



By College Type



Program Actions

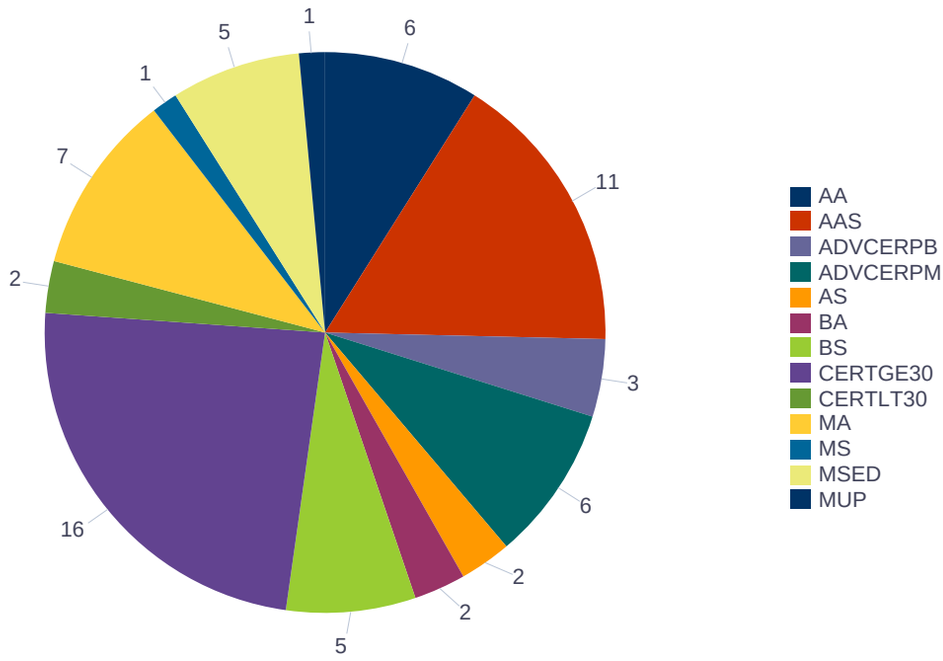
Year / Month: 2022 / 06

Actions/Institution	Total	Community Colleges	Senior Colleges
Change OR Addition of a Delivery Mode Total	**19**	**12**	**7**
Borough of Manhattan CC	**1**	1	
Bronx CC	**11**	11	
Lehman College	**4**		4
School of Labor&Urban Studies	**3**		3
Change in Degree Award Total	**3**	**1**	**2**
Queensborough CC	**1**	1	
York College	**2**		2
Change in a Program's Focus or Design Total	**1**		**1**
City College	**1**		1
Change of Program Name Total	**1**	**1**	
Queensborough CC	**1**	1	
Create a Certificate or Advanced Certificate Total	**13**	**1**	**12**
Guttman CC	**1**	1	
Lehman College	**9**		9
School of Labor&Urban Studies	**2**		2
York College	**1**		1
Create a New Concentration Total	**3**	**3**	
Borough of Manhattan CC	**1**	1	
Guttman CC	**1**	1	
Hostos CC	**1**	1	
Discontinuation of a Program Total	**5**	**5**	
Bronx CC	**1**	1	
Queensborough CC	**4**	4	
Eliminating a Requirement for a Program Completion Total	**1**		**1**
Queens College	**1**		1
Elimination of Option/Track/Concentration Total	**1**	**1**	
Queensborough CC	**1**	1	
Format Change Total	**4**		**4**
Brooklyn College	**4**		4
Significant Changes to the Curriculum Total	**16**	**1**	**15**
Hunter College	**14**		14
Queensborough CC	**1**	1	
York College	**1**		1
Grand Total	**67**	**25**	**42**

