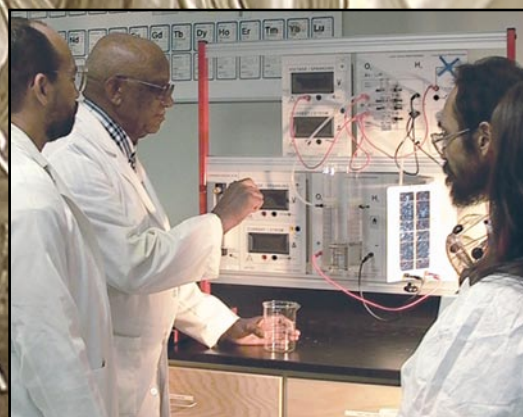


The Magazine for ACS Student Affiliates  
November/December 2007

# **in** *Chemistry*

**CAREERS**  
**Exploring Your Options**



**Forging New Connections**

## Overlooked Opportunities in Government

Corrine Marasco explains just how viable an option in civil service is. (*Chemical & Engineering News*, March 12, 2007, Vol. 85, No. 11, p. 47-50, <http://pubs.acs.org/cen/employment/85/8511employment.html>)

## Natural Products Niche

Rachel Petkewich offers a different view for those seeking to explore natural products chemistry as a career. (*Chemical & Engineering News*, Jan. 1, 2007, Vol. 85, No. 1, p. 37-39, <http://pubs.acs.org/cen/employment/85/8520employment1.html>)

## Interesting Web Sites

This issue of *in Chemistry* is dedicated to careers. Check out these helpful websites:

- <http://www.invent.org> To learn more about collegiate programs in your area.
- <http://sciencecareers.sciencemag.org/> For information about science careers, graduate school programs, and jobs.
- <http://pubs.acs.org/chemjobs/> The classifieds and careers site of *Chemical & Engineering News*.

## Research M.S. and Ph.D. Programs

**Duquesne University:** [www.science.duq.edu/chemistry/index.html](http://www.science.duq.edu/chemistry/index.html)  
**Florida Atlantic University:** [www.science.fau.edu/chemistry](http://www.science.fau.edu/chemistry)  
**Georgia State University:** [www.chemistry.gsu.edu](http://www.chemistry.gsu.edu)  
**Old Dominion University:** [sci.odu.edu/chemistry](http://sci.odu.edu/chemistry)  
**Oklahoma State University:** [www.chem.okstate.edu](http://www.chem.okstate.edu)  
**SUNY – Environmental Sciences and Forestry:** [www.esf.edu/chemistry](http://www.esf.edu/chemistry)  
**Temple University:** [www.chem.temple.edu](http://www.chem.temple.edu)  
**University of Cincinnati:** [www.che.uc.edu](http://www.che.uc.edu)  
**University of Idaho:** [www.chem.uidaho.edu/gradprogs.asp](http://www.chem.uidaho.edu/gradprogs.asp)  
**University of Nebraska at Lincoln:** [www.chem.unl.edu](http://www.chem.unl.edu)  
**University of Northern Iowa:** [www.uni.edu/chemistry](http://www.uni.edu/chemistry)  
**University of San Francisco:** [www.usfca.edu/mschemistry](http://www.usfca.edu/mschemistry)  
**University of South Dakota:** [www.usd.edu/chemistry](http://www.usd.edu/chemistry)  
**University of Tennessee:** [www.chem.utk.edu](http://www.chem.utk.edu)  
**University of Virginia:** [www.bims.virginia.edu](http://www.bims.virginia.edu)  
**The George Washington University:** [www.gwu.edu/~gwchem](http://www.gwu.edu/~gwchem)  
**The University of Texas at Dallas:** [www.utdallas.edu/chemistry](http://www.utdallas.edu/chemistry)

## Professional Master's Degree Programs

**California State University, Fresno:** [csufresno.edu/csm](http://csufresno.edu/csm)  
**Illinois Institute of Technology:** [bcps.iit.edu](http://bcps.iit.edu)  
**Keck Graduate Institute:** [kgi.edu](http://kgi.edu)  
**Oregon State University:** [professionalmasters.science.orst.edu/](http://professionalmasters.science.orst.edu/)  
**Rice University Professional Master's Program:** [profms.rice.edu](http://profms.rice.edu)  
**Rosalind Franklin University:** <http://www.rosalindfranklin.edu/sgpds/igpbs/>  
**San Diego State:** [bioinformatics.sdsu.edu/education.html](http://bioinformatics.sdsu.edu/education.html)  
**Temple University Professional Science Master's:** [www.temple.edu/psm](http://www.temple.edu/psm)  
**Virginia Commonwealth University:** [www.vcu.edu/csbc/bioinformatics/PSM\\_main.htm](http://www.vcu.edu/csbc/bioinformatics/PSM_main.htm)

*All URLs were accessed and accurate while this issue was in production.*



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# in Chemistry



COURTESY UNIVERSITY OF PUERTO RICO-AGUADILLA



BOB OWENS/SAN ANTONIO EXPRESS-NEWS/ZUMA

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COURTESY OF TEMPLE UNIVERSITY

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COURTESY OF VALERIE KUCK

## The Search for Satisfaction — The Key to Career Success

BY VALERIE J. KUCK

**W**hat kind of work do you enjoy doing? What are you particularly good at? I have asked these questions many times while mentoring undergraduate science majors and presenting workshops on résumé preparation and interviewing.

Quite often, blank stares or “I don’t know” is the reply. Yet these were neither trick questions nor an attempt on my part to make students feel uneasy. Rather, I was trying to gain insight into the kind of work that they would find challenging and the types of projects that they would find interesting and enjoyable.

As a student, you are expanding your knowledge of chemistry. You should also be learning a great deal about *yourself*.

What activities make you swell with pride? It is nice if other people compliment you on your accomplishments, but the emphasis should be on your own assessment of your efforts. You know when you have made a difference and are proud of what you have done! Those special moments of accomplishment are very important, as they reveal your personal motivators — your internal value system.

As you go along in life, keep a list of those meaningful events. Then try to align your career with your personal motivators. The stronger the alignment, the more likely that you will do well and find your job enjoyable. How can you

be anything but a success when you are doing things that you find truly satisfying?

This strategy is one that you should use throughout your career, as your responsibilities change and your skills develop. Let me suggest three ways that you can begin discovering what makes you tick. These approaches will also help you prepare for interviews where your strengths and interests are explored.

**Reflect on your recent activities.** For instance, when your team was faced with analyzing several spectra, were you the one who knew how to correctly interpret the data? When tutoring, were you able to guide a student in understanding a difficult concept? Did you organize a group of Student Affiliates in presenting a National Chemistry Week event that delighted students at a local middle school? Each of these activities, and others, requires special talents that tell something about your abilities.

**Expand your repertoire.** Currently, much of your exposure to laboratory work is confined to class work. During those hours in the lab, you will be instructed in using an array of techniques. Some will seem second nature to you, while others will be a challenge.

By doing an internship at a local company or working in the laboratory of a professor, you will have a greater opportunity to identify which techniques you do very well and enjoy doing. Even if you do not land a paying position for this early stage of your exploration, it will still be a rich experience as you learn more about your abilities. I urge you to talk with your professors about research experiences that are open to undergraduates.

**Explore career options.** Whenever you meet people with jobs that appear interesting, take the opportunity to talk to them. At the start of these conversations, be sure to inquire if this is an appropriate time for them to have an extended discussion. If it is not, find a time that will work better.

Explore with them aspects of their work that will help you make your own career choice: what they enjoy about their job, the most rewarding aspects of their position, the future for people in their line of work, the education requirements, and what (if anything) they wish they had done differently in their career.

People are generally willing to give you advice. I am sure that this information will be extremely helpful to you in choosing a career path.

The key to choosing a satisfying career in which you will be successful is to be honest with yourself as you weigh the advice of others. Pay attention to the things that you are good at and enjoy.

During your job interviews, I hope you will be able to enthusiastically talk about your skills and work that you found particularly interesting. Being able to answer those questions convincingly might be the reason you get the job offer. It will also help ensure that the job is the right step for you. **ic**

A handwritten signature in black ink that reads "Valerie J. Kuck". The signature is written in a cursive, flowing style.

VALERIE J. KUCK is a member of the ACS Board of Directors and an adjunct professor in the chemistry department at the College of St. Elizabeth in Morristown, NJ.

Share what's going on in your chapter! If your chapter would like to be featured in the Chapter Spotlight, please contact [saprogram@acs.org](mailto:saprogram@acs.org) or 800-227-5558, ext. 4480.

## University of Pittsburgh at Titusville

**Chapter president:** David Grosco  
**Institutional environment/composition:** Small, public, rural, minority-serving, 2-year institution  
**Number of chapter members:** 20–40  
**Number of ACS Student Affiliates:** 6–12

### Q What is your most successful recruiting event/method?

**A** The University's New Student Orientation Fair is held at the beginning of each school year. At the fair, we display our chapter poster highlighting our major chapter events (both on- and off-campus), distribute chapter brochures, and set up several chemistry hands-on stations to show students how chemistry positively impacts our everyday lives, encouraging them to be part of our dynamic organization.

### Q What are your most popular chapter activities?

**A** NCW is a very busy week for our chapter. We help prepare posters, banners, and outreach hands-on activities that reflect the NCW yearly theme. We bring the program to Erie Millcreek Mall, the largest shopping center in the area, to celebrate chemistry with students, faculty from other local universities, and the public. We also invite hundreds of area students to visit our chemistry labs, hold a periodic table bake sale, and put on a chemistry display on campus.

### Q What unique activities does your chapter sponsor?

**A** Family Chemistry Day at Benson Library and Chemistry Show are some unique activities we sponsor. This year we brought about

20 hands-on activities to the local library on a Saturday and worked with more than 50 students and their parents.

### Q How often does your chapter meet?

**A** We meet once a week for 30–45 minutes.

### Q How do you share information with chapter members?

**A** We present chapter activity plans at our weekly meetings. Our faculty advisor, along with our president, sends e-mails to all members one or two times a week. All chemistry club events and happenings are posted in the campus newsletters.

