inChemistry

THE MAGAZINE FOR ACS STUDENT MEMBERS November/December 2015

2014–2015 WINNERS: Student Chapter Program Awards

ALSO IN THIS ISSUE

ACS Chemistry for Life®

inChemistry

EDITOR: Nicole Di Fabio

MANAGING EDITOR: Lori Betsock

ASSOCIATE EDITOR: Blake Aronson

ASSISTANT EDITOR: Jessica Roberts

WEB EDITOR: Benjamin Hall

EDITORIAL PRODUCTION ASSOCIATE: Robin Lindsey

COPY EDITORS:
Eric R. Stewart, Karen Müller

DESIGN & PRODUCTION:
Amy Phifer, Plum Creative Services

DIRECTOR, EDUCATION DIVISION:
Mary M. Kirchhoff

ASSISTANT DIRECTOR: Nancy Bakowski

EDITORIAL ADVISORS:
Corrie Kuniyoshi, Michael Mury, Jodi Wesemann

2015–2016 ADVISORS

Michael Adams
Xavier University of Louisiana

Evonne Baldauff
Waynesburg University

Neil Bastian
Salt Lake Community College

Simon Bott
University of Houston

Michelle Boucher
Utica College

Christopher Bradley
Mount St. Mary's University

Michael Curry
Tuskegee University

Patrick Hare
Northern Kentucky University

Camille Jones
STEM Education Consultant

Amy Keirstead
University of New England

Catrena Lisse
Georgia College & State University

Elizabeth Raymond
Western Washington University

Donald Wink
University of Illinois at Chicago

Published for student members by the American Chemical Society Education Division at 1155 Sixteenth Street, NW, Washington, DC 20036

ACS Chemistry for Life®

Canadian GST Reg. No. 127571347

inChemistry is available free to student members of the American Chemical Society and the faculty advisors to student chapters. To join ACS, go to www.acs.org. The American Chemical Society assumes no responsibility for the statements and opinions advanced by contributors. Registered names and trademarks, etc., used in this publication, even without specific indication thereof, are not to be considered unprotected by law.

inChemistry

THE MAGAZINE FOR ACS STUDENT MEMBERS

Volume 24 • Number 2
November/December 2015

CHRISTINE BRENNAN SCHMIDT

Cover: Students celebrating at the Chapter Awards Ceremony at the 249th ACS National Meeting in Denver, CO. 19

CONTENTS

ACS Chemistry for Life™

SCI America

AIChE

Call for Applications

SCI SCHOLARS

Summer Industrial Internship Program for Undergraduates

Summer 2016

The Society of Chemical Industry (SCI) is pleased to offer the **SCI Scholars Program**, which provides exceptional chemistry and chemical engineering students with 10-week internships during the summer of 2016. If you plan to pursue a career in chemical industry, apply for this opportunity to build your skills and gain valuable experience!

Benefits:

- Industrial workplace experience
- $6,000–10,000 work stipend (varies by employer)
- Certificate and $1,000 travel award to participate in a scientific meeting
- Opportunity to nominate a high school chemistry teacher for recognition and a $1,000 award

Requirements:

- Current sophomore or junior
- Chemistry or chemical engineering major
- Minimum GPA of 3.5
- U.S. citizen or permanent resident

SCI Scholars will be selected based upon the strength of their application, statement of interest, and letters of recommendation.

To see information and apply, visit www.acs.org/sci
Deadline to apply is December 15, 2015

EDITORIAL: **Together We Can!**

BY DIANE GROB SCHMIDT

Congratulations on a job well done! It is with great joy that I help to announce the award-winning ACS student chapters for the 2014–2015 academic year!

Particularly important is the work you do to increase the public's interest, understanding, and support of chemistry. Your outreach efforts over the past year, and into the future, will help the scientific world gain public support so desperately needed. This allows chemists to continue working to solve fundamental health and societal issues through ongoing chemical research.

In the process, you have benefited as well. Over the past year, you have gained confidence and valuable skills that will serve you well as students and in your career. Through your student chapter, you have started developing and exercising your leadership skills, building a strong network of mentors, colleagues, and friends, and broadly taking advantage of all the development opportunities ACS has to offer.

Though we have made wonderful progress, much work is still left to be done — and we need your help as you continue pursuing your passions and interests for science. I encourage you to begin venturing outside of your comfort zones to expand your professional and social circles.

Realize, too, that chemistry is a global enterprise. I encourage you to broaden your worldview to enable yourself to work and contribute as a chemist. Get to know students at your institution who are from other parts of the world. Travel and study abroad to experience new cultures. Try to learn a new language. International partnerships serve our members and, at the same time, serve to enhance the global scientific and research enterprise.

Demonstrate your enthusiasm for chemistry by attending an ACS local section meeting, or join an ACS division that matches a professional interest. Continue to volunteer in some capacity for the group, and get to know some of the other members. There are dozens of ways to help. As you move through your career, volunteering and being an advocate for our profession doesn't have to take huge chunks of your time. You can devote as much or as little of your time and energy as you can spare. The most important thing is to do *something*.

My hope is that your interest, drive, and enthusiasm will be contagious. It takes more than just one person or team to solve world challenges. It takes collective passion, commitment, and energy. It cannot be accomplished alone. But together we can!

Congratulations on all that you have achieved! iC

Diane Grob Schmidt *is president of ACS. She recently retired from her position as section head in Research and Development at Procter & Gamble.*

PHOTO: CHRISTINE BRENNAN SCHMIDT

Diane Grob Schmidt poses with the chapter members from the Inter American University of Puerto Rico Ponce Campus (Mercedita) at the 2015 Chapter Awards Ceremony at the 249th ACS National Meeting in Denver, CO.

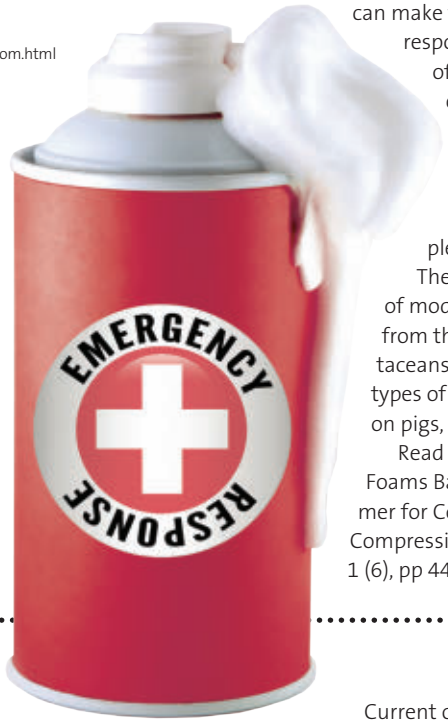
ATOMIC NEWS

COMPILED BY JESSICA ROBERTS

Source: ACS Office of Public Affairs Weekly PressPac, www.acs.org/content/acs/en/pressroom.html

Sprayable foam that slows bleeding **could save lives**

Traumatic injuries, whether from serious car accidents, street violence, or military combat, can lead to significant blood loss and death. But using a material derived from crustacean shells, researchers have now developed a foam that can be sprayed onto an open wound to stop the bleeding. They report their successful tests on pigs in the journal *ACS Biomaterials Science & Engineering*.

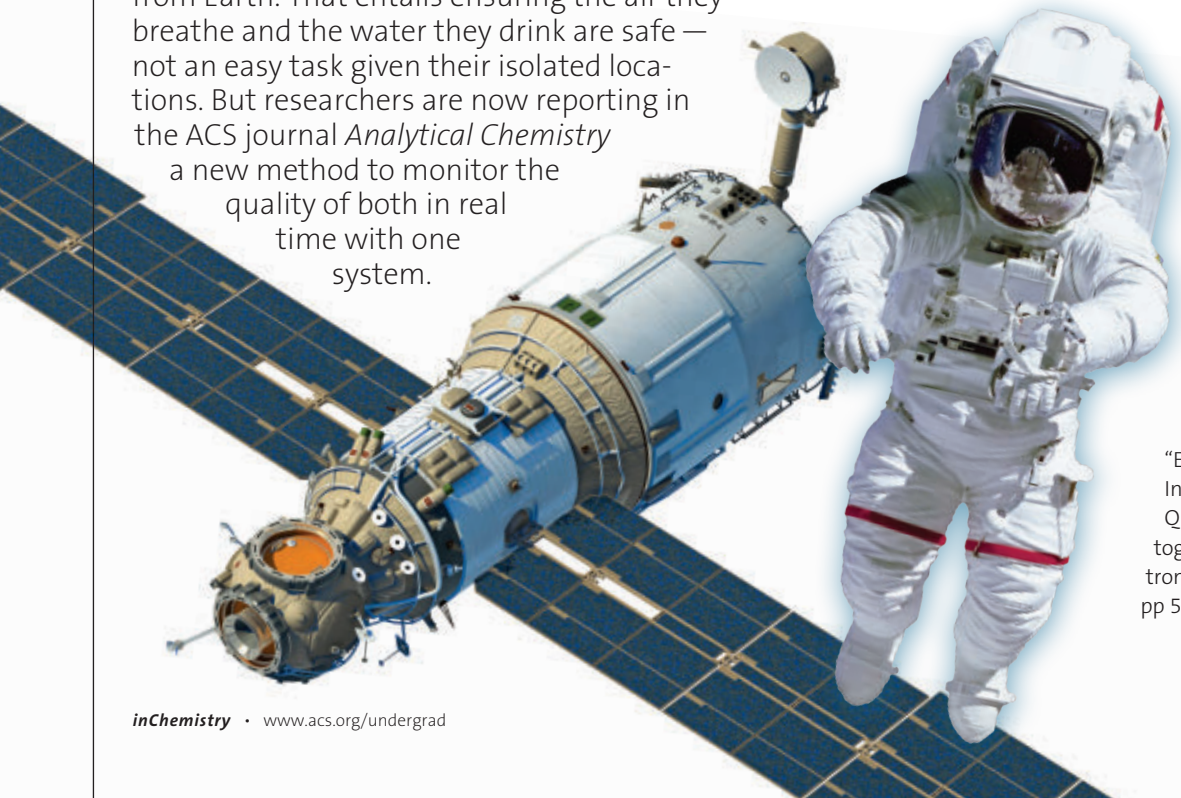


For some serious injuries to arms and legs, medics can apply pressure to keep bleeding in check. But for major trauma to the torso, particularly when it affects vital organs, compression can make the situation worse. Currently, first responders have no way to stop this kind of bleeding, which is a leading cause of death among young adults and the most common cause of death from combat-related injuries. Srinivasa R. Raghavan, Matthew B. Dowling, and colleagues wanted to find a simple way to treat these wounds quickly. They developed a sprayable foam made of modified chitosan, a biopolymer derived from the shells of shrimp and other crustaceans that is already being used in other types of non-foam wound dressings. In tests on pigs, the spray reduced blood loss by 90%.

Read more about the research: "Sprayable Foams Based on an Amphiphilic Biopolymer for Control of Hemorrhage Without Compression," *ACS Biomater. Sci. Eng.,* 2015, 1 (6), pp 440–447.

Keeping astronauts in space longer with better air and water

As astronauts embark on increasingly ambitious space missions, space programs must figure out how to keep them healthy for longer periods far from Earth. That entails ensuring the air they breathe and the water they drink are safe — not an easy task given their isolated locations. But researchers are now reporting in the ACS journal *Analytical Chemistry* a new method to monitor the quality of both in real time with one system.



Current options for testing air and water for contaminants, including microbes and radiation, require collecting samples and sending them back to Earth for analysis. But for long missions — aboard the International Space Station (ISS), for example — this approach could take six months before astronauts have their results. The ISS is also equipped with some real-time hardware for detecting unwanted substances, but it has limitations. Facundo M. Fernández, William T. Wallace, and colleagues wanted to create a system to conduct real-time, sensitive monitoring.

Fernández, Wallace, and colleagues outfitted an air quality monitor (AQM) already used aboard space missions with a device that can vaporize water samples, turning its contents and any contaminants into a gas. The gas can then enter the AQM for analysis. Astronauts could also use the same equipment, with a modification, for testing the air. The team says the system could be used in space or for remote locations right here on Earth.

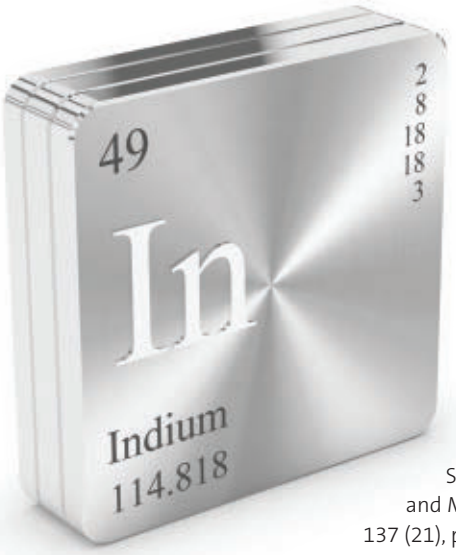
Read more about the research: "Electrothermal Vaporization Sample Introduction for Spaceflight Water Quality Monitoring via Gas Chromatography-Differential Mobility Spectrometry," *Anal. Chem.,* 2015, 87 (12), pp 5981–5988.