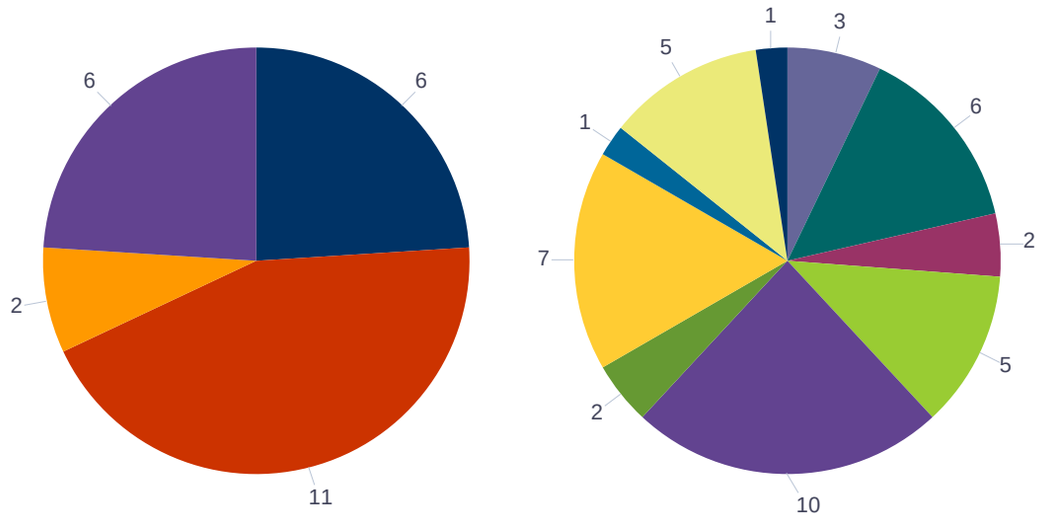
Program Actions by Degree

Year / Month: 2022 / 06

Overall



By College Type



Community Colleges

Senior Colleges

Program Actions by Degree

Year / Month: 2022 / 06

Action	Degree/Institution	Total	Community Colleges	Senior Colleges
Change OR Addition of a Delivery Mode	**AA Total**	**1**	**1**	
	Bronx CC	**1**	1	
	AAS Total	**7**	**7**	
	Borough of Manhattan CC	**1**	1	
	Bronx CC	**6**	6	
	ADVCERPB Total	**2**		**2**
	School of Labor&Urban Studies	**2**		2
	ADVCERPM Total	**2**		**2**
	Lehman College	**2**		2
	AS Total	**2**	**2**	
	Bronx CC	**2**	2	
	BS Total	**2**		**2**
	Lehman College	**2**		2
	CERTGE30 Total	**2**	**2**	
	Bronx CC	**2**	2	
	CERTLT30 Total	**1**		**1**
	School of Labor&Urban Studies	**1**		1
Change OR Addition of a Delivery Mode Total		**19**	**12**	**7**
Change in Degree Award	**AAS Total**	**1**	**1**	
	Queensborough CC	**1**	1	
	BS Total	**2**		**2**
	York College	**2**		2
Change in Degree Award Total		**3**	**1**	**2**
Change in a Program's Focus or Design	**MUP Total**	**1**		**1**
	City College	**1**		1
Change in a Program's Focus or Design Total		**1**		**1**
Change of Program Name	**AA Total**	**1**	**1**	
	Queensborough CC	**1**	1	
Change of Program Name Total		**1**	**1**	
Create a Certificate or Advanced Certificate	**ADVCERPB Total**	**1**		**1**
	School of Labor&Urban Studies	**1**		1
	CERTGE30 Total	**11**	**1**	**10**
	Guttman CC	**1**	1	
	Lehman College	**9**		9
	York College	**1**		1
	CERTLT30 Total	**1**		**1**
	School of Labor&Urban Studies	**1**		1
Create a Certificate or Advanced Certificate Total		**13**	**1**	**12**
Create a New Concentration	**AA Total**	**3**	**3**	
	Borough of Manhattan CC	**1**	1	
	Guttman CC	**1**	1	
	Hostos CC	**1**	1	
Create a New Concentration Total		**3**	**3**	
Discontinuation of a Program	**AAS Total**	**2**	**2**	
	Bronx CC	**1**	1	
	Queensborough CC	**1**	1	
	CERTGE30 Total	**3**	**3**	
	Queensborough CC	**3**	3	
Discontinuation of a Program Total		**5**	**5**	
Eliminating a Requirement for a Program Completion	**MSED Total**	**1**		**1**
	Queens College	**1**		1
Eliminating a Requirement for a Program Completion Total		**1**		**1**

Program Actions by Degree

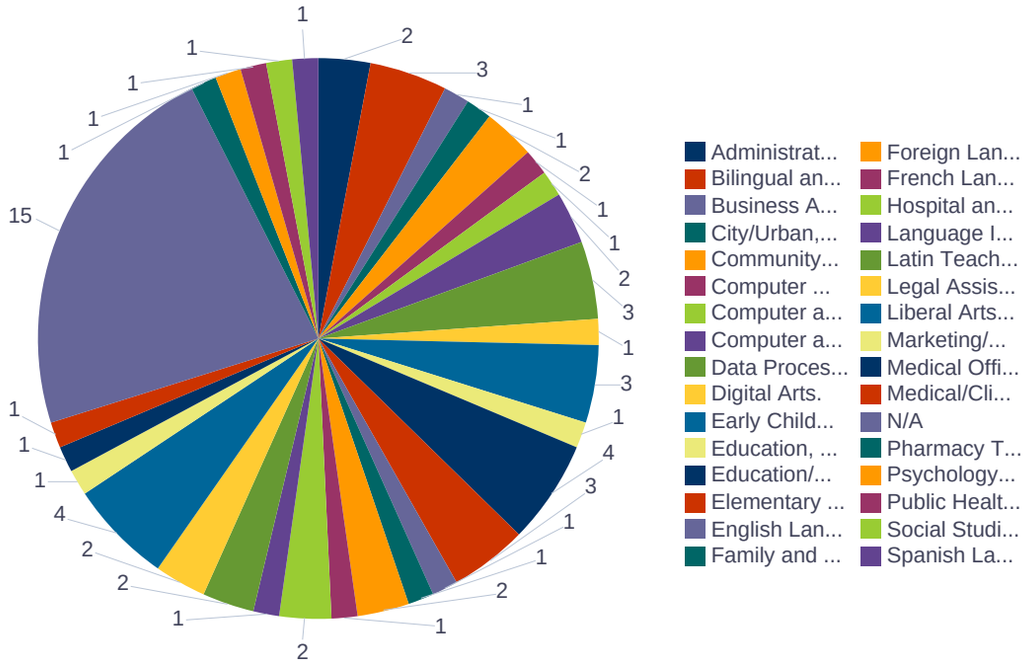
Year / Month: 2022 / 06

Action	Degree/Institution	Total	Community Colleges	Senior Colleges
Elimination of Option/Track/Concentration	**AA Total**	**1**	**1**	
	Queensborough CC	**1**	1	
Elimination of Option/Track/Concentration Total		**1**	**1**	
Format Change	**ADVCERPM Total**	**1**		**1**
	Brooklyn College	**1**		1
	MS Total	**1**		**1**
	Brooklyn College	**1**		1
	MSED Total	**2**		**2**
	Brooklyn College	**2**		2
Format Change Total		**4**		**4**
Significant Changes to the Curriculum	**AAS Total**	**1**	**1**	
	Queensborough CC	**1**	1	
	ADVCERPM Total	**3**		**3**
	Hunter College	**3**		3
	BA Total	**2**		**2**
	Hunter College	**2**		2
	BS Total	**1**		**1**
	York College	**1**		1
	MA Total	**7**		**7**
	Hunter College	**7**		7
	MSED Total	**2**		**2**
	Hunter College	**2**		2
Significant Changes to the Curriculum Total		**16**	**1**	**15**
Grand Total		**67**	**25**	**42**