### Faculty Advisor Ping Furlan, 8 years

### Q Why/how did you become a faculty advisor?

**A** I became the chapter's advisor with the objective of enriching students' education by involving them in non-traditional classroom programs to gain exposure to leadership, teamwork, communication, organization, information searching, and problem-solving skills — all within a chemistry context.

### Q What challenges have you faced in your position?

**A** Time seems to be the biggest challenge. Being an advisor of a chapter at a two-year campus, you work with new students every year and help them become leaders of the organization. Overseeing a wide range of programs offered to attract different students and making use of their talents can take up a tremendous amount of time.

### Q What has been the most rewarding aspect of your service as a faculty advisor?

**A** I've enjoyed hearing college students express a sense of accomplishment after helping other students learn chemistry, seeing their excitement after successfully solving problems, and watching them develop team spirit and commitment. It has also been gratifying to read hundreds of heart-felt thank-you notes each year from local middle school and college



COURTESY OF UNIVERSITY OF PITTSBURGH AT TITUSVILLE

students, their parents, as well as teachers and principals.

### Q What advice can you offer those new to the advisor position?

**A** Becoming familiar with the ACS Student Affiliates program and how Student Affiliates chapters are evaluated will help you design a comprehensive and effective program. Be willing to work with members closely on carrying out each project, be patient with them, and give them the freedom they need to explore their own ideas. The time and effort you put in will enhance students' education and make a difference in their lives.

## QUESTIONS ABOUT THE STUDENT AFFILIATES PROGRAM?

Call 1-800-227-5558 and ask to be connected to:

- **Robin Y. Lindsey (x4480)** for general information and chapter activation
- **Nancy Bakowski (x6166)** for information on chapter grants, retention, and recruitment
- **Lori Betsock (x6188)** for information on internships, study abroad, careers, and graduate school



**University of Puerto Rico-Aguadilla**

Aguadilla, PR

**Chapter president:** Fransuas Rivera  
**Institution environment/composition:** Small, public, urban, minority-serving, 4-year institution

**Number of chapter members:** 89  
**Number of ACS Student Affiliates:** 89



COURTESY OF UNIVERSITY OF PUERTO RICO-AGUADILLA

**Q What are some of the interesting ways your chapter recruits its members?**

**A** We hang "welcome back" banners in our Natural Science Department lobby to greet students as part of a recruiting campaign held during the first week of classes. Our chapter also visits chemistry classes.

**Q How do you retain members from year to year?**

**A** A great method for retaining members is to encourage them to plan and participate in a wide variety of activities — never forgetting to thank them for their volunteer work. Through these activities, they acquire a sense of responsibility and motivation.

**Q What is your most popular chapter activity?**

**A** The most popular chapter activity is our Acts of Initiation/Speaker presentation. This is a very important and meaningful activity for our members as future interdisciplinary professionals. Here they commit to their chapter and enjoy the night together with family, friends, and professors.

**Q What is the most unique activity your chapter sponsors?**

**A** Each year, we visit "Casa Juan Bosco," a place especially created for less fortunate children who live in challenging environments. The children can visit the center after school to take dance and art classes, receive tutoring, and participate in physical education. We give toys to the kids and encourage them to keep up their great work. It is one of our most gratifying activities.

**Q Does your chapter attend non-ACS meetings? How many times/year?**

**A** We attend at least four meetings a year: Symposium for Chemical Engineering - Senior Technical Meeting, ACS Puerto Rico Chapter; Investigation Symposium at UPR-Aguadilla; Human Genetics Conference; and Puerto Rico Interdisciplinary Scientific Meeting - ACS Junior Technical Meeting.

**Q How often does your chapter meet?**

**A** Our chapter meets monthly and our officers meet every two weeks.

**Q How do you share information with chapter members?**

**A** We communicate with our members through monthly assemblies, flyers, brochures, bulletin board postings, phone calls, e-mails, and text messages. Even the chemistry faculty lends a hand, reminding their students about the chapter's activities. The attendance and feedback regarding our activities is great.

**Q What is your most successful fundraiser to date?**

**A** Our most successful fundraisers are sales of chocolate and baked goods, where we give each member five cakes to sell in one week. We also rent lab coats and goggles to students who have forgotten their safety equipment when going to their laboratories.

**Q How much money does your chapter normally gross as a result of fundraising?**

**A** Our chapter raises approximately \$3,000 a year through our fundraising events.

**Faculty Advisor**  
**Carlos Ruiz-Martínez,**  
 5 years

**Q Why/how did you become a faculty advisor?**

**A** Ingrid Montes, a councilor for the ACS-Puerto Rico section, knew me when I was president of the SAACS chapter at University of Puerto Rico-Mayagüez. Knowing my passion for chemistry and my interest and skills, she suggested that UPR-Aguadilla, where I am now a professor, would be an excellent location for a new SAACS chapter.

**Q What is your role as a faculty advisor?**

**A** To be a professor who expresses a passion for science, a mentor in times of crucial decision-making, a friend to students who need special attention and, most importantly, be a chemist and researcher — and thus a role model for students.

**Q What has been the most rewarding aspect of your service as a faculty advisor?**

**A** The service itself is the most rewarding aspect, because it inspires you to do your best. The final reward is witnessing the metamorphosis from a high school student to a unique science professional; this is a special privilege.

**Q What advice can you offer those new to the advisor position?**

**A** Be real... be an authentic human being, expressing your emotions and goals. Come on, try it!



Story Ideas

Are you interested in writing an article for an upcoming issue of *in Chemistry*?



E-mail your ideas to: [saprogram@acs.org](mailto:saprogram@acs.org). Include a headline, a summary of the article and plans for photos and illustrations.





2006–2007

# Award Winning CHAPTERS

## ***Student Affiliates and ACS: A Winning Combination!***

Show me an ACS Student Affiliate and I'll show you a winner!

In addition to congratulating this year's exemplary SAACS Chapter Award winners, I must take a minute to say that, the way I look at it, ***all SAACS are winners!*** Meeting and talking with you, our Student Affiliates, has been one of the true highlights of my year as ACS President. I have been continually impressed with your creativity, endurance and enthusiasm. In short, you have renewed my faith in the future of science in America.

I recently heard a quote attributed to Henry Ford: ***"If you think you can do a thing or think you can't do a thing, you're right."*** How wonderful to work with so many of you and your SAACS Chapter advisors, local section members, and ACS staff, who think up novel events and activities and quite literally, breathe life into them – from "Going Green" to actively advocating for science and technology, from planning SAACS chapter meetings to organizing awesome poster sessions, from building new collaborations (e.g., with "Chemists in the Library") to celebrating the 20<sup>th</sup> anniversary of National Chemistry Week.

Bravo and thank you! Thank you for all you have done. Your dedication, commitment and camaraderie have made this year remarkable! ACS simply would not be the same without you.

Looking ahead, I encourage you to continue your winning ways – developing and exercising your leadership skills, building a strong network of mentors, colleagues and friends, and broadly taking advantage of all the development opportunities that ACS has to offer.

Here's wishing you all the very best for a safe, happy and healthy holiday season.

Looking forward to seeing you in 2008!

Catherine T. "Katie" Hunt  
ACS President

2006—2007  
**ACS Student Affiliates**  
**CHAPTER AWARDS**



Each year, the ACS Committee on Education selects Student Affiliates chapters to receive special recognition for programs and activities described in their chapter reports. The awardees will be honored at the 235th ACS National Meeting in New Orleans, LA on Sunday, April 6, 2008. Listed below are the winning institutions, **chapter president(s)**, and faculty advisors. Congratulations to all!

### OUTSTANDING

*Barry University, Miami Shores, FL*  
**Ileana Pazos**  
George Fisher

*Central Michigan University, Mt. Pleasant*  
**Rachel A. Young**  
**Kasan A. Sheley**  
Sharyl A. Majorski  
Dale J. LeCaptain

*Eastern Oregon University, La Grande*  
**Matthew Bechaver**  
**Julia Deutsch**  
Anna G. Cavinato

*Ferris State University, Big Rapids, MI*  
**Emmanuela Ohaeri**  
Pasquale DiRaddo

*Inter American University of Puerto Rico-San Germán, San Juan*  
**Rebecca Reyes Salamán**  
Jose R. Pérez  
Angela M. González

*Lander University, Greenwood, SC*  
**Christopher L. Vaughn**  
**Akeem A. Cruickshank**  
Ralph C. Layland  
Peter A. Vahjen

*Louisiana State University & A&M College, Baton Rouge*  
**Elizabeth Natalie Lissy**  
Paul S. Russo  
Carol M. Taylor

*Northeast Texas Community College, Mt. Pleasant*  
**Elida Bonilla**  
Lawrence Brough  
James K. Archer

*Northwestern State University, Natchitoches, LA*  
**Jordan Brown**  
**Ifrah Jamil**  
Gillian E. A. Rudd  
Walter A. Flomer

*Northwestern University, Evanston, IL*  
**Sharan Ram Srinivasan**  
SonBinh T. Nguyen

*Pontifical Catholic University of Puerto Rico, Ponce*  
**Christymarie Rivera**  
**Ailen Serrano**  
Carmen Collazo  
Jose Escabi

*Saint Louis University, St. Louis, MO*  
**Anne Blackwell**  
**Michelle Watt**  
Brent Znosko

*Santa Clara University, Santa Clara, CA*  
**Terry O. Tran**  
Linda S. Brunauer

*South Texas College, McAllen*  
**Jorge A. Trevino**  
**Jonathan Hernandez**  
Ludivina Avila

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Doris Lewis  
Angela Buffone

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**Brent Jones**  
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Randy F. Johnston

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**Andy Ward**  
Matthew J. Mio

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**Jennifer Lapierre**  
Darrell Watson  
Ruth Ann Murphy

*University of Pittsburgh at Titusville, PA*  
**David Groscost**  
**Brandon Humberger**  
Ping Y. Furlan  
Diana Browning  
Cindy Andes