IMAGES USED IN ATOMIC NEWS ARE FROM SHUTTERSTOCK

Recovering a rare metal from LCDs to avoid depleting key resource

Life without bright screens on our smartphones and TVs is hard to imagine. But in 20 years, one of the essential components of the liquid-crystal displays, or LCDs, that make many of our gadgets possible could disappear. To address the potential shortage of this component — the element indium — researchers report in the journal *ACS Sustainable Chemistry & Engineering* a new way to recover the valuable metal so it could be recycled.

Many consumer electronics from laptops to tablets contain thin films of indium tin-oxide that act as transparent conductive coatings in the displays. Currently, the rare-earth metal is not being adequately recycled. And in China alone, experts estimate that consumers will throw out 100 million TVs, computers, and laptops between 2014 and 2020. This rapid turnover explains in part why the limited global reserves of indium are in danger of running out. So Jinhui Li and colleagues set out to devise a new method to get the metal back from discarded products.



Researchers performed 18 experiments to find the optimal conditions for coaxing indium from LCDs. The most effective technique involved crushing and grinding LCD glass into particles less than 75 micrometers, or 0.003 inches, in size and bathing them in a sulfuric acid solution at 122 degrees Fahrenheit. These and other key parameters, Li and colleagues say, could contribute to a closed-loop process of indium recovery that could allow the display industry to get indium from discarded electronics rather than using dwindling reserves.

Read more about the research: "Recycling Indium from Scraped Glass of Liquid Crystal Display: Process Optimizing and Mechanism Exploring," *ACS Sustainable Chem. Eng.,* 2015, 137 (21), pp 6947–6955.

The amount of hydrogen in liters termites can produce by ingesting a single sheet of paper. **2**

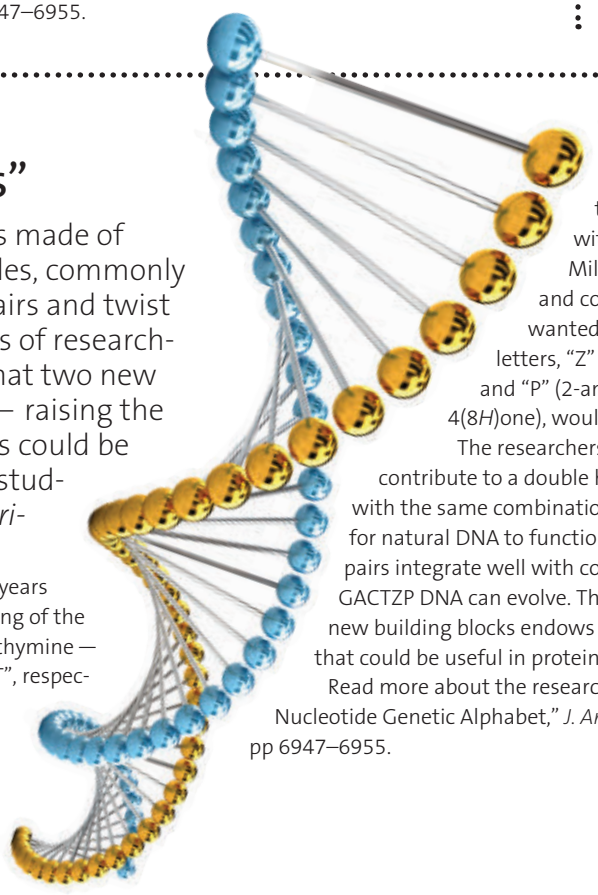
220 The pressure (in GPa) at which hydrogen becomes opaque and electrically conductive at room temperature.

The percentage of global **28** methane emissions that can be attributed to cows and other livestock.

1034 *The size in carats of a diamond that was found 50 light-years away in the constellation Centaurus.*

Expanding the code of life with new "letters"

The DNA encoding all life on Earth is made of four building blocks called nucleotides, commonly known as "letters", that line up in pairs and twist into a double helix. Now, two groups of researchers are reporting for the first time that two new nucleotides can do the same thing — raising the possibility that entirely new proteins could be created for medical uses. Their two studies appear in the *Journal of the American Chemical Society*.



Synthetic biologists have been attempting for years to expand on nature's genetic "alphabet", consisting of the nucleotide bases cytosine, guanine, adenine, and thymine — also represented by the letters "C", "G", "A", and "T", respectively. But so far, the potential additions they've tested have shown limited promise. For example, one duo pairs up but doesn't form a helix, an important criterion given that the bases would have to incorporate fairly seamlessly with the original four to be useful.

Millie M. Georgiadis, Steven A. Benner, and colleagues from Indiana and Florida wanted to see if another potential set of letters, "Z" (6-amino-5-nitro-2(1*H*)-pyridone) and "P" (2-amino-imidazo[1,2-*a*]-1,3,5-triazin-4(8*H*)one), would form a helix — and evolve.

The researchers found that multiple Z–P pairs can contribute to a double helix, just as C–G and A–T pairs do, with the same combination of flexibility and rigidity required for natural DNA to function. They also showed that the Z–P pairs integrate well with conventional pairs and that six-letter GACTZP DNA can evolve. The evolution of DNA containing the new building blocks endows the structures with new properties that could be useful in protein recognition.

Read more about the research: "Structural Basis for a Six Nucleotide Genetic Alphabet," *J. Am. Chem. Soc.,* 2015, 137 (21), pp 6947–6955.

ACS Chemistry for Life®

251st American Chemical Society National Meeting

UNDERGRADUATE PROGRAM

Sunday, March 13

Hospitality Center
8:00 AM – 5:00 PM

Undergraduate Research Oral Session
8:30 AM – 5:00 PM

Making the Most of Your First National Meeting
9:00 – 9:45 AM

Graduate School Reality Check, Part I: Getting In
10:00 – 11:15 AM
Cosponsored by the ACS Younger Chemists Committee

Chem Demo Exchange
11:00 AM – 12:30 PM

Graduate School Reality Check, Part II: You're In – Now What?
11:15 AM – 12:30 PM
Cosponsored by the ACS Younger Chemists Committee

Symposium: New Trends in Computational Chemistry
1:00 – 2:30 PM
Cosponsored by the ACS Computers in Chemistry Division

Networking Social with Graduate School Recruiters
1:00 – 5:00 PM

Workshop: Community Outreach Ideas
2:45 – 4:00 PM

All events are sponsored or cosponsored by the Society Committee on Education Undergraduate Programs Advisory Board
CHAIR: Matthew J. Mio, *University of Detroit Mercy, MI.* PROGRAM CHAIR: Steven Emory, *Western Washington University, Bellingham.*

www.acs.org/SanDiego2016

& Exposition

March 13–17, 2016
San Diego, CA
#acsSanDiego

Workshop: Networking 101
4:00 – 5:30 PM
Cosponsored by the ACS Younger Chemists Committee

Student Chapter Awards Ceremony
7:00 – 8:30 PM

Undergraduate Social
8:30 – 11:00 PM

ATTENTION: Graduate School Recruiters!

Network with highly qualified undergraduate students who are interested in learning more about your graduate school programs. Register to participate in the graduate school recruiting events. To register, go to www.acs.org/GradSchoolRecruiters. For more information contact undergrad@acs.org.

Monday, March 14

Hospitality Center
8:00 AM – 5:00 PM

Realities of the Chemical Industry: Career Paths and Opportunities
8:30 AM – 5:00 PM

Undergraduate Research Oral Session
8:30 AM – 5:00 PM

Symposium: Advances in Chemical Imaging: Ultra-Resolution to Single Molecules
9:00 – 10:30 AM
Cosponsored by the ACS Division of Analytical Chemistry and the Physical Chemistry Division of the ACS

Symposium: Frontiers in Inorganic Chemistry
9:45 – 11:45 AM
Cosponsored by the Division of Inorganic Chemistry of the ACS

Undergraduate Research Poster Session
12:00 NOON – 2:00 PM
Cosponsored by the ACS Divisions of Agricultural and Food Chemistry, Analytical, Environmental, Inorganic, Medicinal, Physical, and Polymer Chemistry, Biological Chemistry, and Geochemistry

Eminent Scientist Lecture
Featuring Richard N. Zare, Stanford University
2:30 – 3:30 PM

Speed Networking with Chemistry Professionals
3:45 – 5:15 PM

Kavli Lecture
5:30 – 6:30 PM

Sci-Mix/Successful Student Chapter Posters
8:00 – 10:00 PM

Tuesday, March 15

Realities of the Chemical Industry: Career Paths and Opportunities
8:30 AM – 5:00 PM

Chemistry and the Environment Film Series
12:00 NOON – 2:00 PM

ACS Programs and Services for Student Chapters

BY ACS STAFF

At the start of the 2015–2016 academic year, there were more than 1000 ACS chartered student chapters and nearly 20,000 undergraduate members of the ACS.

While most ACS chapters are located in the United States, including Puerto Rico, the number of international chapters is steadily growing — with chapters representing 20 countries around the world. To help foster the success of all chapters, ACS offers a wide range of programs and services through the ACS Undergraduate Programs (UP) Office.

Grants for student chapters — The UP Office offers grants to fund new activities, interaction among student chapters, community interaction, and travel to ACS national meetings. The chapter grants not only help fund many worthy chapter activities; they also provide practical experience to the chapter members who take part in the application process. Preparing grant proposals, submitting mid-year and follow-up reports, and summarizing how grant monies were spent are just a few examples of the types of skills and knowledge that students can carry over to their professional careers.

To apply for a New Activities Grant, Chapter Inter-Relations Grant, or Community Interaction Grant, members of a chapter are required to submit a detailed proposal outlining the project and how it will benefit their chapter and/or community. The grants are reviewed by faculty advisors according to ACS guidelines, and grants are awarded based on proposal content. All chapters receive feedback about their proposals, as well as tips for improving future proposal submissions.

***inChemistry* magazine** — Since you're reading this article, you've already encountered *inChemistry* magazine, which is published four times each year. It is available online and as a free app through your app store. As with other UP Office chapter resources, the magazine is a resource to help your student chapter succeed and thrive. In addition to features on careers, graduate school, and other student concerns, *inChemistry* contains a wealth of information for chapters, particularly encouraging them to take an active role in their communities. Each issue features chapter spotlights and articles on outstanding student chapter activities. These articles are contributed by professional chemists and freelance writers… along with student authors like you! If your chapter would like to submit article ideas or high-resolution photos, e-mail the UP Office.

Social media engagement — The UP Office maintains a vigorous online presence on Facebook, Twitter, Instagram, and Reddit to inform and support the online community of student chapters. We also publish the Reactions blog, where undergraduates can blog about a variety of topics, including student chapter activities. If you are interested in writing a Reactions blog post about chapter activities, your research, or a popular chemistry topic, e-mail the UP Office for more information.

National meeting programming — The Society Committee on Education (SOCED) Undergraduate Programs Advisory Board and other units within ACS plan sessions, develop workshops, and organize social events for students and chapters at every ACS spring national meeting. Events typically include a Chem Demo Exchange, an Eminent Scientist Lecture, a Student Chapter Awards Ceremony, an Undergraduate Social, and a How to Be a Successful ACS Student Chapter workshop, among others.

Regional meeting programming — The UP Office provides regional meeting programming grants to help active student chapters plan and host undergraduate programs at their respective regional meetings. These programs can include workshops and symposia that focus on career-building opportunities at a local level. Student members not only gain useful skills from the proposal writing and peer-review processes, but also learn about planning a technical meeting. Working with the steering committee of their respective region, chapter

You Can Start or Reactivate an ACS Student Chapter

HERE'S WHAT TO DO!

To start a new ACS student chapter

1. Identify at least six student members of the ACS at your school. (Contact the UP Office; we may be able to help!)
2. Identify a faculty member who will volunteer to serve as the chapter faculty advisor.
3. Complete a charter application form.
4. Compose a set of proposed bylaws. Bylaws set the basis for your chapter's mission.
5. Email your application and bylaws to **undergrad@acs.org** or mail them to ACS Undergraduate Programs Office, 1155 Sixteenth Street, NW, Washington DC 20036.

To reactivate an ACS student chapter

1. Identify at least six ACS student members at your school. (Contact the UP Office for assistance.)
2. Complete a reactivation application form (**www.acs.org/studentchapters**).
3. E-mail the form to **undergrad@acs.org** or mail it to the ACS Undergraduate Programs Office, 1155 Sixteenth Street, NW, Washington DC 20036.

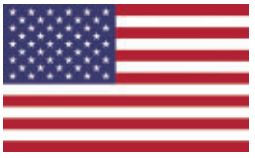
members plan a program that will be informative and educational for the students in their local area.

At the same time, students who attend undergraduate programs at regional meetings can meet and network with ACS local section officers and other ACS members. These professional chemists can become valuable resources and sounding boards for exploring the chemistry discipline, thinking about graduate school, or finding the right job.