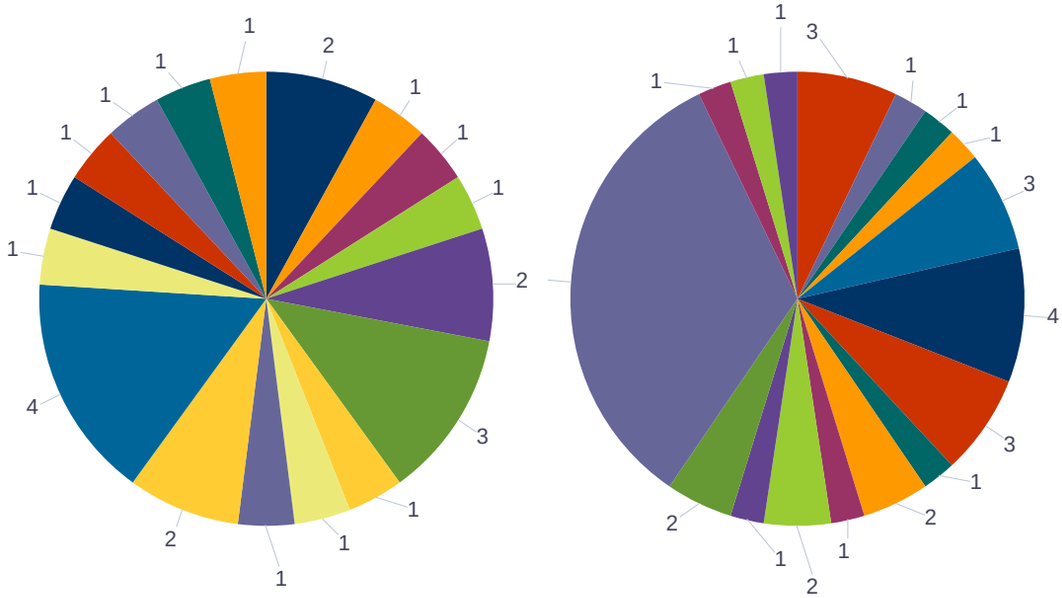
Program Actions by CIP

Year / Month: 2022 / 06

Overall



By College Type



Community Colleges

Senior Colleges

Program Actions by CIP

Year / Month: 2022 / 06

CIP	Academic Plan/Institution	Total	Community Colleges	Senior Colleges
Administrative Assistant and Secretarial Science, General	**Office Administration Assistant**	**1**	**1**	
	Queensborough CC	**1**	1	
	Office Administration and Technology	**1**	**1**	
	Queensborough CC	**1**	1	
Administrative Assistant and Secretarial Science, General Total		**2**	**2**	
Bilingual and Multilingual Education	**Bilingual Education**	**1**		**1**
	Brooklyn College	**1**		1
	Bilingual Education Extension ITI Clinically Rich Program Grades 5-12	**1**		**1**
	Lehman College	**1**		1
	Bilingual Education Extension—Intensive Teacher Institute--Clinically Rich Program Grades Birth-6	**1**		**1**
	Lehman College	**1**		1
Bilingual and Multilingual Education Total		**3**		**3**
Business Administration and Management, General	**Business Administration**	**1**		**1**
	Brooklyn College	**1**		1
Business Administration and Management, General Total		**1**		**1**
City/Urban, Community, and Regional Planning	**Urban Design**	**1**		**1**
	City College	**1**		1
City/Urban, Community, and Regional Planning Total		**1**		**1**
Community Organization and Advocacy	**Public Health**	**1**	**1**	
	Bronx CC	**1**	1	
	Workplace Democracy and Community Ownership	**1**		**1**
	School of Labor&Urban Studies	**1**		1
Community Organization and Advocacy Total		**2**	**1**	**1**
Computer Science	**Internet and Information Technology**	**1**	**1**	
	Queensborough CC	**1**	1	
Computer Science Total		**1**	**1**	
Computer and Information Sciences, General	**Computer Network Technology**	**1**	**1**	
	Borough of Manhattan CC	**1**	1	
Computer and Information Sciences, General Total		**1**	**1**	
Computer and Information Systems Security/Auditing/Information Assurance	**Cybersecurity and Networking**	**2**	**2**	
	Bronx CC	**2**	2	
Computer and Information Systems Security/Auditing/Information Assurance Total		**2**	**2**	
Data Processing and Data Processing Technology/Technician	**Computer Information Systems**	**3**	**3**	
	Bronx CC	**1**	1	
	Queensborough CC	**2**	2	
Data Processing and Data Processing Technology/Technician Total		**3**	**3**	
Digital Arts.	**Digital Design**	**1**	**1**	
	Bronx CC	**1**	1	
Digital Arts. Total		**1**	**1**	
Early Childhood Education and Teaching	**Early Childhood Education Teacher, Birth-Grade2**	**1**		**1**
	Brooklyn College	**1**		1
	Early Childhood Education, Birth to Grade 2nd	**1**		**1**
	Hunter College	**1**		1
	Macaulay Honors College Early Childhood Education, Birth through 2nd Grade	**1**		**1**