University of Pittsburgh, PA

**Maksim Osipov**  
**Nora Elizabeth Jameson**  
George C. Bandik

University of Puerto Rico-Arecibo

**Ada Yilmel González-Torres**  
**Sergio Joel Cardona-González**  
Ivonne Fernandez-Martinez  
Emiliano Garcia-Maldonado

University of Puerto Rico-Rio Piedras,  
San Juan

**Anabel Pizarro**  
**Eduardo Caro**  
Ingrid Montes

University of Tennessee at Martin

**Robert H. Mitchell**  
S. K. Airee

University of Texas at Dallas, Irving

**Danielle Arden Victor**  
John W. Sibert

Waynesburg College, PA

**Marisa Scozio**  
Robert B. LaCount

Western Kentucky University, Bowling Green

**Amanda Moore**  
Rachel Baumgardner  
Rui Zhang

## COMMENDABLE

Angelo State University, San Angelo, TX

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Donna K. Howell  
Kevin A. Boudreaux

Augustana College, Rock Island, IL

**Amy Lorenz**  
Mary Ellen Biggin  
Sally Burgmeier

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Carson

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**Adam Kraft**  
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**Samuel Rund**  
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Illinois Valley Community College, Oglesby

**Erin Wiedmann**  
Matthew Johll  
Jeffrey Carver

Morehead State University, KY

**Sable Janney**  
Mark Blankenbuehler

Newberry College, Newberry, SC

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Sidney Parrish

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Highland Heights

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Saint Francis University, Loretto, PA

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Edward P. Zovinka

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**Katherine Centrella**  
Richard Gurney  
Jennifer Roeklein Canfield

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Susan D. Wiediger

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New York, NY*

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**Miriann Ausabel**  
Chaya Rapp

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Cookeville*

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Daniel Joseph Swartling

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Patricia Lynn Harman  
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Mary K. Carroll  
Michael Hagerman

*University of Central Oklahoma, Edmond*  
**Paul Jordan**  
Dallas G. New

*University of Houston, TX*  
**Saba Javed**  
**Vy Phan**  
Simon Bott

*University of Minnesota-Morris*  
**Megan Mekoli**  
**Ben Buer**  
Jennifer Goodnough  
James Togeas

*University of Northern Colorado, Greeley*  
**Ryan Miwa**  
Kimberly A. O. Pacheco

*University of Puerto Rico–Aguadilla*  
**Fransuas Rivera**  
Yanira Lopez  
Brenda Ramos

*University of Puerto Rico–Cayey*  
**Viviana Orozco**  
**Adamari Rivera**  
Elba Reyes

*University of Puerto Rico–Humacao*  
**Angel Ayala**  
**Eduardo Rosario**  
Juan Suarez

*University of St. Thomas, Houston, TX*  
**Adeola Olowu**  
Thomas B. Malloy, Jr.

*University of St. Thomas, St. Paul, MN*  
**Anne Bainbridge**  
**Josh Speros**  
Anthony J. Borgerding

*University of Tampa, FL*  
**Nicole Craig**  
John A. Struss

*The University of Texas at San Antonio*  
**Cristal Lindell**  
**Asiya Hammond**  
Harry Jarrett  
George Negrete

*The University of Texas at Tyler*  
**Abigail Green**  
Neil Gray  
Tanya Shtoyko

*University of Wisconsin-Eau Claire*  
**Andrew Wagner**  
**Deidra Gerlach**  
Kurt N. Wiegel  
James E. Boulter

*University of Wisconsin-Platteville*  
**Emily McLean**  
Ann Turner  
Timothy Zauche

*Virginia Polytechnic Institute and State  
University, Blacksburg*  
**Lauren Elizabeth Thompson**  
**Kelley Ann McQuiddy**  
Claudia Patricia Brodtkin

*Washington & Jefferson College,  
Washington, PA*  
**Cody Lee Hoop**  
**Amber Bisch**  
Mark F. Harris  
Nobunaka Matsuno

*Westminster College of Salt Lake City, UT*  
**Patricia Wayment**  
Paul Hooker

*West Virginia University Institute of  
Technology, Montgomery*  
**Andrea Ard**  
Jay M. Wiedemann  
Richard Schoening

*Xavier University of Louisiana, New Orleans*  
**Tony Davis**  
Michael R. Adams

## HONORABLE MENTION

*Albany State University, GA*  
**O'Neil Smith**  
Louise Wrensford

*Alma College, Alma, MI*  
**Joey Burgam**  
Melissa Strait

*Alvernia College, Reading, PA*  
**Andrew J. Shearer**  
**Jillian Millbrandt**  
Rosemarie Chinni  
Kevin Paul Burns

*Anne Arundel Community College,  
Arnold, MD*  
**Lisa George**  
**Christopher Spence**  
Lynn Tracey  
June Bronfrenbrenner  
John Jendrek

*Aquinas College, Grand Rapids, MI*  
**Lianne Michelle Griffiths**  
**Kathleen Pollock**  
Li-Heng Chen  
Elizabeth M. Jensen

*Augustana College, Sioux Falls, SD*  
**Michael Amolins**  
**Dan Chan**  
**Jessica Paumen**  
Jetty Lynn Duffy-Matzner

*Ball State University, Muncie, IN*

**Nathan Evans**

**Lindsey Huber**

Jason William Ribblett

*Bradley University, Peoria, IL*

**Jessica Gereg**

Dean Campbell

*Butler University, Indianapolis, IN*

**Jennifer Osborne**

**Amy Stafford**

John Esteb

Michael Samide

*California State Polytechnic University-  
Pomona*

**Devita Wooten**

**Airek Mathews**

Charles N. Millner, Jr.