Student Chapters Online — This resource provides a wealth of chapter activity ideas, a calendar of upcoming events and deadlines, and links to ACS resources that are especially useful to student chapters. The site provides a central location for chapters to store and access chapter information; it also helps chapters to better manage and track their day-to-day operations. This tool is also used to report chapter activities that will be reviewed by faculty advisors to determine chapter awards. Members can also review their award level and access reviewer feedback.

Access ACS Programs and Services for Student Chapters

- ACS student chapters webpage: **www.acs.org/studentchapters**
- Email: **undergrad@acs.org**
- Grants: **www.acs.org/studentchapters**
- *inChemistry* magazine: **www.acs.org/inchemistry**
- Social media:
  - Facebook — ACS Undergrad Programs
  - Instagram — @acsundergrad
  - Reddit — acsundergrad
  - Reactions blog — **www.acs.org/undergradblog**
  - Twitter — @ACSUndergrad
- Student Chapters Online: **www.studentchaptersonline.acs.org**
- Undergraduate Programs Office: **undergrad@acs.org** or 800-227-5558, ext. 4480



National recognition — The ACS student chapter recognition program is run by the UP Office. Annually in May, student chapters submit their annual reports using Student Chapters Online. A panel of student chapter faculty advisors reviews the reports and assigns award levels based on chapter performance. At each ACS spring national meeting, the UP Office and SOCED recognize these student chapters for their exceptional service and activities at the annual Student Chapter Awards Ceremony. ACS has held this annual ceremony since 1992 to thank and encourage student chapters as they continue to promote chemistry in their local communities. iC

To learn more about the full spectrum of services the ACS Undergraduate Programs Office provides, go to www.acs.org/undergrad. If you have any questions about any of these programs, please e-mail us at undergrad@acs.org.

Pow! Zzzzzappp! Buh-zinnnng!

How I Came to Write and Publish a Comic Book about Chemistry

BY VERONICA BERNS

Earlier this year, I raised more than $14,000 through a Kickstarter campaign to publish *Atomic Size Matters*, my doctoral thesis in chemistry presented as a fully illustrated comic book. News of this campaign was picked up by many newspapers, including the *New York Times*, *Washington Post*, and *Chicago Tribune*, as well as in *Mental Floss* and other magazines, and a multitude of websites.

How did this adventure begin? As a chemistry student, you can probably relate to this scenario. I had often tried to talk about my work with non-scientist family and friends, but ended up losing them at square one. Sometimes I was more successful at keeping my listeners' interest, but they were still so far removed from the research I was doing that I wasn't satisfied. Surely I could find a middle ground that pleased both my audience and myself.

Eventually, I reached for a pen and paper to try to explain some of my work in layman's terms. Orbitals? They sometimes look like dumbbells and four-leaf clovers. A mechanism? It's an atomic square dance. Crystal structure? That's a 3-D wallpaper pattern on the atomic scale. Some analogies of this sort can be sillier than others, but they each hold a kernel of truth because chemistry is so inherently visual. After classes upon classes, we chemists can take for granted our ability to automatically translate the chemical structures we envision into words. To those outside of the field, our shorthand nomenclature doesn't evoke the beautiful pictures that you and I can see when we say "d_{z^2} orbital" and "S_N2 mechanism".

I ultimately settled on a comic book format to pair pictures closely with story. And then I began to write.

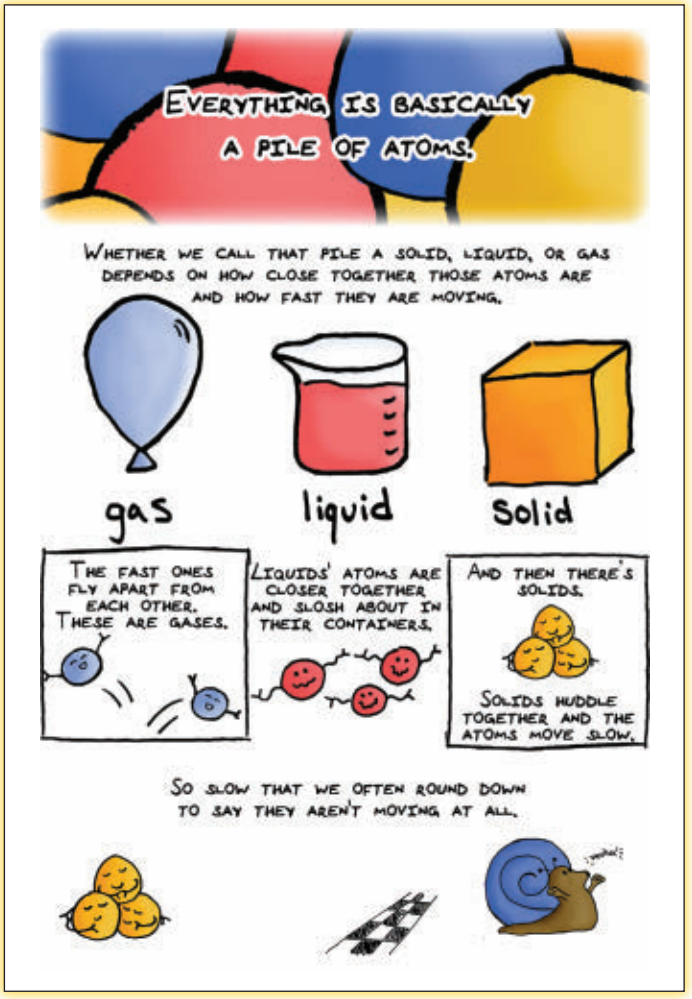
I knew I was going to be a scientist when I was a little kid. I got such joy from watching Bill Nye mix home chemicals, and by the time I was done with elementary school, I had been on every "Magic School Bus" field trip. Through middle and high school, I selected chemistry as my subject of choice, and then I went to a college with a strong program, where I began synthesizing new compounds in solid-state reactions.

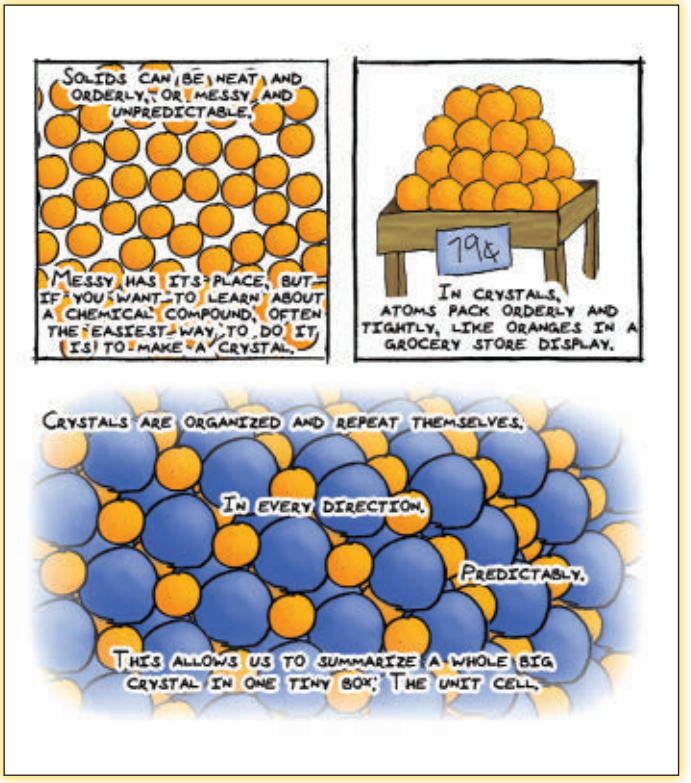
Choosing a graduate school was an easy decision. After applying to several schools, I was lucky enough to have a few options, but I knew exactly what I wanted to do when I read about Professor Danny Fredrickson's investigations into the complex crystal structures of intermetallic compounds at the University of Wisconsin–Madison. His work looks at crystal structures in a new way, interpreting complexity as an alternative to simpler patterns. I was firmly set on studying this fascinating relationship for my five years in grad school.

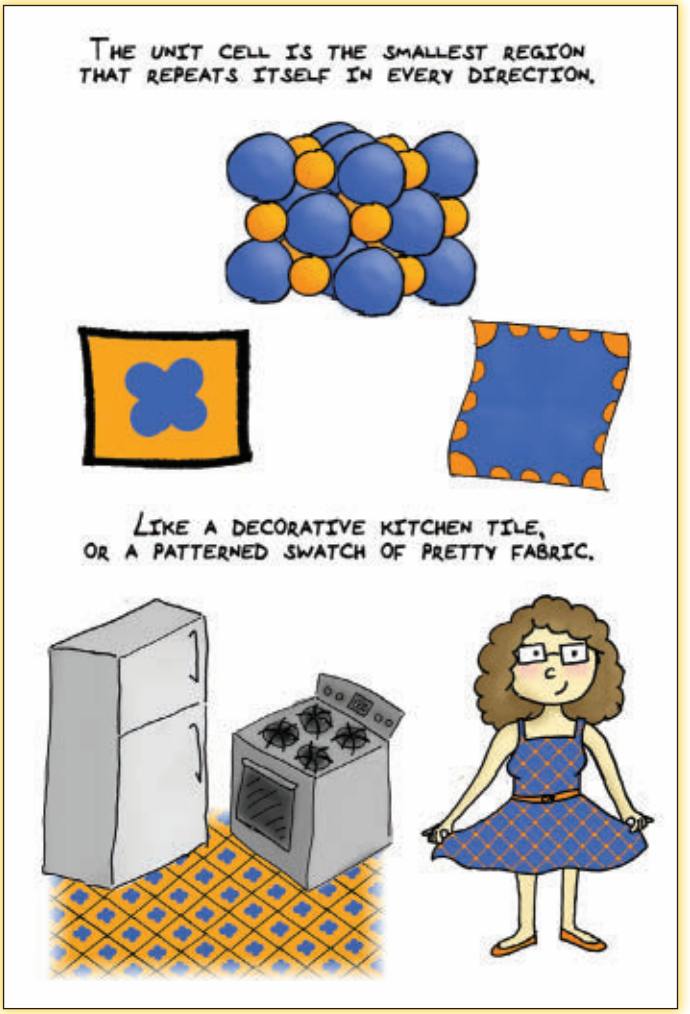
During those five years, like any grad student, I was immersed in the research. I learned everything I could about the patterns in the family of compounds known as intermetallics. In the summer of 2013, my time left in grad school became finite. My advisor and I met to plan for graduation and to count out the paper-worthy ideas that would become the constituent chapters of my thesis. Suddenly the whole world of research that I had explored, discovered, and built had limits. My upcoming graduation day was a way of celebrating my accomplishments, but I was concerned that this beautiful world I knew so well would disappear from my daily life and, worse yet, remain abstract and inaccessible to those around me.

Finding the right balance

I struggled to find the middle ground between readability and precision for a long time. It was important to me to convey accurate and honest information without talking down to the audience, or boring them. In Madison, I was very lucky to be surrounded by talented communicators who fell everywhere on the spectrum of scientist to non-scientist. (The spectrum's end points







were a labmate working on the very same project and a musician/political scientist of many talents.) I got as much feedback as possible along the way: make this clearer, add some more detail there, and a metaphor would be helpful here.

Fine-tuning the language enabled my comic book to satisfy the expectations and needs of the reader without compromising the detail and truth of the science. I was finding my middle ground.