Program Actions by CIP

Year / Month: 2022 / 06

CIP	Academic Plan/Institution	Total	Community Colleges	Senior Colleges
Early Childhood Education and Teaching	Hunter College	**1**		1
Early Childhood Education and Teaching Total		**3**		**3**
Education, General	**Education**	**1**	**1**	
	Bronx CC	**1**	1	
Education, General Total		**1**	**1**	
Education/Teaching of Individuals in Secondary Special Education Programs.	**Adolescent Special Education, Grades 7-12**	**2**		**2**
	Hunter College	**2**		2
	Adolescent Students with Disabilities, Grades 7-12 (Generalist)	**2**		**2**
	Hunter College	**2**		2
Education/Teaching of Individuals in Secondary Special Education Programs. Total		**4**		**4**
Elementary Education and Teaching	**Childhood Education Grades 1-6: Extension to Bilingual Education**	**1**		**1**
	Brooklyn College	**1**		1
	English Teacher Education	**1**		**1**
	York College	**1**		1
	History Teacher Education	**1**		**1**
	York College	**1**		1
Elementary Education and Teaching Total		**3**		**3**
English Language and Literature, General	**English**	**1**	**1**	
	Bronx CC	**1**	1	
English Language and Literature, General Total		**1**	**1**	
Family and Consumer Sciences/Home Economics Teacher Education	**Family and Consumer Science Teacher K-12**	**1**		**1**
	Queens College	**1**		1
Family and Consumer Sciences/Home Economics Teacher Education Total		**1**		**1**
Foreign Language Teacher Education	**Adolescence Chinese**	**1**		**1**
	Hunter College	**1**		1
	Italian (Grades 7-12)	**1**		**1**
	Hunter College	**1**		1
Foreign Language Teacher Education Total		**2**		**2**
French Language Teacher Education	**French (Grades 7-12)**	**1**		**1**
	Hunter College	**1**		1
French Language Teacher Education Total		**1**		**1**
Hospital and Health Care Facilities Administration/Management	**Health Services Administration**	**1**		**1**
	Lehman College	**1**		1
	Macaulay Honors College Health Services Administration	**1**		**1**
	Lehman College	**1**		1
Hospital and Health Care Facilities Administration/Management Total		**2**		**2**
Language Interpretation and Translation	**Translation and Interpreting**	**1**		**1**
	Hunter College	**1**		1
Language Interpretation and Translation Total		**1**		**1**
Latin Teacher Education	**Adolescence Education: Latin, Grades 7-12**	**1**		**1**
	Hunter College	**1**		1
	Latin (Grades 7-12)	**1**		**1**
	Hunter College	**1**		1
Latin Teacher Education Total		**2**		**2**
Legal Assistant/Paralegal	**Paralegal Studies**	**1**	**1**	
	Bronx CC	**1**	1	
	Paralegal and Legal Studies	**1**	**1**	

Program Actions by CIP

Year / Month: 2022 / 06

CIP	Academic Plan/Institution	Total	Community Colleges	Senior Colleges
Legal Assistant/Paralegal	Bronx CC	**1**	1	
Legal Assistant/Paralegal Total		**2**	**2**	
Liberal Arts and Sciences/Liberal Studies	**Liberal Arts and Science**	**1**	**1**	
	Hostos CC	**1**	1	
	Liberal Arts and Sciences	**3**	**3**	
	Guttman CC	**1**	1	
	Queensborough CC	**2**	2	
Liberal Arts and Sciences/Liberal Studies Total		**4**	**4**	
Marketing/Marketing Management, General	**Marketing**	**1**	**1**	
	Bronx CC	**1**	1	
Marketing/Marketing Management, General Total		**1**	**1**	
Medical Office Management/Administration	**Health Care Office Administration**	**1**	**1**	
	Queensborough CC	**1**	1	
Medical Office Management/Administration Total		**1**	**1**	
Medical/Clinical Assistant	**Medical Office Assistant**	**1**	**1**	
	Bronx CC	**1**	1	
Medical/Clinical Assistant Total		**1**	**1**	
N/A	**Certificate In K-12 Art Education**	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Biology Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Chemistry Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Earth Science Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary English Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Mathematics Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Physics Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Social Studies Education	**1**		**1**
	Lehman College	**1**		1
	Certificate In Secondary Spanish Education	**1**		**1**
	Lehman College	**1**		1
	Cybersecurity Certificate Program	**1**	**1**	
	Guttman CC	**1**	1	
	Organizing And Social Change	**1**		**1**
	School of Labor&Urban Studies	**1**		1
	Organizing And Social Change-Certificate	**2**		**2**
	School of Labor&Urban Studies	**2**		2
	Organizing And Social Change-Advanced Certificate	**1**		**1**
	School of Labor&Urban Studies	**1**		1
	Real Estate Investment	**1**		**1**