*Centenary College of Louisiana, Shreveport*

**Emily A. Davis**

**Brett S. Martin**

Joshua D. Lawrence

*Chapman University, Orange, CA*

**Genevieve Van de Bittner**

**Christine A. Hughey**

Daniel Wellman

*Christian Brothers University, Memphis, TN*

**Phuc Nguyen**

David Dawson

*Clarion University, Clarion, PA*

**Kara Waychoff**

**Ben Park**

Jonathan Touster

*Coe College, Cedar Rapids, IA*

**Amanda Brogan Stegeman**

**Matthew David Sonntag**

Martin St. Clair

Maria Dean

*College of Saint Elizabeth, Morristown, NJ*

**Viktoriya Davaeva**

**Anna Konel**

Sister Marian Jose Smith

*Colorado State University, Fort Collins*

**Dan James Targoff**

**Dan Steven Wood**

Nancy E. Levinger

Amy L. Prieto

*Concordia University, St. Paul, MN*

**Nathan Burrows**

**Walt Kelsey**

Amy Gort

*Cornell College, Mount Vernon, IA*

**Teresa Beary**

Craig M. Teague

*Delta State University, Cleveland, MS*

**Hope Christian**

**Shimeka Banks**

Alline "Rie" Peeler Somlai

Charles Smithhart

*Drury University, Springfield, MO*

**Sean LeNoue**

**Sara Allcorn**

Scott Petrich

*Duquesne University, Pittsburgh, PA*

**Lauren Matosziuk**

**Medhavi Bole**

Jeff Evanseck

Paul Johnson

*East Stroudsburg University, PA*

**Cayce Neyhard**

**Maria Capooci**

John C. Freeman

*Florida International University, Miami*

**Stefano Patrick Boulos**

**Nicole Salazar**

Konstantine Kavallieratos

Piero Gardinalli

*Hope College, Holland, MI*

**Lauren Kucera**

Jason G. Gillmore

*Idaho State University, Pocatello*

**Ken Brown**

Joshua Pak

*Illinois Wesleyan University, Bloomington*

**Aaron Bailey**

**Kyle Schnitzenbaumer**

Rebecca Roesner

Ram Mohan

*Indiana State University, Terre Haute*

**Joel Hallam**

**Aaron Pickrell**

Laurence D. Rosenhein

*Indiana University of Pennsylvania*

**Elizabeth Paladin**

**Katie Brunecz**

Nathan McElroy

*Inter American University of Puerto Rico*

*Metropolitan Campus, San Juan*

**Rebecca Reyes**

**Grace Lozano**

Agnes Dubey

Izander Rosado

*Juniata College, Huntingdon, PA*

**Katrina Kratz**

Tom L. Fisher

*Lebanon Valley College, Annville, PA*

**Timothy S. Garrett**

Marc A. Harris

*Linfield College, McMinnville, OR*

**Cathy Pham**

**Jeneva Foster**

Brian Gilbert

*Lock Haven University of Pennsylvania*

**Justin Willhelm**

**David Hunter**

Brent D. May

Kevin Range

*Longwood University, Farmville, VA*

**Chris Shuford**

Melissa C. Rhoten

*Manchester College, North Manchester, IN*

**Amanda J. Patch**

Susan Jean Klein

*Manhattan College/College of Mount Saint  
Vincent, Riverdale, NY*

**Michael Magner**

Pamela Kerrigan

Brother Andrew Winka

*Mercer University, Macon, Georgia*

**William Knight**

Brian Rood

Bridget Trogden

*Middle Tennessee State University,  
Murfreesboro*

**Ryan Parsons**

**Taylor Arnold Barnes**

Gary D. White

Andrienne C. Friedli



Millersville University of Pennsylvania

**Rebecca Lynn Butt**

Lyman H. Rickard  
Laura J. Anna

Millikin University, Decatur, IL

**Andy Dunn**

George Bennett

Minnesota State University Moorhead

**Mike Caspers**

**Benjamin Johnson**

Asoka Marasinghe  
Joe Provost

Murray State University, Murray, KY

**Evan Roberts**

**Amanda Howard**

Kevin Revell  
Edith Banner

Nazareth College of Rochester

**Kayleish MacMaster**

**Collin Schrader**

Lynn M. O'Brien  
William Lammela

Niagara University, NY

**Kristen Incardona**

Jeanette Drapo  
Scott Nash

North Dakota State University, Fargo

**Adam Wohl**

Seth C. Rasmussen

Ohio Northern University, Ada

**Brittany Catron**

Tevye Celius

Pacific Lutheran University, Tacoma, WA

**Christine Gordon**

Craig Fryhle

Point Loma Nazarene University,

San Diego, CA

**Lisa Sator**

Sara Yu Choung

Roanoke College, Salem, WV

**Samantha Lynn Strickland**

Benjamin P. Huddle

Rutgers, The State University of New Jersey

at New Brunswick, Piscataway

**Kevin Theisen**

John Taylor

Sacred Heart University, Fairfield, CT

**Kimberly Fallo**

Linda Farber

Saginaw Valley State University, University  
Center, MI

**Elizabeth A. Lyons**

Andrew M. Chubb

Saint Mary's College of Maryland, St. Mary's  
City

**Christina M. Falk**

**Rachel Flurie**

Andrew S. Koch  
Allan K. Hovland

Saint Mary's College, Notre Dame, IN

**Christine Anne Herdman**

**Colleen McGowan**

Isabel Sanchez

Saint Vincent College, Latrobe, PA

**David Deglau**

**Laura Echard**

Jason K. Vohs

San Jose State University, CA

**Rachel Fulton**

**Tu Khan H. Van**

Gilles Muller  
John Logan

Seattle University, Seattle, WA

**Elizabeth Tyson**

**Abigail Griebenow**

Peter J. Alaimo  
Ryan McLaughlin

Seton Hill University, Greensburg, PA

**Kathleen Donaldson**

**April Kiral**

Susan M. Yochum

Shippensburg University of Pennsylvania

**Matt Smith**

Daniel Predecki  
Thomas Frielle, Jr.

Southeastern Oklahoma State University,  
Durant

**Josiah Schomer**

Gordon Eggleton  
Nancy L. Paiva

Southern Connecticut State University,  
New Haven

**Jennifer Gleason**

**Nancy Copleland**

Greg Kowalczyk  
Olivier Nicaise

Southern Methodist University, Dallas, TX

**Afsha Rais**

**Emily Stuart**

Brent S. Sumerlin  
Ling Hua

Southwest Minnesota State University,  
Marshall

**Kyle Henning**

**Joshua Ochocki**

Jay Brown

St. Cloud State University, MN

**Sarah Winkelman**

**Allissaa Dillman**

Mark Mechelke

St. Lawrence University, Canton, NY

**Stephanie Walter**

Matthew C. Skeels

Temple University, Philadelphia, PA

**Allison K. Pymer**

Eric Borguet

Transylvania University, Lexington, KY

**Joshua Elston**

Eva Csuhai  
Gerald Seebach

University of Alabama at Birmingham

**Sonja C Brooks**

**James E. Kim**

Jacqueline A. Nikles  
Gary M. Gray

University of California-San Diego, La Jolla

**Michael McKeown**

Barbara Sawrey

University of Central Missouri, Warrensburg

**Eric Hector Cantu**

Renee Cole

University of Colorado at Colorado Springs

**Amanda Loh**

**Laura Peterson**

David Weiss

University of Colorado at Denver  
and Health Sciences Center

**Veronia Guirguis**  
**Neha Sharma**  
Michael Travers

University of Georgia, Athens

**Keegan Soncha**  
**Anna Hudson**  
James Anderson

The University of Illinois at Urbana-  
Champaign

**Timothy Mui**  
**Lauren Denofrio**  
Jesse Miller

University of Kentucky, Lexington

**Christine Minton**  
Stephen M. Testa

University of Mary Washington,  
Fredericksburg, VA

**Jennifer E. Yox**  
**Rebecca E. Funkhouser**  
Leanna C. Giancarlo

University of Michigan-Ann Arbor

**Rebecca Anne Siegel**  
**Jason Wong**  
Paul Raymond Jones

University of Michigan-Flint

**Brenden Yonke**  
**Chris Fage**  
Jessica Tischler

University of Missouri-Rolla

**Angela Rudolph**  
**Kimberly Earl**  
Thomas Schuman  
Terry Bone

University of Missouri-St. Louis

**Rokas Juodeska**  
Michael Nichols

University of Nebraska at Kearney

**Danielle Marie Policarpio**  
Annette C. Moser

University of North Carolina at Pembroke

**Kristi Sinclair**  
Jessica Ortiz  
Meredith Storm

University of Puerto Rico–Mayagüez  
Campus

**Melany Rivera**  
Sara E. Delgado  
Ricardo Camacho

University of San Francisco, CA

**Rick Pan**  
Tami Spector

University of Southern Indiana, Evansville

**Scott Forbey**  
Evan Millam  
Shelly Blunt

The University of Texas at Austin

**Lisa Fredin**  
Keith J. Stevenson

University of Texas at El Paso

**Giannina Heredia**  
Walter Dickson  
James E. Becvar  
Luis Martinez

University of Toledo, OH

**Jessica A. Cruz**  
**Laura V. Callow**  
Edith Klingberg  
Andy Jorgensen

University of West Florida, Pensacola

**Tyler Andrew Butler**  
Michael T. Huggins  
Pamela Pippin Vaughan

University of Wisconsin-La Crosse

**Dani Schultz**  
Janet E. Kirsch

University of Wisconsin-Whitewater

**Emily Hall**  
Andy Wisnowski  
Hephzibah J. Kumpaty

Utica College, Utica, NY

**Emily Corcoran**  
**Amanda J. Murphy**  
Michelle Ann Boucher

Valdosta State University, GA

**Pavi Elle Lockhart**  
Donna Gosnell  
Gary L. Wood

Washburn University, Topeka, KS

**Sean Armstrong**  
Shaun Schmidt

Western Connecticut State University,  
Danbury

**Brittany Serke**  
**Justin Phillips**  
Paula M. Secondo

Western Washington University, Bellingham

**Jennifer Johnson**  
**Rebecca Swanson**  
Christopher Daley  
Gary Lampman

Wilkes University, Wilkes-Barre, PA

**Kenneth Green**  
**Aniello Tambasco**  
Donald Mencer  
Henry Castejon

Xavier University, Cincinnati, Ohio

**Daniel Brown**  
Barbara M. Hopkins

2006–2007  
**Green Chemistry**  
**Student Affiliates**  
Chapters

Augustana College, South Dakota  
Austin Peay State University  
Barry University  
Central Michigan University  
The Evergreen State College  
Ferris State University  
Hendrix College  
Middle Tennessee State University  
Millikin University  
Northwestern University  
South Texas College  
Suffolk University  
Texarkana College  
Truman State University  
Union University  
University of Arizona  
University of Detroit Mercy  
University of Michigan-Ann Arbor  
University of Minnesota-Morris Campus  
University of Pittsburgh  
University of Pittsburgh at Titusville  
University of Puerto Rico–Arecibo  
University of Puerto Rico–Río Piedras  
University of Tennessee at Martin  
University of Toledo

2007–2008  
**Innovative Activities**  
GRANTS



For the 2007–2008 academic year, the ACS Society Committee on Education has selected 9 out of 11 IAG proposals to receive funding. Listed below are the schools, **student project director(s)**, the faculty advisor(s), **project titles**, and the grant amounts. We congratulate these schools and their chapters.

*Bradley University, Peoria, IL*  
**Margaret Hammar**, Dean Campbell  
*Bradley University Chemistry Outreach Shows* \$400

*University of Arizona, Tucson*  
**Danielle Correia, Trahern Jones,**  
John Pollard  
*Beakers for Teachers* \$250

*University of Texas at Tyler*  
**Adam J. Lankford**, Jason Smee  
*Organic Chemistry Reaction Notebook* \$100

*Newberry College, SC*  
**Jessica Lee**, Sid Parrish, Christina  
McCartha  
*Forensic Chemistry Day* \$400

*University of Detroit Mercy, MI*  
**Linsley Cullen**, Matthew Mio  
*Detroit Local Section SAACS Chemistry Field Day* \$325

*Waynesburg College, PA*  
**Megan Orndoff**, Robert LaCount  
*Interdisciplinary Science Outreach for Local Homeschooled Students* \$125

*Stern College for Women–Yeshiva University, New York, NY*  
**Grace Charles**, Chaya Rapp  
*The Chemistry of Nutrition* \$400

*University of Tennessee at Martin*  
**Christy R. Lowe, Robert H. Mitchell,**  
S.K. Airee  
*Green Chemistry 101 for Civic Clubs and Senior Citizens* \$300

*Xavier University of Louisiana, New Orleans*  
**Trevonne Walford**, Mike Adams  
*Success: A Xavier University & Dillard University Mentoring Collaboration* \$150

2007–2008  
**Community Interaction–Student Affiliates**  
GRANTS



For the 2007–2008 academic year, the ACS Society Committee on Education selected 8 of 8 project proposals to provide pre-college minority students with enriched hands-on science activities. Listed below are the schools, the **student project director(s)**, the faculty advisor(s), project titles, and grant amounts.

*Barry University, Miami Shores, FL*  
**Adauri Soprani**, George Fisher  
*Elementary School Outreach* \$400

*Northwestern University, Evanston, IL*  
**Rene Bolteau**, SonBinh T. Nguyen  
*ScOPE Community Outreach Project* \$200

*Union University, Jackson, TN*  
**Sarah A. Conway, Tsega Temtem,**  
Charles M. Baldwin  
*Catch on Fire for Chemistry* \$400

*Georgia Southern University, Statesboro*  
**James Davis**, Michele Davis McGibony  
*Fun with Science at Local Elementary After-School Programs* \$400

*Rutgers University at New Brunswick, NJ*  
**Andrew Harrison, John L. Taylor**  
*Rutgers Chemistry Society's Chemistry Connection Project* \$148

*University of Texas at San Antonio*  
**Krishan Patel**, Harry W. Jarrett  
*Kids in Chemistry* \$100

*Nazareth College, Rochester, NY*  
**Kayleigh MacMaster**, Lynn O'Brien  
*The Mini-Metric Olympics: Enhancing Urban Elementary Students' Knowledge of Measurement* \$330

*South Texas College, McAllen*  
**Diego Treviño, Perla Rodriguez,**  
**Arthur Masso, Ana Gonzales,**  
Ludivina Avila  
*Traveling Chemists Outreach Program* \$400



BY ERIC R. STEWART

**T**HE NEXT TIME YOU SIT DOWN TO A STEAMING plate of instant mashed potatoes, think about William Davis. A native son of Georgia, Davis' 50-year career has taken him across the country to research in a variety of fields, and ultimately to his current position as chair of the Natural Science Department and professor of chemistry at St. Philip's College, San Antonio, Texas.