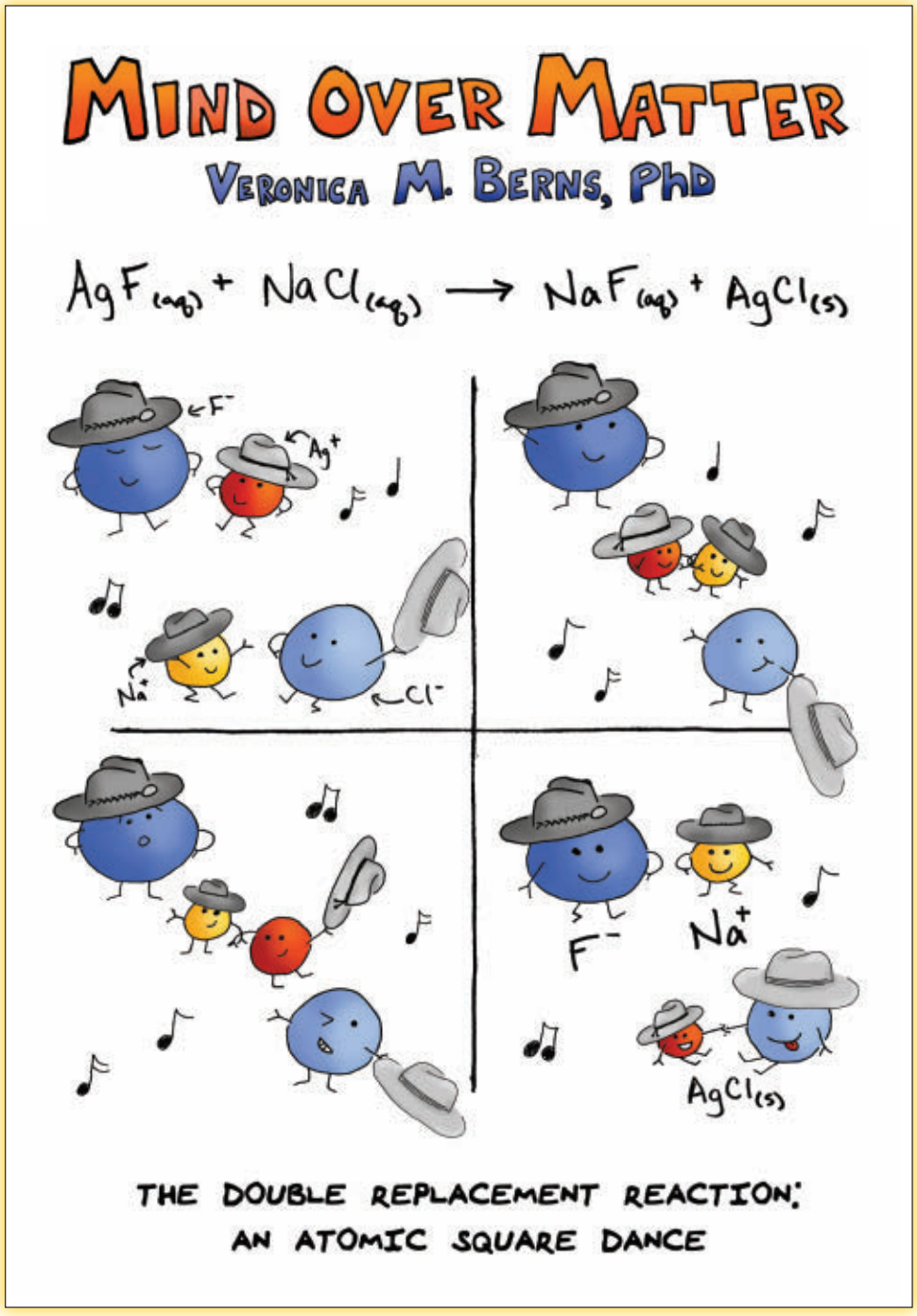
After I was satisfied with a script, the pictures came easily and I got to have a bit of fun with it. I included a lot of visual jokes and salutes to a favorite podcast and video game to break up the intensely abstract stuff and keep the audience's attention. After all, I knew first-hand that uninterrupted focus on the topic was difficult to maintain.

I worked religiously on the comic in Madison's coffee shops on the weekends, scribbling notes while nibbling on scones. Though the subject matter was exactly the same, it was a welcome break from writing the chapters of my dissertation. Scripting the comic book forced me to find the most important thread of information within all of the often-messy details of the science and strengthened my academic communications as well.

Making the comic book also changed the way I think about doing the chemistry itself. When planning experiments or calculations, I am constantly considering how each test will fit into our overall picture.

These benefits alone are a great reason for students and scientists everywhere to begin communicating outside of their field. Comics are my second language, but yours might be music, video, or creative writing. It's the process that matters, finding the most important thread of the work and translating academic jargon — which is certainly handy when speaking with peers! — into a different language that the general public can understand.

The final benefit of my work on the comic book was the unexpectedly kind outpouring of support during my Kickstarter campaign. I did a crowdfunding drive to introduce the comic book to the world, and over 500 people funded the first printing in exchange for one of the first copies. The messages and e-mails from fans were moving; many backers are parents who want to read the book with their STEM-inclined daughter, and some are children of engineers who never really could talk with Mom about what she does all day. I'm thrilled that the comic is becoming a way to start a conversation between people who already want to talk about science but don't know how to start. In addition, during the 2015–2016 academic year, each issue of *inChemistry* magazine is featuring "Mind Over Matter", a cartoon I've drawn exclusively for the magazine.



The big picture

Ultimately, *Atomic Size Matters* emphasizes the joy of doing science for discovery's sake. My graduate studies aren't going to build any high-capacity cell phone batteries, or much-needed solar panels. Even so, I get excited about fundamental science because it opens the door to these possibilities and more future technologies that haven't been imagined yet.

Over the past five years, I've learned that uncovering new truths about the universe is its own reward. As chemists, we already know the value of doing great science, but we have a long way to go to get the public as excited about chemistry as we are. iC

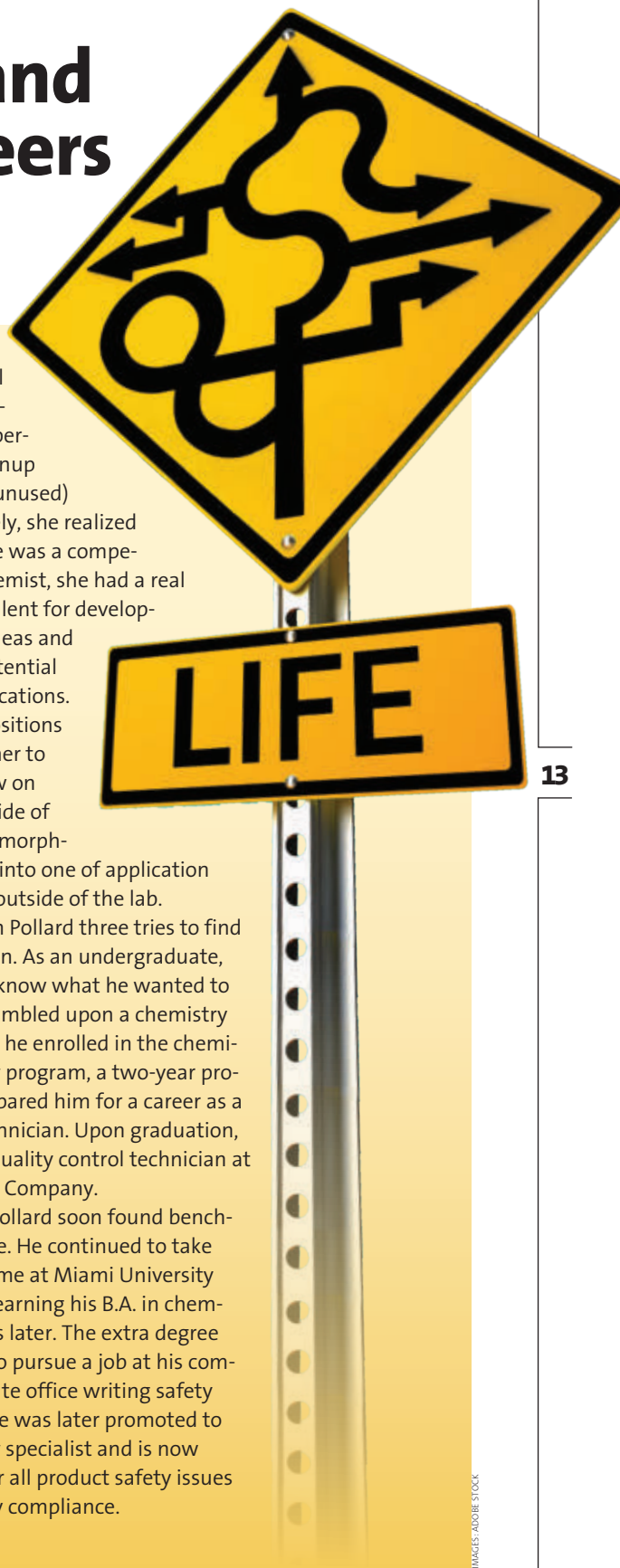
Veronica Berns *earned her Ph.D. at the University of Wisconsin–Madison in 2014, and now works as an engineer/R&D scientist at Honeywell UOP. When she's not in the lab, she's drawing comics that connect non-scientists to current topics in chemistry.*

The double replacement reaction — one of the classic types of chemical reactions — involves combining two ionic compounds in solution. The aqueous ions float around like atoms promenading at a square dance. Eventually, the two cations do-si-do and replace one another, making a solid, insoluble salt in the process. In this case, we see silver chloride solid "bow out" of solution, too insoluble and pooped to keep dancing in aqueous solution.

Navigating the Twists and Turns of Chemistry Careers

Brownian Career Paths

BY BLAKE ARONSON



On one level, careers in chemistry seem linear: study chemistry up to a certain degree level, get a job in your chosen field, and you're set. ACS and National Science Foundation employment surveys (see sidebar on page 15) generally show lower unemployment rates and higher salaries for chemists, compared with other professions. But this seeming stability does not take into account the twists and turns that individual lives take.

Your interests may evolve. The job market may fluctuate. A change in your personal life might throw your career for a loop (or vice versa). According to the Bureau of Labor Statistics, more than half of people working in the life, physical, and social science fields have been with their current employer less than five years.

In physical chemistry, the term "Brownian motion" refers to the random motion of particles in a gas or liquid that is caused by colliding into each other. Similarly, some people find that their personal and professional lives collide in a Brownian fashion.

But a Brownian career path is not necessarily a bad thing. Read on to learn more about how chemists have successfully navigated the twists and turns of their lives and careers in the real world.

I definitely want this career… no, wait…

Many undergraduate chemistry majors eventually become chemistry graduate students who pursue research careers. Since chemistry is an experimental science, it is easy to go along with research for a long time before you realize it is not your passion.

This was the case for Frankie Wood-Black, who began her research career at then-Conoco, studying the thermal degradation of polymers. Her research involved a lot of water analysis, and she was asked to support efforts to make the research center a zero-wastewater facility.

Wood-Black never returned to the bench. Instead, she started working with the refineries, implementing environmental regulatory programs and supervising the cleanup of orphan (or unused) sites. Ultimately, she realized that, while she was a competent bench chemist, she had a real passion and talent for developing research ideas and identifying potential business applications. So she took positions that enabled her to learn and grow on the business side of the company, morphing her career into one of application development outside of the lab.

It took Aron Pollard three tries to find his true passion. As an undergraduate, Pollard didn't know what he wanted to do until he stumbled upon a chemistry class. Inspired, he enrolled in the chemical technology program, a two-year program that prepared him for a career as a laboratory technician. Upon graduation, he became a quality control technician at Pilot Chemical Company.

However, Pollard soon found benchwork repetitive. He continued to take classes part-time at Miami University (Oxford, OH), earning his B.A. in chemistry four years later. The extra degree enabled him to pursue a job at his company's corporate office writing safety data sheets. He was later promoted to product safety specialist and is now responsible for all product safety issues and regulatory compliance.

IMAGES: ADOBE STOCK

"View jobs as opportunities to develop

While Pollard still enjoys chemistry, he finds a more satisfying challenge in integrating the bench chemistry that he had been doing with ever-evolving state and federal regulations. Indeed, Pollard is adding international regulatory compliance to his skill set and enjoying the expanded responsibilities that come with it.

My degree means I'll have this career… but…

Typically, to get a tenure-track position at a university, you need a doctoral degree. However, when Janet Gray Coonce graduated from her combined bachelor's/master's degree program at Oxford College of Emory University (GA), she was promptly invited to become a full instructor at the college. What started as a one-year temporary position turned into a seven-year career, based on the strength of her teaching.

In fact, Coonce's teaching skills were so strong that Tennessee Technological University (Cookeville) created a teaching position for her. Coonce still needed to compete for the job, but she was selected over other candidates with doctoral degrees. Now, she is one of the few tenure-track faculty members at a four-year institution with a master's degree.

Amanda Stewart also works in academia, even though she graduated from a chemistry-based technology program that prepared her for a career in industry. As a student, Stewart enjoyed her on-campus lab assistant job so much that upon graduation she took a chemical technician job at the University of Dayton Research Institute (OH). When the organization's safety coordinator left, those duties became 50% of her position.

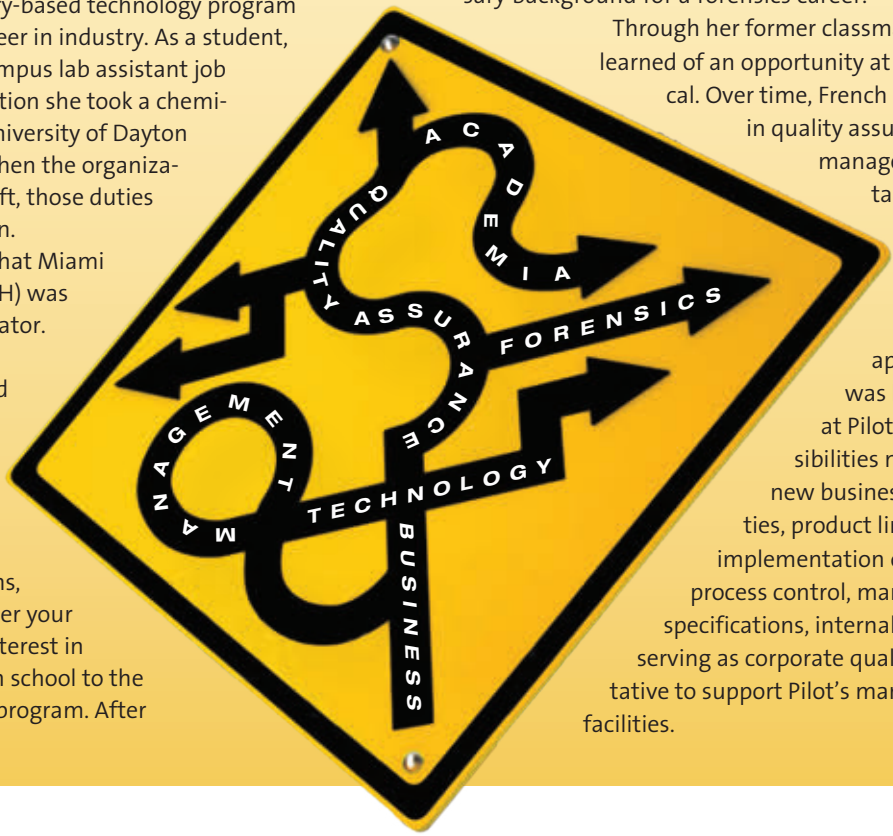
Later, Stewart learned that Miami University–Middletown (OH) was hiring a laboratory coordinator. Having worked there as a student, she knew she liked the environment, and applied for the position. She has been working there ever since.