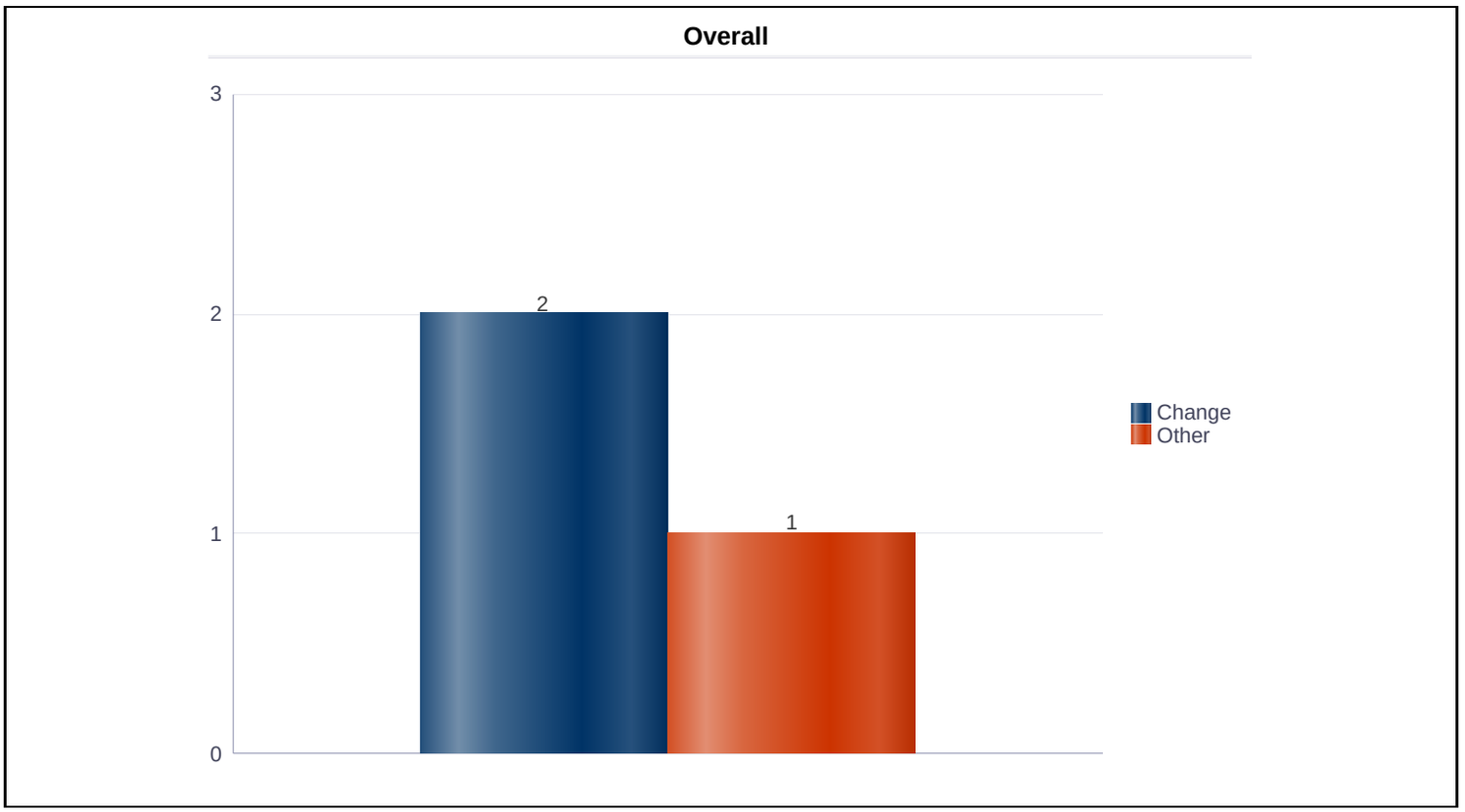
Program Actions by CIP

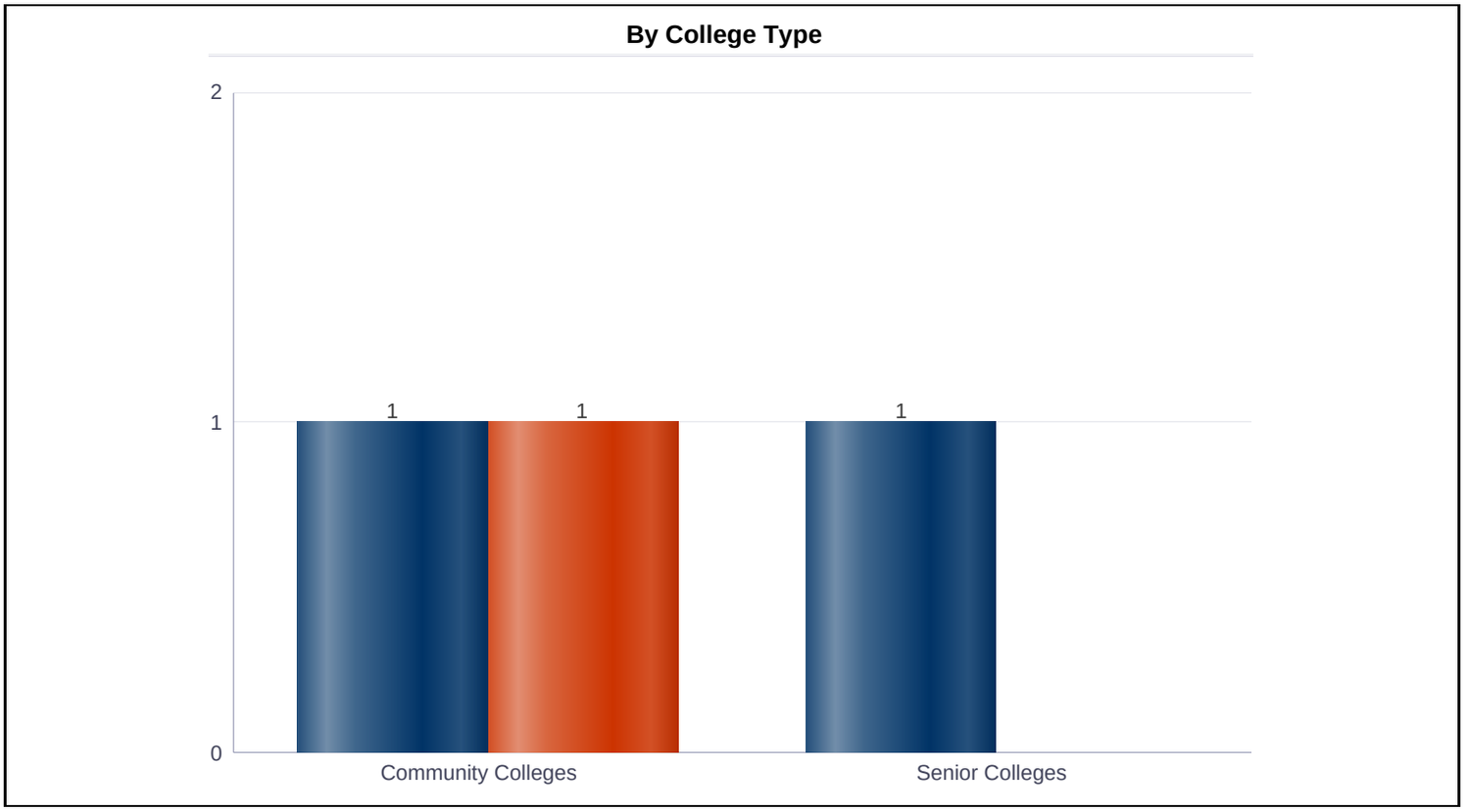
Year / Month: 2022 / 06

CIP	Academic Plan/Institution	Total	Community Colleges	Senior Colleges
N/A	York College	**1**		1
N/A Total		**15**	**1**	**14**
Pharmacy Technician/Assistant	**Pharmaceutical Manufacturing Technology**	**1**	**1**	
	Bronx CC	**1**	1	
Pharmacy Technician/Assistant Total		**1**	**1**	
Psychology, General	**Psychology**	**1**	**1**	
	Borough of Manhattan CC	**1**	1	
Psychology, General Total		**1**	**1**	
Public Health Education and Promotion	**Public Health**	**1**		**1**
	York College	**1**		1
Public Health Education and Promotion Total		**1**		**1**
Social Studies Teacher Education	**Social Studies (Grades 7-12)**	**1**		**1**
	Hunter College	**1**		1
Social Studies Teacher Education Total		**1**		**1**
Spanish Language Teacher Education	**Spanish (Grades 7-12)**	**1**		**1**
	Hunter College	**1**		1
Spanish Language Teacher Education Total		**1**		**1**
Grand Total		**67**	**25**	**42**