As a young man, Davis' career opportunities were limited — as they were for all African Americans. He had been inspired by the work of two men: his father, a self-taught pharmacist, and George Washington Carver. But when he took his orals for his M.S. in organic chemistry at Tuskegee Institute in 1958, he was advised that, if he wanted a scholarship to support his pursuit of a Ph.D., it would have to be a Ph.D. in education with a concentration in chemistry. This meant that if he wanted to earn a doctorate, he would have to go into teaching — regardless of his desire to focus on doing research.



of African Americans. Even so, Davis recalls, he encountered no problems from his new colleagues and neighbors. He quickly became involved in research projects that satisfied his scientific curiosity and his need to be of service.

## Studying spuds and saw blades

"At the University of Idaho," Davis recalls, "I was studying the rate at which various potatoes sloughed, or broke down. There were two extremes of needs — soup manufacturers wanted potatoes that sloughed at a very slow rate after they had been cooked and canned. Meanwhile, makers of instant mashed potatoes wanted potatoes that sloughed more rapidly. It was fun, and we sometimes worked all night on the problem." However, his research eventually seemed to reach a dead end, and Davis felt frustrated.

At the same time, another challenge caught Davis's attention:

a research activity at Washington State University in the nearby town of Pullman. The challenge was to investigate the buildup of a mysterious substance that formed on the saw blades at a lumber mill when cutting larch timber. For the mill operators, the substance was slowing down production and cutting into profits.

# Love of Inquiry, COMMITMENT TO SERVICE

## *The Remarkable Career Path of William Davis*

### Clearing old obstacles

In fact, for years, African Americans pursuing research careers had been given exactly the same advice. Percy Julian, another acclaimed researcher, even went to the length of attending a university overseas so that he could earn a Ph.D. leading to a career in research. (See "Looking to History for Inspiration: The Achievements of Percy L. Julian" in the April/May 2007 issue of *in Chemistry*.)

Despite advice to the contrary, Davis had his heart set on a career in industrial research. Davis considered numerous Ph.D.-granting institutions before finally finding one offering a scholarship that would allow him to focus his work toward a career in research. It would be a significant change for him, however; the institution was on the other side of the country: the University of Idaho in Moscow.

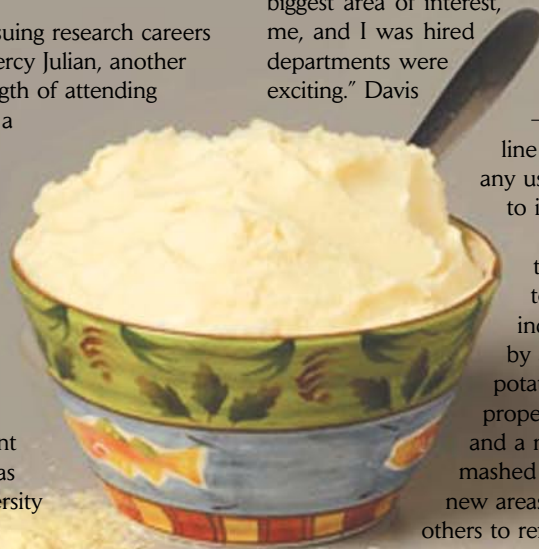
Davis applied and was accepted. He moved to an unfamiliar world in which he was one of a handful

"When the opportunity came up, even though it wasn't my biggest area of interest, me, and I was hired departments were exciting." Davis

it was a good summer activity for to work on the project. Other

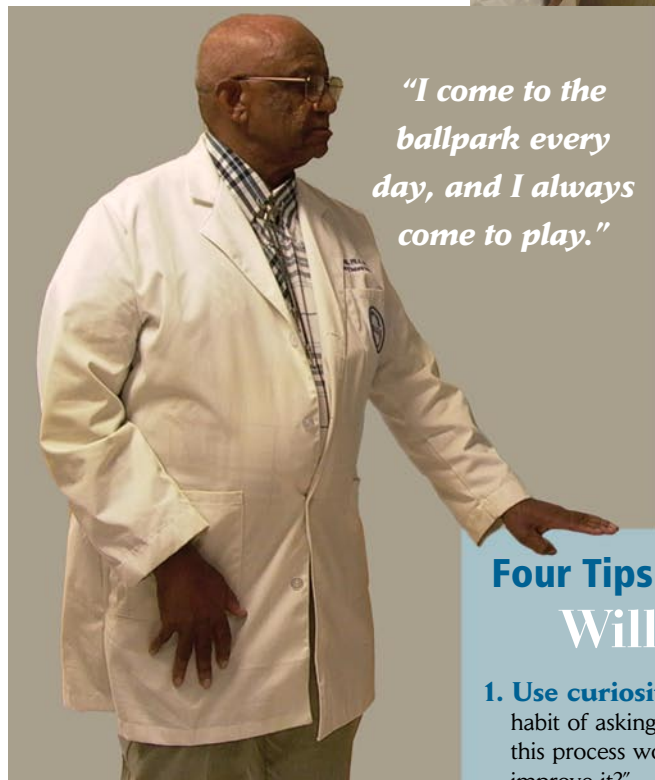
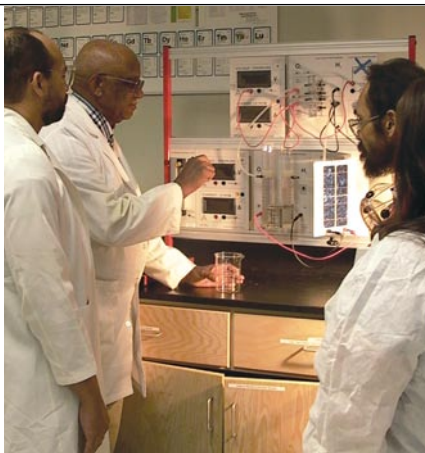
involved as well, and it was very succeeded at isolating a substance — arabinogalactans — as a dry, crystalline powder. Still, there didn't seem to be any useful application for it; adding water to it merely created a sticky paste.

Then, in a combination of frustration and inspiration, Davis decided to converge his two separate lines of inquiry. The surprising result was that by adding the arabinogalactans to the potato mixture, Davis was able to develop properties that allowed for better sloughing and a more appealing consistency to instant mashed potatoes. Davis soon moved on to new areas of inquiry, however, leaving it to others to refine the mixture of arabinogalactans and potato that produced the instant potato mixture we know today.



## Exploring new fields

After completing his Ph.D., Davis followed his instincts to create his own unique career path, seeking to solve new problems in a variety of fields, including jet propulsion, nuclear power, pharmaceuticals, food, and manufacturing. His first opportunity was a full-time job with Washington State



*"I come to the ballpark every day, and I always come to play."*

## Making his own path

Davis' curriculum vitae includes a long series of assignments, positions, grants, and papers throughout his mid-career. Asked about the broad diversity of areas in which he has researched, he is philosophical. "My interest has always been to be of service, whether it's improving a clinical process and bringing down the price of tests, or making it easier for people to cook food

— making life more livable. I was inspired by Dr. Carver to meet the need, to be of service."

Years later, Davis' career came full circle. "I had promised my father that I would spend the last part of my career teaching," he recalls, and in 1983, he accepted a position at St. Philip's College. Today, at 80 years young, Davis continues to be driven by his sense of curiosity and the need to serve. His work ethic is fairly straightforward: "I come to the ballpark every day, and I always come to play."

## Looking ahead

Rather than working in an ivory tower, Davis prefers to be involved in improving everyday tasks and using his sense of scientific curiosity to find answers. Asked about what he believes are the most promising fields for tomorrow's researchers, his response is expansive. "I see things today I could not have dreamed of as

a boy. Likewise, in the next 20 years, things will be so revolutionized from where they are today, we'll hardly recognize them." For example, he notes, "we now know the human genome; think about the potential. Will we someday be able to live 500 years? 1,000 years? At the same time, we have a looming crisis of overpopulation. How will we solve it?"

Other fields that strike Davis as highly promising are fuel cells, sustainable systems of transportation, and improving health care. "There's so much to be known about the natural world, but we can do so much with the little we already know. I tell my students to be curious about everything — and ask, 'How can I improve this? How can I be of service?'" **TC**

## Four Tips for Success from William Davis

- 1. Use curiosity as a tool** — Get in the habit of asking questions such as, "Why does this process work this way?", and "How can I improve it?"
- 2. Pursue service learning** — Be on the lookout for opportunities (formal or informal) to learn about chemistry by giving back to your community.
- 3. If you're afraid of math, confront it** — Math is central to success in the sciences, so seek out whatever support or resources you need to overcome your fear.
- 4. Get comfortable with writing** — Writing can be even more frightening than math, so talk with your instructors about ways you can improve your ability to synthesize and explain in words.

University's Division of Industrial Research, where he explored the antigen that caused hay fever, among other things.

Later, Davis was recruited to work at a corporation's chemical laboratory in Portland, Oregon, which was at the time the largest of its kind. At United Medical Laboratory, Davis explains, "we provided analyses for doctors all over the world, and devised methods for reducing the time and cost of conducting clinical assays to develop detect concentrations of hormones and steroids in the blood such as aldosterone, estrogen, and testosterone."

After becoming certified as a medical technologist, Davis became director of the laboratory. "We made exotic procedures routine and brought their price down. Using autoanalyzers when they had just come out, we could perform tests more quickly than they could be done locally." Davis stayed with the lab for about 15 years.