Career changes happen for a number of reasons, some of which are not under your control. Jack Lee Hayes's interest in science took him from high school to the U.S. Navy's nuclear power program. After the Navy, he worked in industrial waste remediation for nine years, until corporate restructuring resulted in layoffs.

Customer interactions at his remediation job had convinced Hayes of the need for better science education in the general public. Intending to become a high school teacher, Hayes decided to earn a chemistry degree. In college and graduate school, he took a number of part-time jobs. One of these was an adjunct position at a local community college, where he discovered that he really enjoyed teaching nontraditional students. Upon completing his master's degree, he landed his current teaching position at State Fair Community College (Sedalia, MO).

Well, at least my personal life is sorted out… uh…

Sometimes it's your personal life that disrupts your career path. When a planned break between high school and college turned into marriage and a family, Angela French's forensics aspirations were temporarily put on hold. French enrolled in a chemical technology program, which enabled her to complete the first two years of a baccalaureate program quickly, get a good-paying job, and acquire the necessary background for a forensics career.



Through her former classmates, French learned of an opportunity at Pilot Chemical. Over time, French grew her skills in quality assurance and management. By taking advantage of new opportunities as they arose, French applied for and was hired for a job at Pilot. Her responsibilities now include new business opportunities, product line extensions, implementation of statistical process control, management of specifications, internal auditing, and serving as corporate quality representative to support Pilot's manufacturing facilities.

new skills, rather than just a paycheck."

OK, so now what?

So how can you possibly manage a career when everything — your company, your personal life, and even your interests — are in a constant state of flux? Here are seven tips:

1. **Start by taking advantage of a variety of opportunities in college.** For example, Pollard took several courses in college before stumbling upon chemistry as a career path. Elective courses can help you discover other passions, such as writing or business, and give you an edge if you need to make career changes later on. Internships can give you a chance to test different work environments to find your best fit.
2. **Learn to accept that a number of factors will be out of your control.** The weekend after Wood-Black defended her physics dissertation, the *Exxon Valdez* struck Prince William Sound's Bligh Reef, spilling 11–38 million gallons of crude oil into the Gulf of Alaska and nearby beaches. The spill forced many companies to reexamine their environmental practices, opening up a swath of opportunities that comprised a large portion of Wood-Black's career.
3. **Career tracks do not need to be permanent, even in academia.** Wood-Black, who started her career as a Ph.D. researcher, became an executive, then a consultant, and is now a college professor. She says she hears about people struggling to find tenure-track positions on the coasts, but her small Midwestern university has plenty of openings. She advises aspiring professors to earn tenure anywhere they can before trying for their ideal university. That way, she says, "You're still searching for a job, but you're doing it as a tenured professor, which is very different."
4. **View jobs as opportunities to develop new skills, rather than just a paycheck.** Wood-Black took positions in finance and patents to grow her business expertise, for example, while French has pursued a variety of positions that helped her move from technician to management.
5. **In some cases, you may need to go back to school.** Although Pollard entered the workforce with an associate's degree, he continued to take classes part-time. The bachelor's degree he earned enabled him to move from the bench to the safety career that he currently enjoys. Wood-Black earned her M.B.A. in order to pursue opportunities on the business side of Conoco. For Hayes, earning new degrees enabled him to completely change his career. All agree that going to school while working was hard — but for them, the payoff was worth the effort.
6. **Maintaining an active network throughout your career makes a difference.** Tips from former classmates led both Pollard and French to their current positions. The adjunct position that inspired Hayes to work at a two-year college came about because a colleague and some of his former students recommended him.
7. **Finally, always do your best.** Wood-Black's reputation for hard work and dedication gave her enough credibility to explore positions outside of her initial skill set. Coonce's teaching skills — including the willingness and ability to teach topics she herself had struggled with — prompted her current employers to create a teaching position just for her.

On paper, chemistry careers can seem far more stable than careers in other fields. In reality, changes in the workforce, in your interests, and in your life can make your career path seem positively Brownian. However, by following your passions and opportunities, you will not only survive, but thrive amid the changes. iC

Blake Aronson *is a Senior Education Associate in the ACS Undergraduate Programs Office, supporting two-year college activities. She has a Ph.D. in inorganic chemistry and experience in industry, education, and the nonprofit sectors.*

Gauging the Employment Landscape: Three Resources

"2014 Salaries & Employment." S.L. Rovner. *Chemical & Engineering News*, September 1, 2014; pp 68-71.

***Women, Minorities, and Persons with Disabilities in Science and Engineering: 2015* (Special Report NSF 15-311). NSF, National Center for Science and Engineering Statistics. Available at www.nsf.gov/statistics/wmpd/.**

***Employee Tenure Summary*; U.S. Bureau of Labor Statistics, released September 18, 2014. www.bls.gov/news.release/tenure.nr0.htm.**

WANT TO LEARN ABOUT MORE BROWNIAN CAREER PATHS?

Hop over to the ACS Reactions blog for more tales of real-world careers.
www.acs.org/UndergradBlog

ACS
Chemistry for Life®

inChemistry Mobile

Get fast, easy access to a digital library of chemistry career, graduate school, and ACS Student Chapter information.

Download on the App Store

Get it on Google play

Available on the kindle fire

Available free for Apple, Kindle Fire, and Android devices.

American Chemical Society Undergraduate Programs Office
Send comments to: undergrad@acs.org.

www.acs.org

SPOTLIGHT

City Colleges of Chicago Wilbur Wright College

Chicago, IL

COMPILED BY ROBIN LINDSEY

Chapter presidents: Matthew Miller and Rachel Weaver **Chapter members:** 76 **ACS student members:** 26
Institution description: Large, public, urban, minority-serving, 2-year

Q: How do you ensure a smooth officer transition from year to year?

A: We elect a new set of officers for the new academic year in March of the previous year. The new officers shadow the existing officers for a smooth transition.

Q: Do you have any unique positions? If so, what kinds of specialty positions are those?

A: In addition to our executive board, we have a team of five directors, including an education director, who is responsible for tutoring and for our members' professional development, and a community service director, who oversees community service activities. In addition, our membership director keeps track of members and recruitment, the activities director is responsible for planning any other activities, and the public relations director promotes our chapter activities, runs our social media, and keeps our website up to date.

Q: How did you celebrate National Chemistry Week and Chemists Celebrate Earth Day?

A: Our National Chemistry Week activities vary depending on the theme. Last year, we celebrated the Sweet Side of Chemistry by giving presentations on the benefits of chocolate, selling chocolates, providing chemistry demonstrations to the public, and hosting a quiz show.

For Earth Day, we partnered with student government and the Environmental Club. We taught the audience how to make green soap and we also made posters on chemical weapons to mark the 100th anniversary of the use of chemical weapons.

Q: In what ways does your chapter give back to the community?

A: We do chemical demonstrations and classroom visits at local high schools and grade schools, and we design and run Science Olympiad events. Our members work with more than 1000 K–12 students at Back-to School nights and "You Be the Chemist" events. We also reached more than 2000 people by volunteering with our ACS local section at Higher Education Day during the Illinois State Fair.

Q: What local ACS student chapters have you collaborated with?

A: We send students to Illinois State University to compete in the Battle of the Chem Clubs, in cooperation with the ACS Heartland Local Section. Our students also attend events sponsored by the ACS Chicago Local Section.

Q: What innovative methods of communication are used to inform chapter members of chapter activities?

A: In addition to using word of mouth, we rely on social media and we also send text and e-mail messages to our members.

PHOTO COURTESY OF CITY COLLEGES OF CHICAGO WILBUR WRIGHT COLLEGE

The City Colleges of Chicago Wilbur Wright College chapter earned an Outstanding award for the 2014–2015 academic year.

Q: What is your most successful fundraiser to date?

A: We sell safety glasses to laboratory students for a cheap price.

Q: Is there anything else you want the readers of *inChemistry* to know about your chapter?

A: We are vibrant, and our members build community and long-lasting friendships in addition to a love of chemistry. iC

Faculty advisor:
Doris Espiritu, 4 years

Q: How did you become a faculty advisor?

Espiritu: Together with one student, we founded ACS-Wright College Student Chapter through the ACS Starter Grant.

Q: What challenges have you faced in your position?

Espiritu: We have a fast turnover of members, but the college is very supportive of our activities.

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

Espiritu: Seeing students grow their love of chemistry and build a community among themselves. It is also very rewarding when ACS-WCSC alumni come back and credit ACS-WCSC for their success when they transfer to a four-year college.

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

Espiritu: Passion is contagious. When students see that you are passionate about their success, they develop that passion to be successful and to give back. iC

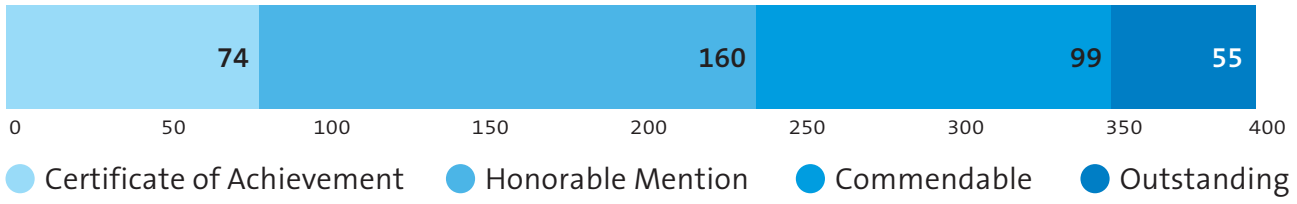
Student Chapter Award Profile 2015

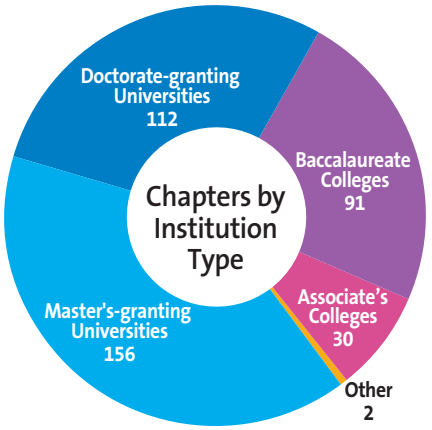
In 2015, 419 ACS student chapters submitted annual reports for award review, the most in submission history! Learn more about some of the award winners.

20 Members: Median chapter size

Largest chapter: **260 Members**

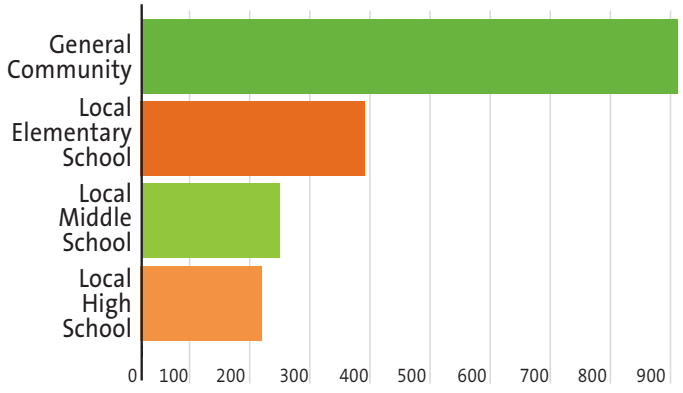
Chapter Awards





206 Most activities reported by a single chapter

Total Reported Chapter Events, by audience and type



2338 Professional Development
Hosting speakers, field trips, etc.

Chapter Development **3664**
Social activities, business meeting, etc.

3323 Service
Demonstrations, lab tours, etc.

538 Total local section collaborative activities reported

SPECIAL RECOGNITION FOR 2014–2015 ACS STUDENT CHAPTER PROGRAMS

The ACS Society Committee on Education has selected the following student chapters to receive special recognition for the programs and activities described in their 2014–2015 annual reports. They will be honored at the 251st ACS National Meeting in San Diego, CA, on Sunday, March 13, 2016.

In addition, because student involvement in applying Green Chemistry Institute (GCI) chemistry principles and practices is so essential to integrating environmentally benign technologies in academia and industry, the ACS GCI has recognized 43 student chapters that have engaged in at least three GCI activities during the 2014–2015 academic year.

We congratulate 55 Outstanding, 99 Commendable, and 160 Honorable Mention award-winning student chapters.