Campus Academic Policies

Year / Month: 2022 / 06





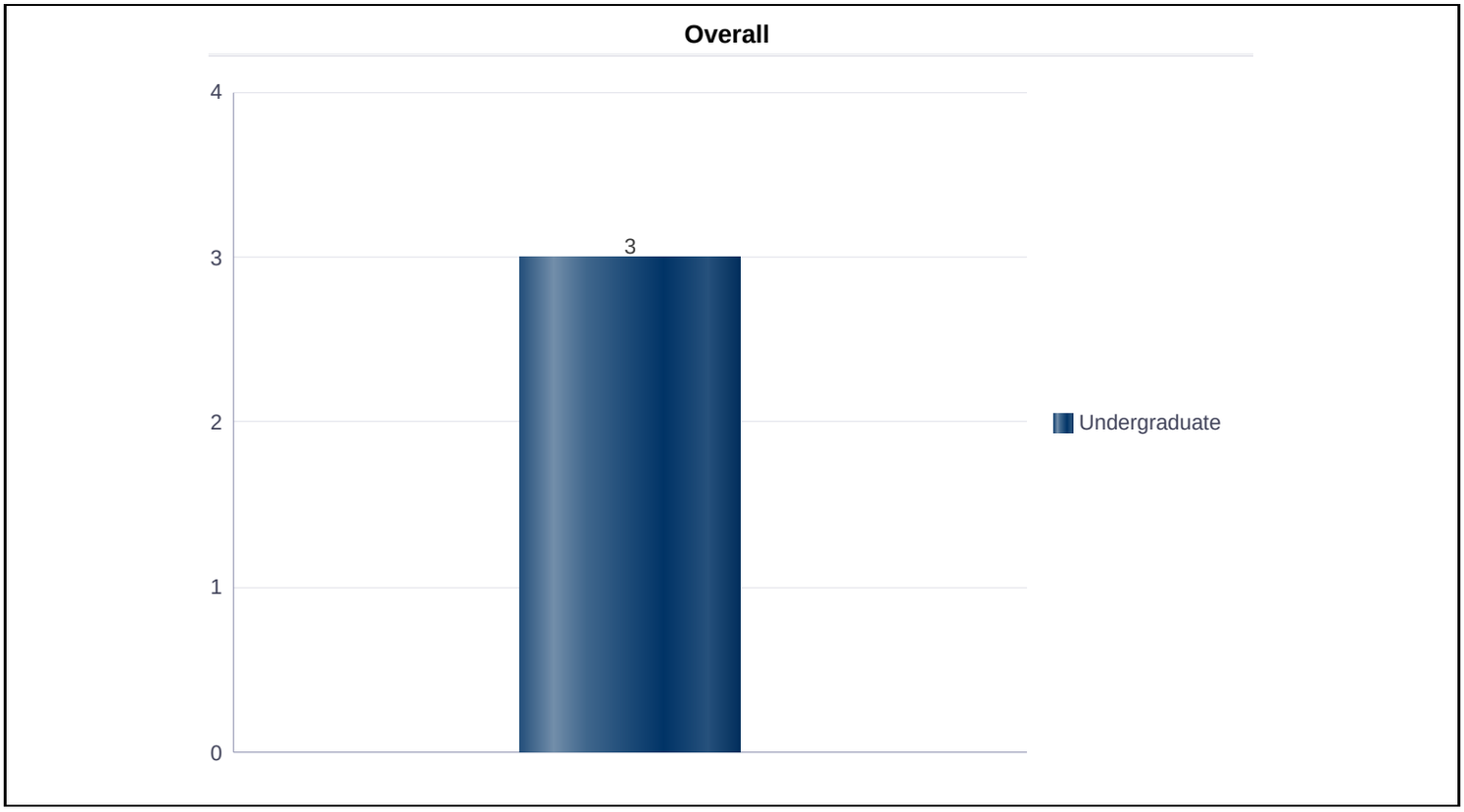
Campus Academic Policies

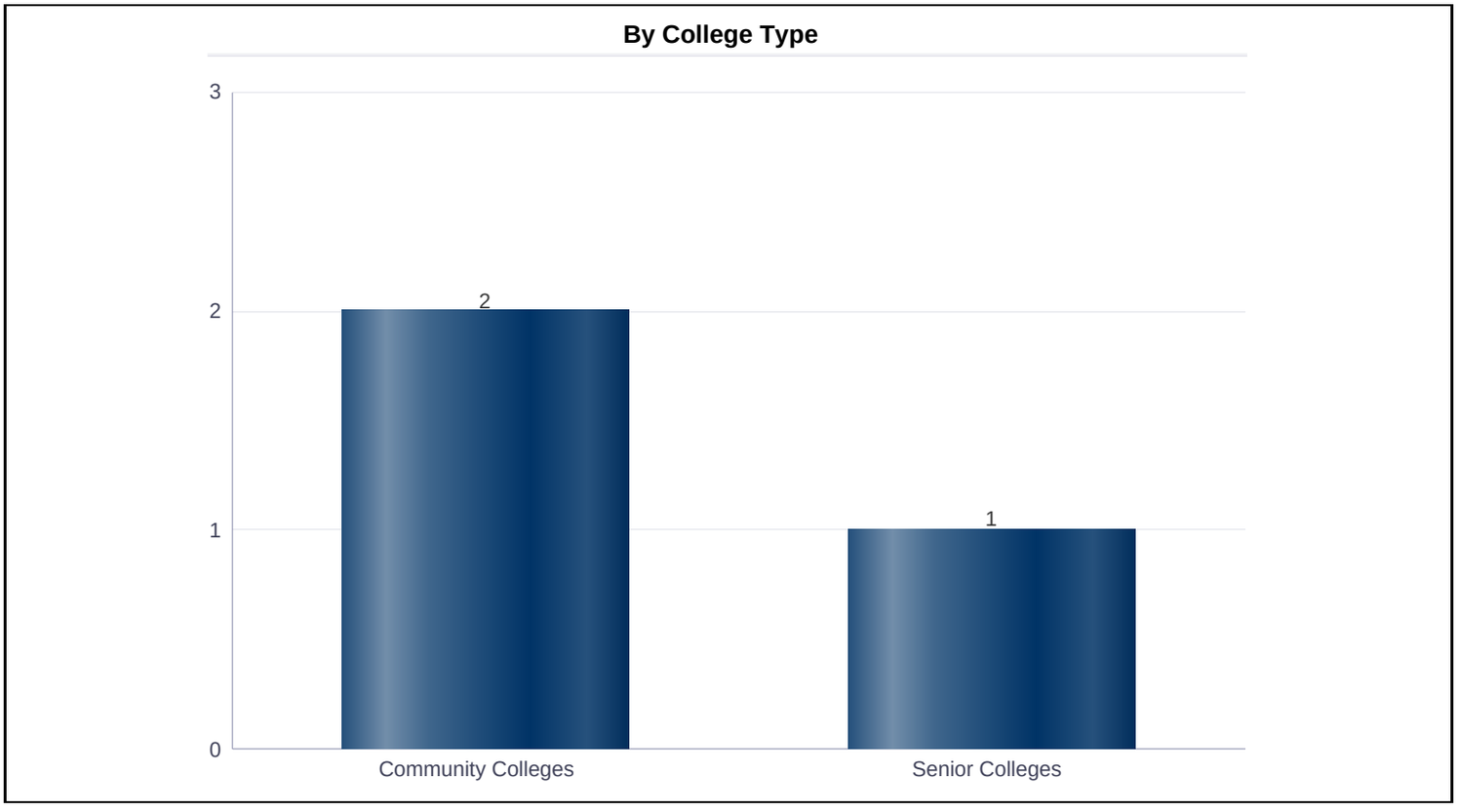
Year / Month: 2022 / 06

Action	Institution	Total	Community Colleges	Senior Colleges
Change Total		**2**	**1**	**1**
Change	Borough of Manhattan CC	**1**	1	
	Hunter College	**1**		1
Other Total		**1**	**1**	
Other	Bronx CC	**1**	1	
Grand Total		**3**	**2**	**1**

Campus Academic Policies by Career

Year / Month: 2022 / 06





Campus Academic Policies by Career

Year / Month: 2022 / 06

Academic Career	Institution	Total	Community Colleges	Senior Colleges
Undergraduate Total		**3**	**2**	**1**
Undergraduate	Borough of Manhattan CC	**1**	1	
	Bronx CC	**1**	1	
	Hunter College	**1**		1
Grand Total		**3**	**2**	**1**

Campus Academic Policies Summary