**ERIC R. STEWART** is a freelance writer and editor living in Arlington, Virginia.



# Career Options Beyond the Bench

BY LISA M. BALBES

**I**F YOU'RE ANYTHING LIKE ME, YOU MAJORED in chemistry because you liked it, and didn't really think about what you'd do after you graduated. In fact, you may only have a vague idea of what professional chemists do. Many work in laboratories developing new products to make our lives better. But over one-third of chemists work in areas you've probably never considered, applying their scientific background to all sorts of problems — in other words, they work in nontraditional careers.

Below are brief descriptions of some of these careers. There may even be one you'll want to explore further!

## Intellectual property and patents

One way to protect a new invention, chemical or otherwise, is to patent it. A patent is the legal right to prevent others from using your invention for a specified period (usually around 20 years), granted by a national government.

People who understand the science behind the inventions are needed to write and apply for (prosecute) patents, search patent literature, analyze complex issues, and much more. Patent professionals work not only at large scientific companies, but also in technology transfer offices, law firms, and the U.S. Patent and Trademark Office (USPTO). They work at the cutting edge of scientific research, in every technical area. They generally work as part of a team, and spend a lot of time writing.

A bachelor's degree in a science-related field is all you need to start work as a patent examiner evaluating patent applications for the USPTO in Washington, DC. Other entry-level positions at USPTO have titles such as patent searcher, patent liaison, or technical specialist, and involve various degrees of searching existing literature and writing parts of new patent applications. All of these jobs require the ability to 'read between the lines' and identify what was left out of existing patents — and why. When writing patents, each word is crucial, since the specific words chosen define and limit the scope of the invention for the lifetime of the patent.

Over time, additional education and training (which may or may not include law school) bring new opportunities and advancement. Registered patent agents can negotiate and draft patent agreements, prepare documents for filing and processing, and submit them to USPTO. Patent lawyers can represent the patent's owner in court during patent infringement suits, provide opinions on patent validity and infringement claims, negotiate licensing agreements, and write contracts.

Many patent professionals love working with cutting-edge technology and the challenge of arguing about scientific issues with other professionals.

## Regulatory affairs

You may have never heard about them, but you have certainly benefited from the work of regulatory affairs professionals (RAPs). They play a crucial role in balancing consumer safety with scientific advancement, and derive great personal satisfaction from helping to advance the public good — safely.

RAPs ensure that products meet or exceed all applicable standards, tests, and requirements from local, state, national, and international governing agencies. They determine which tests to conduct, collect and analyze data, and communicate the results to interested parties. They may work for the company making the products, or for one of the 24 agencies in the U.S. that monitor everything from food and drug products to energy and the environment.

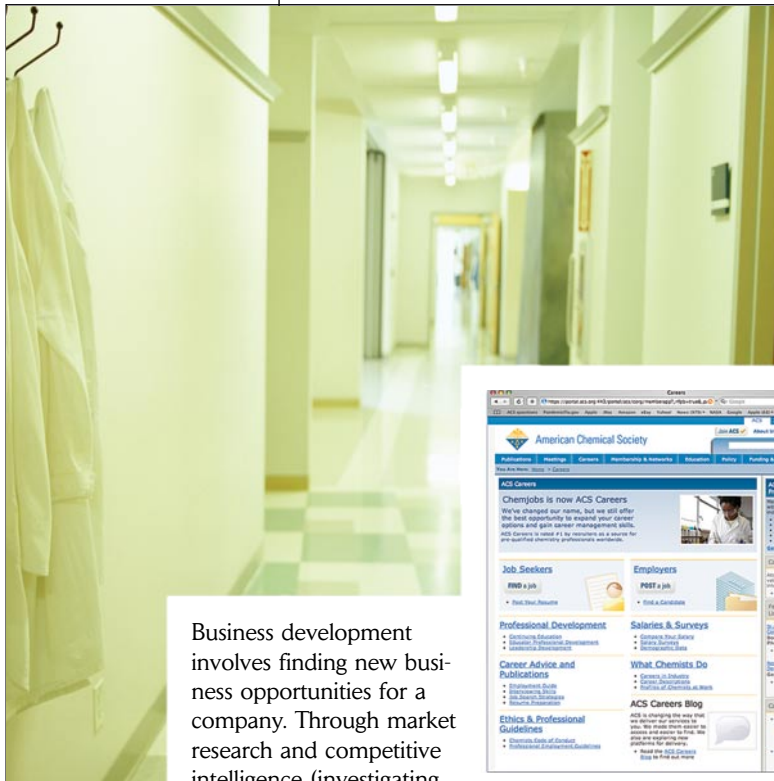
Regulatory work requires meticulous attention to detail, the ability to assimilate complex information and communicate just the key points, personal integrity, and a methodical, step-by-step process. It also may require the ability to juggle conflicting priorities and deadlines while maintaining consistency and quality. Good negotiating skills are often valuable, especially when working with regulatory agencies.

Many people transition into regulatory affairs after gaining practical experience in product development, but certification and professional degree programs are beginning to become available.

## Business development

Did you ever wonder who decides which products to make, which features they should have, how to sell them, and so on?





Business development involves finding new business opportunities for a company. Through market research and competitive intelligence (investigating

the plans of other companies), business development professionals identify unmet needs in current markets, find new markets, and research potential improvements to existing products and services.

A major part of developing new business involves establishing scientific and strategic partnerships, as well as joint ventures and alliances with other companies. Each side must have something of value to offer, and something they need — so the art of negotiation is essential. For scientific companies, a technical background is needed to understand the products, users, marketplace, and industry.

In many companies, business development professionals are former scientists who have chosen to move out of the laboratory. Most of the training is on the job, although business or marketing experience, in addition to a science background, is often desirable.



## Need More Career Help?

ACS offers a wide range of career resources and services, including:

- **Department of Career Management and Development** — a wide range of tools and resources on resumes, interviewing, salaries, job searching, and much more.
- **Career Briefs** — a series of 30 informative documents on specific careers. Funded by a grant from the Alfred P. Sloan Foundation.
- **National and Regional Meetings** — A wide variety of career-related programs and events, including both mock and actual interviews, networking events, and more.

For more information visit [www.acs.org](http://www.acs.org)

## Nontraditional Careers for Chemists: New Formulas in Chemistry

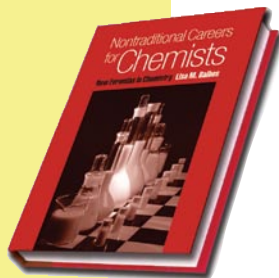
By Lisa M. Balbes  
320 pages

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[www.bn.com](http://www.bn.com); [www.powells.com](http://www.powells.com) or  
[www.oup.com](http://www.oup.com).

## Where do I go from here?

Hopefully, some of these ideas have intrigued you, or at least made you realize there are more possibilities out there than you had considered. So how do you go about exploring your options?

- Read as much as possible about the different career paths that interest you.
- Talk with people who are in the careers that interest you; ask them what do they really do, and how they got where they are.
- Get real experience — as an intern or volunteer — to see if you like it.

There are even more jobs out there that you've never heard of. Figure out which you would most like to do, and how you can get someone to pay you to do that. Life is too short to spend doing something you don't love! **fc**



**LISA M. BALBES** has been a freelance technical writer for over 15 years. She recently published a book entitled, "Nontraditional Careers for Chemists: New Formulas in Chemistry," and serves as an ACS career consultant, St. Louis local section councilor, and volunteer for several ACS divisions.

# In Chemistry, Heroism Comes in All Shapes and Sizes

By JOY TITUS-YOUNG

**E**ACH YEAR, ACS presents the Heroes of Chemistry Award, administered through the Office of Industry Member Programs, to highlight the scientific contributions of outstanding industrial chemists and chemical engineers. These scientists, employed in chemical R&D, are nominated by their own companies to recognize their central roles in developing and commercializing products that have improved human health and well-being.

This year ACS recognized 22 individuals representing five companies (see box at right) from the chemical and pharmaceutical industries. All of the individuals who were recognized share a common pursuit of careers in industry, the ability to work in multidisciplinary teams, and an intense passion for improving products and processes that benefit people. Beyond that, the winning teams included a surprising diversity of disciplines, titles, and academic backgrounds.

The products involved were also diverse, and included an improved antipsychotic medicine; a cost-effective, environmentally-friendly process for polyester production; a new treatment for patients suffering from iron-overload from transfusions; a new method for using corn to create numerous products (instead of using petrochemicals); and a process that improves food packaging.



ACS President Catherine T. (Katie) Hunt with Ronald D. Knudsen.



The Exxon Mobil Research and Engineering Team with ACS President Hunt.

## Heroes in the Spotlight

The Heroes of Chemistry were celebrated at a special event at the 234th ACS National Meeting in August, held in Boston. The recipients were:

- **Chevron Phillips Chemical Company's Ronald D. Knudsen**, who developed the first commercial process for selectively trimerizing ethylene to 1-hexene.
- **A joint venture team comprising staff from DuPont, Tate & Lyle LLC, and Genencor International** that developed Bio-PDO™, a new method to use corn instead of petrochemicals to produce 1,3-propanediol PDO, which can be formulated into a number of industrial products. Team members included Dennis M. Adkesson (Tate & Lyle), Catherine H. Babowicz and Charles E. Nakamura (DuPont), and Gregory M. Whited (Genencor).
- **A team from ExxonMobil Research and Engineering** that developed PxMax™, a selective and more efficient catalytic process for producing paraxylene, a basic raw material used in a wide variety of consumer products. Team members included Jeevan S. Abichandani, Jeffrey S. Beck, Art Chester, Tom Degnan, Jocelyn Kowalski, Sharon McCullen, and David Olson.
- **A Novartis team** that developed Exjade®, the first oral chelator for treating iron overload resulting from blood transfusions. Members included the late Pierre Acklin, as well as Peter Buhlmayer, Bernard Faller, Rene Lattmann, Hanspeter Nick, Carsten Spanka, and Paul Zbinden.
- **A team from Pfizer Inc.** that developed Geodon®, a drug for the treatment of schizophrenia that has better side effects compared to other antipsychotics in clinical use. Team members included Harry R. Howard, John A. Lowe III, and Arthur A. Nagel.