KEY: ***Winning Institutions*** Faculty Advisors *Chapter Presidents*
= Green Chemistry Student Chapter

OUTSTANDING

Angelo State University, San Angelo, TX
Edith Osborne & Kevin Boudreaux
Sergio Pena & Blake Holle

Barry University, Miami Shores, FL
George Fisher & Tamara Hamilton
Hangny Dao & Peter Nwokoye

California State University-Fresno
Melissa Golden & Donnie Golden
Annabelle Lolinco & Vinay Kumar

California State University-Stanislaus, Turlock
Elvin Aleman
Eshani Nandita & Quynh Phan

Chabot College, Hayward, CA
Laurie Dockter
Alejandra Ayala & Melissa Chavez-Casteneda

City Colleges of Chicago Wilbur Wright College, IL
Doris Joy Espiritu
Matthew Miller & Bryan Espiritu

Duquesne University, Pittsburgh, PA
Jeffrey Evanseck & Ellen Gawalt
Sarah Kochanek & Benjamin Jagger

East Los Angeles College, Monterey Park, CA
Armando Rivera-Figueroa & Kirk Olsen
Hever Castellanos & Marco Antonio Lopez

Eastern Oregon University, La Grande
Anna Cavinato
Tel Winegar & Miranda Gathright

Erskine College, Due West, SC
Tiffany Hayden
Clara Formby & Dallas Roe

Florida Atlantic University, Boca Raton
Evonne Rezler
Dominic Rucco & Paul Scesa

Florida International University-Biscayne Bay Campus, Miami
Mayra Exposito & Milagros Delgado
Rafael Grunglasse & Sandra Ike

Georgia College & State University, Milledgeville
Catrena Lisse
Kelly Taylor & Jessica Minnick

Heidelberg University, Tiffin, OH
Nathaniel Beres
Lily White & Claire Chandler

Hope College, Holland, MI
Jeffrey Johnson
Matthew Rolain & Lisa Savagian

Inter American University of Puerto Rico-San Germán Campus
Angela Gonzalez
Amarilis Zapata Feliciano

Mississippi College, Clinton
Trent Selby & Dale Rosado
Niki Patel & Zachary Burns

Northeastern University, Boston, MA
Kathleen Cameron
William Timson & Jaime Conway

Ouachita Baptist University, Arkadelphia, AR
Sara Hubbard & Joseph Bradshaw
Dustin Walter & Trevor Meece

Pasadena City College, CA
Veronica Jaramillo & Peter Castro
Kar Wing, Kevin Tsang, & Patrick Donabedian

Pima Community College, Tucson, AZ
Lonnie Burke & Pedro Flores Gallardo
Jasper Bloodsworth & Christopher Marshall

Saginaw Valley State University, University Center, MI
Jennifer Chaytor & Adam Warhausen
Erin Campau

Saint Louis University, MO
Brent Znosko
Nicholas Schlarman & Daniel Sepe

Saint Michael's College, Colchester, VT
David Heroux
Chris Ricciardi & Zachary Minior

Salt Lake Community College, UT
Ron Valcarce
Sarah Christensen & Jessica Van Wagoner

Santa Monica College, CA
Jennifer Hsieh
Eugene Kim & Benjamin Shao

South Texas College, McAllen
Ludivina Avila & Joe Studer
Reymundo Gonzalez & Amber Michalk

Southern Illinois University Edwardsville
Sarah Luesse
Micheal Ontl & Abby Cox

Southwest Minnesota State University, Marshall
Noelle Beyer & Frank Schindler
Seifemichael Kenea & Megan Bruns

St. John's University, Jamaica, NY
Neil Jespersen
Megan Schoenberger

Tennessee Technological University, Cookeville
Daniel Swartling & Amanda Crook
Kelsey Richards & Marian Butner

Texas Christian University, Fort Worth
Kayla Green & Benjamin Janesko
Caleb Ashbrook & Prabhesh Patel

The College of New Jersey, Ewing
Benny Chan & Abby O'Connor
Taylor Maney & Susan Knox

The Pontifical Catholic University of Puerto Rico, Ponce
Lizette Santos & Carmen Collazo
Kessia Hernandez & Carlos Echevarria Maldonado

Truman State University, Kirksville, MO
Timothy Humphry & Barbara Kramer
Eli Riekeberg & Leela Chapman

Union University, Jackson, TN
Randy Johnston & Joshua Williams
Phillip Kurtzweil & Evan Lewoczko

University of Alabama at Birmingham
Jacqueline Nikles & Gary Gray
Calla McCulley & Brandi Hendrix

University of Central Florida, Orlando
Stephen Kuebler
Morgan Beebe & Bailey Mourant

University of Detroit Mercy, MI
Matthew Mio & Kendra Evans
Theresa Dierker & Grace Nguyen

University of Houston, TX
Simon Bott
Seung Hong & Thien Ngo

University of Mary Hardin-Baylor, Belton, TX
Lin Gao & Joy Beckendorf
David McKinzey

University of Mary Washington, Fredericksburg, VA
Leanna Giancarlo
Brooke Andrews & Anisa Kaur

University of Pittsburgh, PA
George Bandik
James McKay & Joshua Casto

University of Puerto Rico at Cayey
Edgardo Rivera Tirado
Angelica Gonzalez-Sanchez & Jeralyne Padilla

University of Puerto Rico-Aguadilla
Brenda Ramos-Santana & Carlos Ruiz-Martinez
Deborah Morales-Rosa

University of Puerto Rico-Mayagüez Campus
Jessica Torres Candelaria
Hector Quinones Rosaly & Michael Lu Diaz

University of Puerto Rico-Rió Piedras Campus
Ingrid Montes
Raul Martinez-Quinones & Wilfredo Pediera Garcia

University of Tennessee at Martin
S.K. Airee
Layla Gargus & Drake Williams

University of Texas at Tyler
Laura Boyd & Jason Smee
Patrick Martin & Brian Western

Wayne State University, Detroit, MI
Mary Pflum & Matthew Allen
Nathaniel Hardin & Adrianna Breckenridge

Waynesburg University, PA
Evonne Baldauff & Robert La Count
Grant Strouse & Cara Petrone

West Virginia State University, Institute
Micheal Fultz & Thomas Guetzloff
Brandi Bricker & Amanda Smith

Western Washington University, Bellingham
Steven Emory & Elizabeth Raymond
Chris Grote & Tess Clinkingbeard

Wilkes University, Wilkes-Barre, PA
Adriana Dinescu & Christopher Henkels
Brittany Clem & Alaa Fadel

Xavier University of Louisiana, New Orleans
Michael Adams & Candace Lawrence
Lydia Mensah & Clarence Pace

KEY: ***Winning Institutions*** Faculty Advisors *Chapter Presidents*
= Green Chemistry Student Chapter

COMMENDABLE

Adams State University, Alamosa, CO
Renee Beeton & Aaron Moehlig
Danielle Karlin & Christian Nenninger

Alvernia University, Reading, PA
Rosemarie Chinni & Kevin Burns
Amanda Chappell & Terence Harrington

Aquinas College, Grand Rapids, MI
Elizabeth Jensen
Nicholas Pierce & Levis Nguyen

Augustana College, Sioux Falls, SD
Jared Mays
Ethan Pauley & Delaney Schara

Belhaven University, Jackson, MS
Philip Carlson & Reid Bishop
Jakob Anderson & David Vaughan

Bethany College, WV
Scott Brothers & Lisa Reilly
Samuel Duvall & Julia Mouch

California State University-Chico
Randy Miller
Carter Holt & Natalie Holmberg-Douglas

California State University-Sacramento
Cynthia Kellen-Yuen & Benjamin Gherman
Ashley Jackson

Canisius College, Buffalo, NY
Phillip Sheridan
Jonathan Binns & Caressa Trueman

Carroll University, Waukesha, WI
Gregory Marks & Michael Schuder
Amy Ott & Justin Rountree

Carthage College, Kenosha, WI
Joshua Neukom
Ashley Gladis & Suresh Graf

Centenary College of Louisiana, Shreveport
Thomas Ticich
Blake Bourgoyne & Paige Pritchett

Central Michigan University, Mount Pleasant
Dale LeCaptain & Sharyl Majorski
Jennifer Farley & Alyssa Shepard

College of the Canyons, Santa Clarita, CA
Kathy Flynn
Andrew Berg & Savannah Rousselo

Concordia University, Irvine, CA
Lindsay Kane Barnese
Grace Chong & Rafael Ramos

Drexel University, Philadelphia, PA
Daniel King
Stefanie Farrell & Dmitry Malyshka

Elizabethtown College, PA
Kristi Kneas
Stephanie Tretter & Melissa Peiffer

Emory University, Atlanta, GA
Douglas Mulford & Jeremy Weaver
Jieming Fu & Shruti Gupta

Florida International University, Miami
Joseph Lichter & Uma Swamy
Vanessa Linero & Robert Wood

Florida Southern College, Lakeland
Carmen Gauthier & Jason Montgomery
Grace Beggs & Rubens Petit Homme

Francis Marion University, Florence, SC
Jennifer Kelley
Marisai McCrimmon & Bailey Carnes

Frostburg State University, MD
Peggy Biser
Sara Zachritz

Georgia Gwinnett College, Lawrenceville
Gillian Rudd & Rebecca Kalman
Sumera Jiva & Celena Fussell

Georgia Institute of Technology, Atlanta
Christy O'Mahoney
Maeve Nagle & Anabel Liyen Cartelle

Georgia State University, Atlanta
Jyotsna Thota
Christina Fischer

Gordon College, Wenham, MA
Irvin Levy
Daruenie Andujar & Logan Walsh

Grand Valley State University, Allendale, MI
Paul Cook
Tyler Cooley & Talon Kosak

Hartwick College, Oneonta, NY
Zsuzsanna Balogh-Brunstad
Megan van der Horst & Calvin Yeager

Henderson State University, Arkadelphia, AR
Janice O'Donnell & David Bateman
Hunter Wayland & Rachael Kew

Hillsdale College, MI
Matthew Young & Christopher Hamilton
Zoe Norr & Bilyana Petkova

Hiram College, OH
Carol Shreiner & Steven Romberger
Nancy Wells & Kyle Blaha

Hofstra University, Hempstead, NY
Scott Lefurgy
Edward Zhou & Beena Biju

Houston Baptist University, TX
Saul Trevino
Mariana Carretero-Murillo

Humboldt State University, Arcata, CA
Jenny Cappuccio
John Andre & Marcos Amezcua

Illinois State University, Normal
Jun-Hyun Kim & Eirin Sullivan
Erasmus Jugovic & Leah Stateman

Illinois Valley Community College, Oglesby
Matthew Johll & Promise Yong
Tiernan Ebener & Tonisha Thacker

Inter American University of Puerto Rico Ponce Campus, Mercedita
Edmy Ferrer Torres
Lenianne Ramirez & Aleishka Almodovar Ortiz

Kent State University, OH
Margaret Leslie & Erin Michael
Kayla Ivey & Heather Andro

Lincoln Land Community College, Springfield, IL
Jennifer Ramm & Michael Ramm
Leonard Smith & Tim Webb

Maryville College, TN
Nathan Duncan & Mary Turner
Mary Alexander & Ravyn Thompson

Mercer University, Macon, GA
Garland Crawford & Jennifer Look
Kirsten Brown & Jeffrey Mimbs

Middle Tennessee State University, Murfreesboro
Gary White & Keying Ding
Henry Bradley

Mississippi State University
Emily Rowland
Margaret Parker & Mary Jo Pakkala

Missouri Western State University, Saint Joseph
Steven Lorimor
Alex Luke & Adam Hunt

Morehead State University, KY
Mark Blankenbuehler
William Hull & Aaron Hunter

Muhlenberg College, Allentown, PA
Kathleen Herrera
Jessica Wilson & Lauren Warning

Murray State University, KY
Kevin Miller
Abbey Adler

Oakland University, Rochester, MI
Charlene Hayden
Hanna Trzeciakiewicz & Jessica Hovey

Olivet College, MI
Susanne Lewis
Megahn Piper & Amanda George

Pennsylvania State University-University Park
Lori Van Der Sluys &
Jacqueline Bortiatynski
Taylor Breidenbaugh & Corinne Wilson

Point Loma Nazarene University, San Diego, CA
Sara Choung
Catherine Kay

Presbyterian College, Clinton, SC
Evelyn Swain
Anna MacGregor & Brenda Namwawu

Radford University, VA
Cindy Burkhardt & Joseph Wirgau
Brooke Riley & Rachel Kaufman

Saint Francis University, Loretto, PA
Edward Zovinka
Dallas Mosier & Cathleen Fry

Santa Clara University, CA
Linda Brunauer
Pavel Klier & Camille Dubois

Seton Hill University, Greensburg, PA
Demetra Czegan
Natalie Balfe

Southwestern College, Chula Vista, CA
David Brown
Maria Meza & Ivan Ulloa

Spelman College, Atlanta, GA
Shanina Sanders
Kimimnickque Harbert & Faith Waldron

Spring Hill College, Mobile, AL
Raluca Craciun
Kyle Halstead & Morgan Davis

St. Edward's University, Austin, TX
Donald Wharry
Katharina Weber & Christopher Jackson