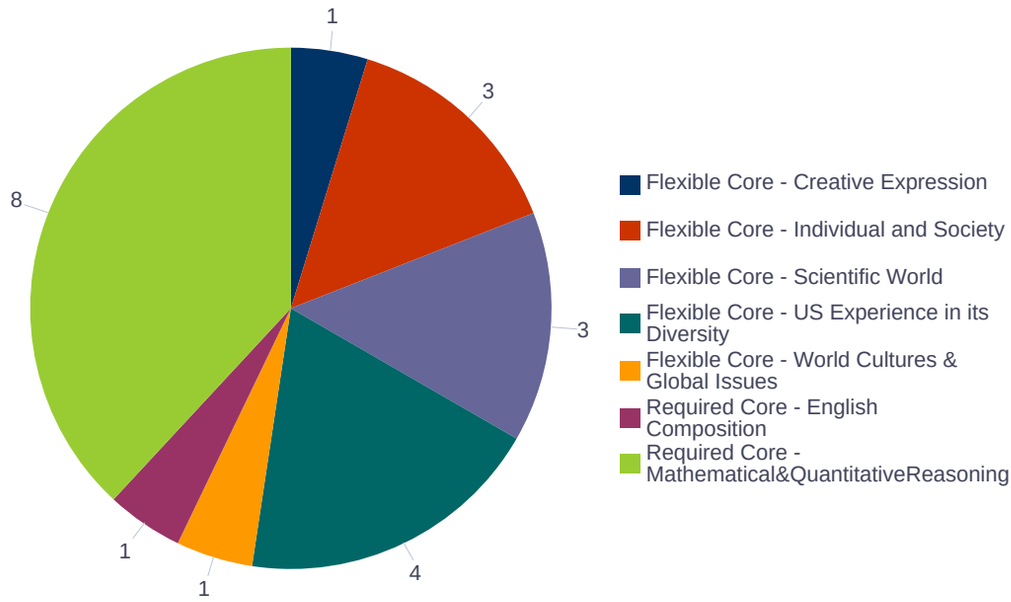
Year / Month: 2022 / 06

Year/Month	Institution	Action	Academic Career	Academic Policy	Summary
2022 / 06	Borough of Manhattan CC	Change	Undergraduate	Change to Graduation Residency Credit Requirement	Effective Fall 2022, the residency requirement for graduation from BMCC with an associate degree is to be changed from at least 30 credits in residence, to at least 15 credits in residence.
2022 / 06	Bronx CC	Other	Undergraduate	One-time exception to policy limiting experimental courses to two semesters	This would allow the corequiste MTH 21.5 Survey of Mathematics I with Algebra to run as experimental for one additional semester due to pandemic-related complications.
2022 / 06	Hunter College	Change	Undergraduate	Deadline change to P/NC Rule	Proposed deadline change for students to submit P/NC forms.