## Could you become a chemistry hero?

While studying as an undergraduate, you may decide that you do not want to pursue a traditional career in teaching or research. Fortunately, there are a number of other options available to you, and a world of possibilities for finding your own heroic career path. To understand the breadth of ways you can use your chemistry degree, it's wise to seek out additional career guidance and mentoring.

As you study to become a scientist, you're taught to observe, research, experiment, evaluate, and conclude. This same thought process can help you explore your future career options.

**Observe** what your options are by attending undergraduate programming offered at ACS meetings, and finding a mentor in industry who is willing to let you visit his or her place of work. **Research** which careers require a chemistry degree (and whether they require a bachelor's or an advanced degree), check out the pay range, and learn what the job entails. **Experiment** by obtaining an internship or participating in a co-op to see if you would like a position in a particular industry. **Evaluate** what you've learned to decide what you want to do ... and then do it.



The Dupont, Tate and Lyle LLC team with ACS President Hunt.

*"Our project was a huge undertaking and, on a personal level, I'm very proud of the teamwork that went into it. I'm especially gratified by the fact that this was the first time a Heroes of Chemistry Award has been shared by a team from three companies. At the end of the day, very different biological disciplines – including physiology, biochemistry, and molecular genetics – were merged successfully with process chemistry and engineering."*

– Charlie Nakamura, Senior Research Fellow, DuPont



The Pfizer team with ACS President Hunt.


*"Schizophrenia has long been a devastating disease for patients as well as their families. The drug that our team at Pfizer created, Geodon<sup>®</sup>, treats the symptoms so that hospitalized sufferers can return to their homes, if not fully to society. And, unlike earlier antipsychotic drugs, it has a much better side effect profile. This field of work offers a wonderful opportunity to feel that you are fulfilling your social responsibility."*

– John Lowe, Senior Research Fellow, Pfizer Inc.

Just like any experiment, you may have to test your conclusions and hypotheses more than once. Yet this is what your undergraduate experience is about: figuring out exactly what you would like to do in your career and what it will require.

## Heroic efforts start with smart planning

Despite the broad diversity of backgrounds and disciplines of the awardees mentioned earlier, it's highly probable that each of these individuals used one or more of the strategies described above to find their own career path. Staying informed about careers in chemistry, the current job market, and your options will save you time and energy, and can help you choose the career path that is best for you. Who knows? The choices you make today might well help make you a Hero down the road.

If you would like more information on the Heroes of Chemistry Programs, or would like to know more about the ACS Office of Industry Member Programs or the Committee on Corporation Associates, please visit [www.acs.org](http://www.acs.org). 



JOY TITUS-YOUNG is an associate in the Membership and Scientific Advancement Division of the American Chemical Society.



# Presenting Research on the Hill

By TIMOTHY S. GARRETT, JR.

**W**HEN IT COMES to presenting research, most chemistry students think of ACS meetings – local, regional, and national – where the audience consists of other chemists. But have you ever thought about other venues?

In April 2007, Kenneth R. Houser (vice president of our Student Affiliates chapter at Lebanon Valley College, or LVC) and I traveled to Washington, D.C. to present our work at the Council on Undergraduate Research (CUR) Posters on the Hill event. We were one of 60 groups selected from nearly 400 applicants in all disciplines from around the country. Our advisor, Marc Harris, assistant professor of chemistry at LVC, accompanied us on the trip, where we had the chance to interact with a much wider audience.

## Promoting undergraduate research

CUR assists administrators and faculty members in assessing and improving the undergraduate research environment at their institutions. More significantly, the group provides information on the importance of undergraduate research to state legislatures,



Kenneth R. Houser and Marc Harris at the Capitol.

PHOTOS COURTESY OF TIMOTHY GARRETT, JR.

private foundations, government agencies, and the U.S. Congress. To raise such awareness, CUR annually holds its Posters on the Hill event on Capitol Hill.

The event was more than just a poster session, however. CUR partnered with the American Chemical Society (ACS) and other organizations, offering us a full day-and-a-half of programming.

## Exploring career options

CUR arranged a behind-the-scenes tour of the National Museum of National History, where participants were able to meet and discuss research with museum scientists. This excursion enabled us to experience a different setting than the traditional lab, and further expand our thinking

about career choices after graduation.

To round out our experience in the Nation's Capital, we were also treated to a private tour of some of the most famous national monuments.

A panel discussion on careers in government was held with moderator Ric Weibel from the Center for Careers in Science and Technology at the American Association for the Advancement of Science. The two panelists were Rieko Yajima, a former fellow from the National Academy of Science, and Lenka Fedorkova from the National Institutes of Health. These speakers shared stories of the non-traditional paths they had taken to reach their present positions, which helped us broaden our understanding of career options and strategies even further.

## Getting briefed

We also attended an orientation led by James Brown, senior legislative

associate at ACS. This session gave us background on some of the key national policy issues related to science. One such topic was the America Competes Act, which focuses on maintaining and improving the United States' ability to lead in innovation. To do so, the Act aims to: (1) increase research investment, (2) strengthen educational opportunities in science, technology, engineering, and mathematics from elementary through graduate school, and (3) develop an innovation infrastructure.

After Brown's presentation, we were encouraged to discuss our support of the Act with our respective senators and representatives at meetings scheduled on the following day.



Timothy Garrett, Kenneth R. Houser, Rep. Tim Holden, and Marc Harris.

## Reaching out

During Posters on the Hill, the members of our group from LVC were able to present our research to members of Congress, and act as ambassadors for the ACS Legislative Action Network.

On the day of the symposium, we met with science advisors to Senators Arlen Specter and Robert Casey, both from Pennsylvania, and also with Representative Tim Holden of the 17<sup>th</sup> District of Pennsylvania. In our meetings, we stressed the significance of research in the undergraduate curriculum in preparation for graduate school, and also its benefits over the traditional laboratory class setting.

On a more personal note, I was able to discuss

how my experiences in the lab have equipped me with tools that will be valuable for me as a future teacher



Catherine T. (Katie) Hunt, ACS President, and Rep. Brian Baird with students and faculty from North Seattle Community College.

of high school chemistry. Members of Congress were then invited, along with their advisors, to the poster session and reception that evening.

## Celebrating science

The ACS Public Service Awards were presented by ACS President Catherine T. (Katie) Hunt in conjunction with Posters on the Hill (see box). The awards, established in 1997 under the direction of ACS Former President Ronald Breslow, are presented for outstanding contributions to, and support of, the chemical sciences.

The coupling of this recognition event with the



Dominican University of California students Joyce Valencia, Christopher Heiser and Eric Hinderleider.

poster session allowed us to share our research with other chemists from industry and academia in order to gain their insight and apply it to our research.

## Sharing our research

The members of our LVC chemistry research group have had the pleasure of presenting our work at regional and national meetings – but this venue definitely had its own unique appeal.

Where our discussions with chemistry students and working chemists at other events often focused on the more theoretical or technical aspects of our work, at this event we had to explain our

# A Quick Look at the 2007 ACS Public Service Awardees

## • Ralph J. Cicerone, President, National Academy of Sciences

Internationally recognized scientist, highly effective in engaging and influencing policy-makers. His research in atmospheric chemistry and climate change is helping shape science and environmental policy nationally and internationally.

## • Rep. Rubén Hinojosa (D-TX)

Expanded opportunities for people from disadvantaged backgrounds to compete in the increasingly technological global economy. Also helped create the Hispanic Engineering, Science and Technology Week Conference, one of the nation's largest such events.

## • Rep. David Hobson (R-OH)

Chair of the House Energy and Water Subcommittee, which oversees the Department of Energy and its Office of Science. Oversaw first major increase in funding for basic science at DOE in a generation, and advocates for federal investment in basic R&D.

research in terms of its practical applications to people with a different or limited scientific background.

This trip taught us more about ACS and, more importantly, about our duty

as members of our Student Affiliates chapter and the Society as a whole to keep our senators and representatives informed about the importance of chemistry and undergraduate research. **IC**



**TIMOTHY GARRETT, JR.** is a senior majoring in chemistry education at Lebanon Valley College and is president of the college's Student Affiliates chapter. He plans to student teach next year.

PHOTOS COURTESY OF COUNCIL ON UNDERGRADUATE RESEARCH



COURTESY OF TEMPLE UNIVERSITY

Keynote speaker Lori Krim Gavrin (second from left) with TUCS members Allison K. Pymer, Sony Chaaau, Matt Venti, and Brian Dempsey.

## Forging New Connections

### Hosting the Undergraduate Program at an ACS Regional Meeting

BY ALLISON K. PYMER AND CLINTON T. BALLARD

GREEN CHEMISTRY workshop? Check. Career symposia? Check. Outreach to primary and secondary students? Check. Social events? Check.

Do you feel as if your chapter participates in the same activities year after year? Are you looking for a new event? Why not plan undergraduate events at an ACS regional meeting?

These were some of the thoughts on the minds of the members of the Temple University Chemical Society (TUCS) as we began the process of planning undergraduate events at the 2007 ACS Mid-Atlantic Regional Meeting (MARM). In addition to expanding the reach of our activities, we honed our organizational skills and expanded our network with regional scientists and other Student Affiliates chapters.

#### Shaping initial plans

When our chapter faculty advisor initially suggested that we plan regional meeting events for undergraduates, the members of TUCS liked the idea. We began by submitting an Undergraduate Programming at Regional Meeting grant proposal in the summer of 2006.

With a proposal deadline at the end of June, we needed to compile a document that described each event, set forth a budget for the programming, and explained how we would advertise the meeting to other Student Affiliates chapters. We incorporated events typically successful at Temple University into the MARM programming, while attempting to maintain a cohesive set of events reflecting the theme of MARM: *Forging New Connections through Chemistry*.