Stark State College, North Canton, OH
Amy Sanders
Julie Weber & Ashley Fick

State University of New York College at Cortland
Katherine Hicks & Andrew Roering
Samuel Lothridge & Tariq Hussain

Stern College for Women-Yeshiva University, New York, NY
Donald Estes & Chaya Rapp
Leah Zerbib

Tarleton State University, Stephenville, TX
William Whaley
Tanner Roberson & Ryann Goodrich

Texas A & M University–Commerce
Allan Headley
Khanh Truong & Kailee Johnson

Texas Tech University, Lubbock
Dominick Casadonte & Michael Findlater
Adrian Quintana & Jon Hill

The University of Memphis, TN
Richard Petersen & Mark Freilich
Rachel Stein

The University of Texas at Dallas, Richardson
Kenneth Balkus
Dorothy Nguyen & Eli Sanchez

The University of Utah, Salt Lake City
Holly Sebahar & Thomas Richmond
Michael Kiley & Carter Jennings

Trinity University, San Antonio, TX
Adam Urbach
Natalie Seitzman & Megan Coffer

Tuskegee University, AL
Michael Curry
Taryn Dooms

Union College, Schenectady, NY
Laura MacManus-Spencer &
Andrew Huisman
Thomas Kolb & Hannah Coffin

University of Arizona, Tucson
John Pollard
Justin Lopez

University of California-Los Angeles
Richard Kaner & Avalon Dismukes
Nanetta Pon & Samuel Chiang

University of California-Riverside
Jack Eichler
Joe Mejia & Kaitlyn Adams

University of California-San Diego, La Jolla
Stacey Brydges & Haim Weizman
Karan Patel & Amy Kuhn

University of Central Arkansas, Conway
Faith Yarberry & Karen Steelman
Johnathon Schmidt & Jalyn Henderson

University of Colorado Denver, Anschutz Medical Campus
Marta Maron
Jack Henderson & Richard Rodriguez-Brizuela

University of Florida, Gainesville
Ronald Castellano & Leslie Murray
McKenzie Coughlin & Nicholas Lee

University of Kansas, Lawrence
Paul Hanson & Roderick Black
Michael Holtz & Vinaykumar Tallavajhala

University of Maryland Baltimore County
Stephen Mang & Tara Carpenter
Natalie Steenrod & Matthew Shin

University of Massachusetts Lowell
Kwok-Fan Chow
Megan Lulsdorf & Tyler Harrison

University of Michigan-Flint
Jessica Tischler & Samantha Grathoff
Alexandrea Rizo & Catherine Wilhelm

University of Puerto Rico at Arecibo
Maiella Ramos & Vanessa Montalvo
Ramon Santiago & Barbara Ramos Satiorenzo

University of Puerto Rico-Humacao
Juan Suarez
Stephanie Luquis-Santos & Anitza Figueroa

University of San Diego, CA
Christopher Daley
Kristina Zivkovic & Elizabeth Webster

University of St. Thomas, Houston, TX
Elmer Ledesma
Angel Rivera & Keagan Foss

University of Texas at El Paso
James Becvar & Bonnie Gunn
Samantha Rodela & Jose Enriquez

University of the Sciences in Philadelphia, PA
Catherine Bentzley & Vanessa Jones
Susan Jones & John Hendricks

University of Toledo, OH
Edith Kippenhan
Zane Wilhelm & Jonathan Tomko

University of West Florida, Pensacola
Chris Nicholson
Alyssa West & Natalie Dzadek

University of Wisconsin-Platteville
Raja Annamalai
Joseph McKillip & Kjerstin Gronski

Utica College, NY
Michelle Boucher & Alyssa Thomas
Katherine Pearce & Danielle McHarris

Virginia Polytechnic Institute and State University, Blacksburg
Maggie Bump
Zachary Bear & Tyler Flournoy

Washburn University, Topeka, KS
Shaun Schmidt
Rachel Beiker & Sarah Walker

West Virginia Wesleyan College, Buckhannon
Joanna Webb & Edward Wovchko
Angel Harvey & Notashia Baughman

Westminster College of Salt Lake City, UT
Robyn Hyde & Paul Hooker
McKayla Poulsen

Xavier University, Cincinnati, OH
Barbara Hopkins
Emily Kerr & Cassandra Zaremba

York College of Pennsylvania
Kathleen Halligan
Cory Weiss & Gilbert Vial

KEY: ***Winning Institutions*** Faculty Advisors *Chapter Presidents*
= Green Chemistry Student Chapter

HONORABLE MENTION

Allegheny College, Meadville, PA
Mark Ams & Ivelitza Garcia
Matt Gray

Arcadia University, Glenside, PA
Chester Mikulski
Amanda D'Orazio & Emily Ng

Arkansas Tech University, Russellville
Charles Mebi
Sarah Zulfer & Eric Turner

Armstrong State University, Savannah, GA
Catherine MacGowan
Yanairie Caraballo & Annalise Evans

Ashland University, OH
Perry Corbin & Rebecca Corbin
Alison Biro & Kylee Bogner

Ball State University, Muncie, IN
Ryan Jeske & Scott Pattison
Olivia Manahan & Eric Cale

Bard College, Annandale on Hudson, NY
Christopher LaFratta
Olja Simoska

Bellevue College, WA
Carole Berg
Kenji Nakamichi & Matthew Rice

Belmont University, Nashville, TN
Alison Moore & Rachel Rigsby
Jennifer Shin & Sarah Cannavino

Benedictine University, Lisle, IL
Kari Stone
Dana Cairns & Fatjona Aliaj

Blinn College, Bryan, TX
Hanan Abdou
Yasmin Pajouhafsar & Wesley Adams

Bradley University, Peoria, IL
Dean Campbell
Joshua Peterson & Felicia Staiger

Brigham Young University, Provo, UT
Scott Burt
Ryjul Stokes & Brielle Woolsey

Brigham Young University-Idaho, Rexburg
Aaron Johnson
Tanner Bond

Bucknell University, Lewisburg, PA
Karen Castle
Tyler Fulton & Kevin Garcia

California State Polytechnic University-Pomona
Laurie Starkey & Michael Keith
Daniel Vallejo & Stephanie Salas

California State University-Bakersfield
Danielle Solano
Nkiruka Oragwam

California State University-Channel Islands, Camarillo
Philip Hampton
Iris Mejia & Alicia Chavez

Cameron University, Lawton, OK
Elizabeth Nalley & Gary Buckley
Roosevelt Mathews & Alexander Rivas

Carlow University, Pittsburgh, PA
David Gallaher
Jacquelyn DiGiannurio & Sarah Klos

Carroll Community College, Westminster, MD
Ahmad Khan
Wayne Jones

Catawba College, Salisbury, NC
Richard Macri
Amber Williamson & Brooke Baumgarten

Cedarville University, OH
Dennis Flentge
Steven Hartman & Ericka Kistler

Central Washington University, Ellensburg
Timothy Sorey & Dion Rivera
Chad Carman & Chelsey Verwey

Chapman University, Orange, CA
Daniel Wellman
Jennifer Bowen

Christian Brothers University, Memphis, TN
Dennis Merat
Jimmy Nguyen & Brent McGlaughlin

Clarion University of Pennsylvania
Amanda Lockwood
Chelsea Korchok & Warren Huey

Coe College, Cedar Rapids, IA
Martin St. Clair
Marissa Franke

College of Mount Saint Vincent, Riverdale, NY
Pamela Kerrigan
Nick Malizia & Shadi Khayyo

College of William & Mary, Williamsburg, VA
Douglas Young & Kristin Wustholz
Allison Kelley & Christina Howard

Colorado School of Mines, Golden
Allison Caster & Mark Seger
Jason Loving

Colorado State University-Pueblo
David Lehmpuhl & David Dillon
Laura Tonko & Alisha Mason

Concord University, Athens, WV
Darrell Crick & Kimberly Chambers
Jesse Kidd & Madison Crank

Delaware State University, Dover
Cheng-Yu Lai & Shani Samuel
Kurt Deixler & Chantell Gissendaner

Delta State University, Cleveland, MS
Sharon Hamilton & Lacey Fitts
Bonnie Moore & Jean Blackman

Drury University, Springfield, MO
Madhuri Manpadi & Albert Korir
Brittany Sanders & Rattanaporn Malitong

East Stroudsburg University of Pennsylvania
William Loffredo
Briana Magistro & Althea Ross

Eastern Illinois University, Charleston
Edward Treadwell & Rebecca Peebles
Savannah Kapper

Eastern University, Saint Davids, PA
Jeanne Bundens
Mary Frances Barr

Edinboro University of Pennsylvania
Qun Gu
Michael Spicuzza

El Camino College, Torrance, CA
Robert Shibao
Abel Ricano

Fairleigh Dickinson University-College at Florham, Madison, NJ
Amber Charlebois & Gordan Reeves
Nicholas Bellanich & Matthew Sowers

Florida Institute of Technology, Melbourne
Yi Liao & Boris Akhremitchev
Ryan Fatt & John Bennett

Geneva College, Beaver Falls, PA
Rodney Austin
Sarah MacKenzie & Parker Brown

Gustavus Adolphus College, Saint Peter, MN
Amanda Nienow
Kelly O'Neill & Kari Roll

Idaho State University, Pocatello
Joshua Pak
Doug Walker & Brett Brownfield

Indiana University-Purdue University Indianapolis
Keith Anliker & Lin Zhu
Jessica Muldoon

Inter American University of Puerto Rico Metropolitan Campus, San Juan
Agnes Dubey
Keyla Lopez-Perez

Iona College, New Rochelle, NY
Sunghee Lee
Ricardo Oliveira & Peter Milianta

Keene State College, NH
James Kraly & Denise Junge
James Ulcickas

Knox College, Galesburg, IL
Diana Cermak
Oluwagbemiga Ojo & Brad Musselman

Lander University, Greenwood, SC
Albert Dukes
Kendrick Kinard & Heather Hembree

Loras College, Dubuque, IA
David Oostendorp & David Speckhard
Emily Gudenkauf & Morgan Rea

Los Angeles City College, CA
Terry Boan
Jaime Polanco & McKinley Prager

Los Angeles Trade-Technical College, CA
Renee Madyun
Christian Green & Miguel Limon-Martinez

Louisiana State University and Agricultural and Mechanical College, Baton Rouge
Rendy Kartika & David Spivak
Danté Johnson & Drew Harding

Loyola Marymount University, Los Angeles, CA
Nicole Bouvier-Brown
Iftin Abshir

Loyola University New Orleans, LA
Kurt Birdwhistell & Clifton Stephenson
Francesca Vaccaro & Kate Birdwhistell

Manchester University, North Manchester, IN
Susan Klein
Clayton Curtis

Metropolitan State University of Denver, CO
Susan Schelble & Wilton Flemon
Johanna Denne & Travis Broneske

Miami University, Oxford, OH
David Tierney
Megan Shroder & Brant Center

Midland College, TX
Patcheammalle Nandakumar & John Anderson
Zachary Lyon

Millersville University of Pennsylvania
Lyman Rickard & Steven Kennedy
Daniel Hofmann & Joseph Charlonis

Missouri State University, Springfield
Matthew Siebert
Hillary Mitchell & Jacob Blankenship

Montana State University, Bozeman
Steven Holmgren
Karl Owen & Melissa Emery

Morgan State University, Baltimore, MD
Louise Hellwig
Nicole Dyke & Kadir Abdul

Mount St. Mary's University, Emmitsburg, MD
Christopher Bradley
John Andjaba & Jade McAuliffe

New Jersey City University, Jersey City
Kenneth Yamaguchi & Robert Aslanian
Andrea Giraldo

Newberry College, SC
Christina McCartha
Brianna Lacy

North Carolina Agricultural and Technical State University, Greensboro
Marion Franks
Danielle Williams & LaVana Greene

Northern Kentucky University, Highland Heights
Celeste Morris & Amber Onorato
Hannah Hearn & Jason Callihan

Nova Southeastern University, Fort Lauderdale, FL
Beatrix Aukszi
Isabel Olivera & Sara Rodriguez

Old Dominion University, Norfolk, VA
Marie Melzer
Emily Kowalczyk & Elizabeth Journigan

Pace University, New York, NY
Jaimelee Rizzo
Maximillian Baria & Eric Nguyen

Pacific Lutheran University, Tacoma, WA
Neal Yakelis & Andrea Munro
Sean Murphy & Xinhui Huang

Park University, Parkville, MO
Donna Howell & Gregory Claycomb
Allison Davis & Andrew Nicholson

Pellissippi State Community College, Knoxville, TN
Rachel Glazener & Leslie Adamczyk
Maya Bortters & Claudia Dobronski

Peninsula College, Port Angeles, WA
Benjamin Weintraub
Mariah Doty & Julian Silva

Penn State Berks, Reading, PA
Greglynn Gibbs
Kyle Bramble & Launick Saint-Fort

Pepperdine University, Malibu, CA
Joseph Fritsch
Alexandria McCollum & Angela Longo

Portland State University, OR
Theresa McCormick
Clarissa Karpinski & Eunice Lee

Princeton University, NJ
Erik Sorensen
Erica Tsai & Alice Tao

Purdue University, West Lafayette, IN
Beatriz Cisneros
Emily Soltys & Jordan Rogers