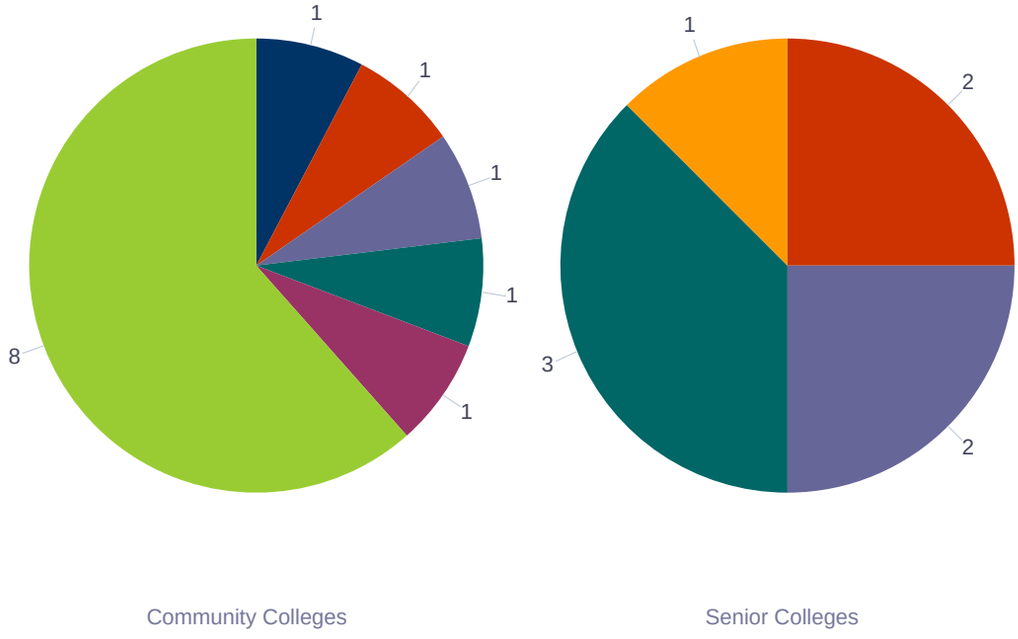
General Education Courses

Year / Month: 2022 / 06

Overall



By College Type



General Education Courses

Year / Month: 2022 / 06

General Education Category/Institution	Total	Community Colleges	Senior Colleges
Flexible Core - Creative Expression Total	**1**	**1**	
LaGuardia CC	**1**	1	
Flexible Core - Individual and Society Total	**3**	**1**	**2**
Bronx CC	**1**	1	
Hunter College	**1**		1
John Jay College	**1**		1
Flexible Core - Scientific World Total	**3**	**1**	**2**
John Jay College	**1**		1
Kingsborough CC	**1**	1	
York College	**1**		1
Flexible Core - US Experience in its Diversity Total	**4**	**1**	**3**
Hostos CC	**1**	1	
John Jay College	**2**		2
Queens College	**1**		1
Flexible Core - World Cultures & Global Issues Total	**1**		**1**
Queens College	**1**		1
Required Core - English Composition Total	**1**	**1**	
Bronx CC	**1**	1	
Required Core - Mathematical&QuantitativeReasoning Total	**8**	**8**	
Borough of Manhattan CC	**3**	3	
Bronx CC	**2**	2	
Hostos CC	**1**	1	
Kingsborough CC	**2**	2	
Grand Total	**21**	**13**	**8**

General Education Courses

Year / Month: 2022 / 06

Year/Month	Institution	Subject	Catalog Number	Course Title	General Education Category
2022 / 06	Borough of Manhattan CC	MAT	110.5	Fundamentals of Mathematics I with Algebra	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Borough of Manhattan CC	MAT	156	College Algebra	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Borough of Manhattan CC	MAT	156.5	Elementary and College Algebra	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Bronx CC	ENG	100	English Composition I: Integrated Reading and Writing	Required Core - English Composition
2022 / 06	Bronx CC	ENG	181	Asian American Literature	Flexible Core - Individual and Society
2022 / 06	Bronx CC	MTH	23.5	Probability and Statistics with Algebra	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Bronx CC	MTH	28.5	College Algebra and Elementary Trigonometry (Corequisite)	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Hostos CC	MAT	100SI	Introduction to College Mathematics I	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Hostos CC	SOC	140	Sociology of Race and Ethnic Relations	Flexible Core - US Experience in its Diversity
2022 / 06	Hunter College	HR	20000	Introduction to Human Rights	Flexible Core - Individual and Society
2022 / 06	John Jay College	LIT	142	Science Fiction, Science Fact	Flexible Core - Scientific World
2022 / 06	John Jay College	LIT	268	Latinx Graphic Novel	Flexible Core - US Experience in its Diversity
2022 / 06	John Jay College	LLS	270	Afro-Latinx Literature	Flexible Core - Individual and Society
2022 / 06	John Jay College	SOC	213	Sociology of Race and Ethnic Relations	Flexible Core - US Experience in its Diversity
2022 / 06	Kingsborough CC	MAT	2010	Integrated Statistics	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	Kingsborough CC	MAT	9010	Introduction to Mathematics with College Algebra	Flexible Core - Scientific World
2022 / 06	Kingsborough CC	MAT	9010	Introduction to Mathematics with College Algebra	Required Core - Mathematical&QuantitativeReasoning
2022 / 06	LaGuardia CC	ENG	256	Humor in Literature	Flexible Core - Creative Expression
2022 / 06	Queens College	AFST	100	Intro to Africana Studies	Flexible Core - US Experience in its Diversity
2022 / 06	Queens College	AFST	203	Africa In the World	Flexible Core - World Cultures & Global Issues
2022 / 06	York College	BIO	281	Human Structure and Function	Flexible Core - Scientific World