#### Mission accepted

In September 2006, the ACS Task Force on Undergraduate Programming approved our proposal, and TUCS members began planning for the event. We discussed our plans with the MARM executive committee to obtain its members' feedback and to ensure that the undergraduate events complemented the mainstream programming.

Next we scheduled the keynote speakers. When consulting the list of already invited speakers, we found two individuals in the field of medicinal chemistry: Lori Krim Gavrin and Scott Sieburth. By inviting two speakers who worked on different aspects of the same

topic, we hoped to mirror the MARM theme by forging new connections through our keynote presentations.

We also recruited speakers for the graduate school forum from among those who had previously spoken at such events at Temple University. We solicited submissions to the Student Affiliates poster session and recruited judges for the undergraduate research poster sessions through our advertising to Student Affiliates chapters.

#### Getting the word out

One of the most important responsibilities in planning a regional meeting is informing local colleges and universities about the event itself. We decided to send mailings to SAACS chapters in Pennsylvania, Maryland, New York, New Jersey, Delaware, and parts of Virginia.

Our conference packet included information about the undergraduate events at the meeting, a call for papers, and a request for

### Undergraduate Programming at MARM 2007

#### Wednesday, May 16

12:30 pm Poster Session I  
4:50 pm Poster Session II

#### Thursday, May 17

9:00 am Student Affiliates Chapter Meet and Greet  
10:00 am Keynote Speaker: Lori Krim Gavrin, "The Process of Drug Discovery"  
12:30 pm Poster Session III  
2:30 pm Graduate School Forum  
4:50 pm Poster Session IV  
7:00 pm Undergraduate Dinner

#### Friday, May 18

10:40 am Keynote Speaker: Scott Sieburth, "Organosilanes in Drug Discovery"  
12:30 pm Poster Session V



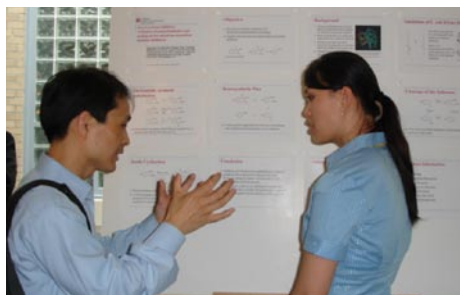
Student Affiliates chapter faculty advisors to assist in judging the undergraduate posters.

We also ran an advertisement for the MARM undergraduate events in the February/March 2007 issue of *in Chemistry*, just in case packets disappeared in the mail or did not reach everyone who might attend.

### The main event

After months of planning, the time for MARM finally came. The poster sessions were especially beneficial for undergraduates. It provided them with exposure to various types of chemistry research and included posters about physical, analytical, nitrogen, organic, inorganic, and sulfur chemistry. Undergraduates were encouraged to reflect on things that they learned in class and relate them to the research being presented, thereby forging new connections in chemistry.

Keynote speakers Gavrin and Sieburth discussed their interest in medicinal chemistry and drug discovery. Gavrin discussed steps that the pharmaceutical industry takes to find compounds with medicinal value for various conditions, using her research in norepinephrine inhibitors as a specific example. In a related talk, Sieburth highlighted research interests in developing organosilane compounds to specifically target certain receptors. By highlighting complementary fields in organic chemistry,



Undergraduates present and discuss their work during the poster sessions held at MARM.

COURTESY OF TEMPLE UNIVERSITY

students were able to once again make connections between chemistry research topics.

A graduate school forum, including professors and students from local graduate programs in chemistry, educated attendees about graduate school requirements, the application process, and life as a graduate student. Attendees also learned about programs offered by the National Science Foundation that sponsor graduate students in their research and teaching ventures, including instruction in primary and secondary school classrooms. By exploring topics beyond those covered in a typical graduate school seminar, attendees left with much more information than they expected.

Student Affiliates mingled and made connections at the undergraduate dinner, held at a local venue. The opportunities for individuals to learn from each other and share experiences were key aspects of the undergraduate programming. Having a dinner toward the end of the conference reinforced connections made during the event, and also provided an opportunity for TUCS members to talk with attendees and hear their feedback about the programming.

## A Few Tips for Undergraduate Events Planners


### DO

- **Keep it simple.** Allow for events to be organized enough so that people know what is going on but relaxed enough for students to talk among themselves.
- **Think of your audience.** Are most student attendees graduating seniors? Are there entire SAACS chapters that plan to attend together? Try to gather this type of information before deciding on your final events.
- **Gather expertise.** The regional meeting program chairs have valuable insights regarding student programming and may know of additional resources that you might not otherwise consider.
- **Advertise early.** Encourage participation by students from your own university and from those local colleges and universities likely to send undergraduates.
- **Provide travel support.** Offer travel stipends to increase undergraduate participation from out-of-state undergraduates.

### DON'T

- **Over-schedule.** Although you may want to plan several supplemental activities, keep in mind that there will be other workshops and presentations competing for attendance.
- **Limit yourself.** Creative programs are well-attended and informative!

In short, a wonderful time was had by all. If your Student Affiliates chapter needs an all-encompassing,

invigorating, and challenging event, consider planning undergraduate events at a regional meeting! 



ALLISON K. PYMER is TUCS president and past vice-president. CLINTON T. BALLARD is TUCS secretary. Both are senior chemistry majors.



APRIL 6–10, 2008

# Expose Yourself to Chemistry at the ACS National Meeting in New Orleans

## UNDERGRADUATE PROGRAM

### SUNDAY, APRIL 6

8:00 A.M. – 5:00 P.M.  
**Undergraduate  
Hospitality Center**

9:00 A.M. – 10:30 A.M.  
**Graduate School  
Reality Check**

9:00 A.M. – 10:30 A.M.  
**Communication and  
Cross-Functional  
Team Skills for  
Chemists**

10:30 A.M. – 12:00 NOON  
**Morning Tea with  
Graduate School  
Recruiters**

10:30 A.M. – 12:00 NOON  
**Chem Demo  
Exchange**

1:00 P.M. – 2:30 P.M.  
**Polymers  
in Sports**

1:30 P.M. – 2:30 P.M.  
**Community  
Outreach Workshop**

2:30 P.M. – 4:00 P.M.  
**Chemistry Survival  
Guide: Learning How  
to Learn Chemistry**

2:30 P.M. – 4:00 P.M.  
**Careers  
for Chemists  
in Public Health**

7:00 P.M. – 8:30 P.M.  
**Awards Ceremony**

8:30 P.M. – 11:30 P.M.  
**Undergraduate Social**

### MONDAY, APRIL 7

8:00 A.M. – 10:30 A.M.  
**Graduate School  
Recruiting Breakfast**

10:30 A.M. – 12:30 P.M.  
**Chemistry in Medicine:  
From Investigation to  
Implementation**

10:30 A.M. – 12:00 NOON  
**Kids and Chemistry  
Workshop—Polymers**

11:00 A.M. – 1:00 P.M.  
**Undergraduate  
Research Poster  
Session I**

2:00 P.M. – 4:00 P.M.  
**Undergraduate  
Research Poster  
Session II**

4:30 P.M. – 5:30 P.M.  
**Eminent Scientist  
Lecture**

5:30 P.M. – 7:00 P.M.  
**Corporation  
Associates  
Reception for  
Undergraduates**

8:00 P.M. – 10:00 P.M.  
**Sci-Mix/Successful  
Student Affiliates  
Chapter Poster  
Session**



# ***Uncover Your Future –*** **Attend Graduate School Recruiting Events in New Orleans**



***Undergraduates—Don't miss this excellent opportunity to discuss the ins and outs of graduate school programs with faculty, staff, and current students at the 235th ACS National Meeting in New Orleans, April 6-7, 2008.***

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The Graduate School Morning Tea with Graduate School Recruiters is on Sunday, April 5, 10:30 a.m. – 12:00 noon, and the Graduate School Recruiting Breakfast is on Monday, April 6, from 8:00 a.m. – 10:30 a.m.

## **ATTENTION: Graduate School Recruiters**

If you would like your school to participate in these events, please contact Lori Betsock at (800) 227-5558, ext. 6188, or at [l\\_betsock@acs.org](mailto:l_betsock@acs.org). Registration materials are also available online at [www.acs.org/saprogram](http://www.acs.org/saprogram).

## **NATIONAL MEETING TRAVEL GRANTS AVAILABLE FOR STUDENT AFFILIATES CHAPTERS**

Grants are available to active Student Affiliates chapters with students who are presenting individual or chapter posters in the Division of Chemical Education's Undergraduate Research Poster Session.

Apply by January 15, 2008. For more information, please contact Nancy Bakowski at [n\\_bakowski@acs.org](mailto:n_bakowski@acs.org) or at (800) 227-5558, ext. 6166.







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**Want more information about graduate schools? Check out the ACS Directory of Graduate Research on the Web! [www.acs.org/dgrweb](http://www.acs.org/dgrweb)**



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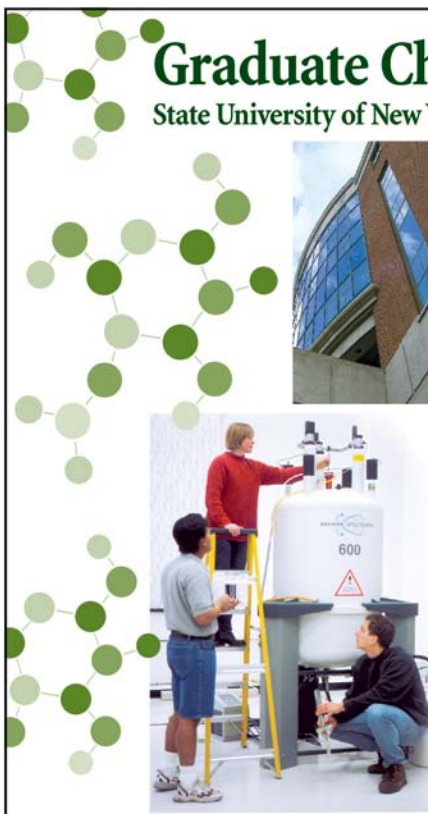
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