Ramapo College of New Jersey, Mahwah
Sarah Carberry
Aleksandar Goranov

Regis University, Denver, CO
Lynetta Mier & Kellen Sorauf
Brittney Anderson & Zoe Platt

Rhodes College, Memphis, TN
Larryn Peterson & Mauricio Cafiero
Gabrielle Bailey & Megan Denny

Rice University, Houston, TX
Kenton Whitmire & Kristi Kincaid
Woojin Lee

Ripon College, WI
Colleen Byron
Jordan Buhle

Roanoke College, Salem, VA
Kelly Anderson
Fran Rowe

Rockland Community College, Suffern, NY
Adessa Butler
Christopher Tavani

Roger Williams University, Bristol, RI
Stephen O'Shea & Clifford Murphy
Mary Yurkevicius

Sacramento City College, CA
William Miller
Jasmine Hakim-Elahi & Daniel Gruber

Sacred Heart University, Fairfield, CT
Linda Farber
Kristie Konieczny & Amy Buonaccorsi

Saint Anselm College, Manchester, NH
Nicole Eyet
Catherine Muldoon & Charles Dooley

Saint Louis Community College at Meramec, Kirkwood, MO
Tony Frost
Brandon Bander

Saint Mary's College, Notre Dame, IN
Kayode Oshin
Katherine Bussey & Annie Cavalier

Saint Vincent College, Latrobe, PA
Steven Gravelle
Lauren Harbaugh

Sam Houston State University, Huntsville, TX
Darren Williams
Allison Haase & Lucelly Mendez

Samford University, Birmingham, AL
Brian Gregory & Denise Gregory
Rebekah Brooks & Nick Clanton

San Joaquin Delta College, Stockton, CA
Julius Hastings
Salvador Bernardino & Rodrigo Almanza

San Jose State University, CA
Naghmeh Esfandiari & Karen Singmaster
Bryan Vo

Savannah State University, GA
Pascal Binda & Jannie Baker
Maleek Montgomery & Latanya Downer

Seattle Pacific University, WA
Karisa Pierce
Reyn Kenyon & Salvador Eng

Sewanee: The University of the South, TN
Bethel Sharma
Nathaniel Chapman & Sydney Jackson

Shawnee State University, Portsmouth, OH
Derek Jones & Andrew Napper
Jonathan Clevenger & Lianna Trankina

Siena College, Loudonville, NY
Jodi O'Donnell & Jesse Karr
Ann Chacko & Zackary Gregg

Simmons College, Boston, MA
Changqing Chen
Caitlin Horgan & Nina Chen

Slippery Rock University of Pennsylvania
Thaddeus Boron
Jessica Mols & Jaclyn Highland

South Dakota School of Mines and Technology, Rapid City
Justin Meyer
Tyler Ryther & Zachery Crandall

South Dakota State University, Brookings
Nicole Grove & Michael Dianovsky
Nathan Walstrom & Zachary Ziolkowski

Southern Oregon University, Ashland
Douglas Chapman
Kristin Fitzpatrick

St. Ambrose University, Davenport, IA
Kelly Gierlus & Andrew Axup
Issac Schwantes & Ryan Golden

St. Cloud State University, MN
Thomas Gardner
Scott Meyer

State University of New York at Binghamton
Rebecca Kissling
Laura Sonnenberg & Tyler Pluchino

State University of New York College of Environmental Science and Forestry, Syracuse
Neal Abrams
Rudolf Hanz

Stevenson University, MD
Diane Payne
Shelby Litz & Michele Collingsworth

Suffolk University, Boston, MA
Edith Enyedy
Salina Shrestha & Janice Bautista

Temple University, Philadelphia, PA
Steven Fleming
Joseph Musco & Jed Kao

Texarkana College, TX
Patricia Harman & Mike Buttram
Javier Ordonez & Seth Purcell

Texas Woman's University, Denton
Nasrin Mirsaleh-Kohan & Kerri Slavens
Christian Sotelo & Carely Ibarra

The College of Wooster, OH
Nicholas Shaw
Rachelle Herrin & Virginia Iungerich

The Evergreen State College, Olympia, WA
A. Bopegedera & Rebecca Sunderman
Dorothy Shreve & Larisa Harding

The University of Alabama, Tuscaloosa
Silas Blackstock & Patrick Frantom
Shuwen Yue & Kindle Williams

United States Merchant Marine Academy, Kings Point, NY
Ping Furlan
Nicholas Sitter & Robert Lento

University of Arkansas at Little Rock
Jerome Darsey
Zachary Hicks & Brad Cameron

University of California-Davis
Kirill Kovnir
Kate Gibson

University of Central Oklahoma, Edmond
Dana Rundle & Dallas New
Kelsie Magiera & Russell Evans

University of Colorado, Colorado Springs
David Weiss
Santiago Bukovsky-Reyes & Bryce Brownfield

University of Connecticut, Storrs
Edward Neth
Elizabeth Kaesmann & Christopher Chapman

University of Illinois at Urbana-Champaign
Joaquin Rodriguez-Lopez
Shannon Miller

University of Louisiana at Lafayette
August Gallo & Son Do
Catherine Ledet & Victoria Meiklejohn

University of Louisiana at Monroe
Laura Beal
Samuel Carradine & Kimberley Okoyeze

University of Maryland College Park
Philip DeShong & Efrain Rodriguez
Christopher Ma & Hector Vivanco

University of Michigan-Ann Arbor
Bart Bartlett & Paul Jones
Kelsey Kerr & Madeline Herman

University of Minnesota-Morris
Joseph Alia
Margareta Nivison & Garrison Komaniecki

University of Minnesota-Twin Cities, Minneapolis
Aaron Massari
Nathan Klein

University of Nebraska at Kearney
Hector Palencia & Mahesh Pattabiraman
Nizar Khayat & Thais Murua

University of New England, Biddeford, ME
Amy Keirstead
Megan Perry & Bronwen Boe

University of New Haven, West Haven, CT
Pauline Schwartz & Nancy Savage
Sara Dampf & Victoria Andrade

University of New Mexico, Albuquerque
Lisa Whalen
Annette Fernandez Oropeza & David Garcia

University of Northern Iowa, Cedar Falls
Melisa Cherney & Colin Weeks
Sarah Eikenberry

University of Portland, OR
Angela Hoffman & Kevin Cantrell
Natasha McGlaun

University of Puget Sound, Tacoma, WA
Luc Boisvert
Jack Elder

University of Rochester, NY
Thomas Krugh
Jessica Freeze

University of Saint Thomas, Saint Paul, MN
Gabriela Uzcategui & Marites Guino-o
Ryan Smit

University of South Alabama, Mobile
W. Reichert & Diane Roe
Katie Strickland & Jeff Hendrich

University of Texas at Austin
Lauren Webb
Jessica Chan & Danny Thach

University of Texas at San Antonio
Hector Aguilar
Jessica Burch & Mayra Pedraza

University of the Incarnate Word, San Antonio, TX
Robert Garner & Rafael Adrian
Michael DeLomba & An Vu

University of Wisconsin-La Crosse
Nadia Carmosini & Basudeb Bhattacharyya
Rachel Weier & Katherine Lucas

University of Wyoming, Laramie
Elliott Hulley & Brian Leonard
Jonathan Kephart

Ursinus College, Collegeville, PA
Amanda Reig
Brittany George & Dennis Shull

Utah State University, Logan
Lisa Berreau
Owen Price & Gunnar Wolfe

Valdosta State University, GA
Linda De La Garza & Tolulope Salami
Malcolm McCray & Gloria De La Garza

West Virginia University, Morgantown
Harry Finklea
Matthew Lokant & Brendan Wilson

Western Carolina University, Cullowhee, NC
Carmen Huffman & Scott Huffman
Alexandra Shuey & Walter Rice

Western Illinois University, Macomb
Brian Bellott
Hannah Drake & Bethany Esterlen

Western Kentucky University, Bowling Green
Jeremy Maddox
Corbin LeMieux & John Ferguson

Wichita State University, KS
Douglas English
Rebecca Taylor & Sarah Jack

Youngstown State University, OH
Michael Serra
Phillip Boran & Jennifer Moore

2015–2016 Community Interaction Grants (CIG)

KEY: **Chapters** Faculty Advisors *Student Project Directors* ***Project Title*** Amount

For the 2015–2016 academic year, the ACS Society Committee on Education has selected the following 15 CIG proposals to receive funding. The ACS Undergraduate Programs Office is pleased to announce the grant recipients.

Barry University, Miami Shores, FL
George Fisher • *Victoria Hoelscher*
Science Outreach to Minority-Serving Elementary and Middle Schools
$500

East Los Angeles College, Monterey Park, CA
Armando Rivera-Figueroa • *Marco Antonio Lopez & Hever Castellanos*
Organic Chemistry Through Smells
$500

Emory University, Atlanta, GA
Douglas Mulford • *Jieming Fu & Shruti Gupta*
ChEmory Cares: Kids Outreach at Grady Hospital
$350

Los Angeles Trade-Technical College, CA
Renee Madyun • *Christian Green, Monica Sanchez, & Joanne Javillonar*
Outreach & Awareness
$500

Pace University, New York, NY
Jaimelee Rizzo • *Kenya Velez*
Experience Chemistry Day
$350

Plymouth State University, NH
Anil Waghe • *Albert Lamonda*
Chemistry in Art
$275

Presbyterian College, Clinton, SC
Evelyn Swain • *Anna MacGregor*
Science Outreach at Local Head Start
$300

Stern College for Women-Yeshiva University, New York, NY
Donald Estes • *Leah Zerbib*
Chemistry and Cosmetics
$500

Tennessee Technological University, Cookeville
Janet Gray Coonce • *Kelsey Richards*
Fusion Science Theater
$500

Texas Christian University, Fort Worth
Kayla Green • *Caleb Ashbrook*
Partnership with Burton Hill Elementary School
$500

University of Alabama at Birmingham
Jacqueline Nikles • *Nicholas Boyle, Marina Triplett, & Calla McCulley*
Chemistry with Children: Bringing Science to Children in Need
$500

University of Puerto Rico-Mayagüez Campus
Jessica Torres Candelaria • *Jorge Morales & Hector Quinones Rosaly*
Chem Demo Packages
$500

West Virginia State University, Institute
Micheal Fultz • *Aaron Smith & Amanda Smith*
Hygiene and Health Effects
$200

Western Washington University, Bellingham
Elizabeth Raymond • *Tess Clinkingbeard*
Collaborative Outreach Through Interactive Science Shows
$500

Xavier University of Louisiana, New Orleans
Michael Adams • *Veronica Miles*
Wow Chemistry Wednesdays
$200

2015–2016 New Activities Grants (NAG)

KEY: **Chapters** Faculty Advisors *Student Project Directors* ***Project Title*** Amount

For the 2015–2016 academic year, the ACS Society Committee on Education has selected the following 11 NAG proposals to receive funding. The ACS Undergraduate Programs Office is pleased to announce the grant recipients.

Emory University, Atlanta, GA
Douglas Mulford • *Jieming Fu & Shruti Gupta*
Bringing Color to Life
$125

Heidelberg University, Tiffin, OH
Nathaniel Beres • *Claire Chandler*
Junior High School Science Day Camp
$500

Los Angeles Trade-Technical College, CA
Renee Madyun • *Christian Green, Monica Sanchez, & Joanne Javillonar*
Outreach & Awareness
$500

Miami University, Oxford, OH
David Tierney • *Brant Center & Claudia Worley*
Chemistry as a Future Career
$250

South Dakota School of Mines and Technology, Rapid City
Justin Meyer • *Zachery Crandall & Tyler Rythe*r
Fostering an Interest in Chemistry through Industry Field Trips
$500

Suffolk University, Boston, MA
Edith Enyedy • *Janice Bautista*
Chemistry of Smell and Taste
$280

Tennessee Technological University, Cookeville
Janet Gray Coonce • *Kelsey Richards*
Girl Scouts: Let's Earn a Science Badge Together
$500

University of Alabama at Birmingham
Jacqueline Nikles • *Nicholas Boyle, Marina Triplett, & Calla McCulley*
Boo at the Zoo
$500

University of Central Florida, Orlando
Stephen Keubler • *Lauren Gandy & Bailey Mourant*
Bonding with Bithlo
$500

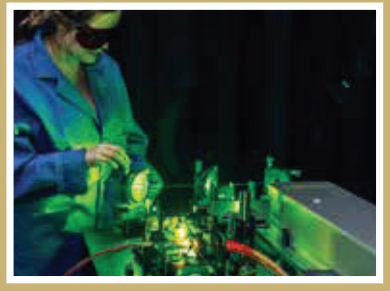
University of Illinois at Urbana-Champaign
Joaquin Rodriguez-Lopez • *Shannon Miller*
Bridging the Gap: College-Level Thinking in High School ChemClubs
$500

University of Wyoming, Laramie
Elliot Hulley • *Rachael Winden & Jonathan Kephart*
Development of Energy-Related Demonstrations for Earth Day 2016
$500

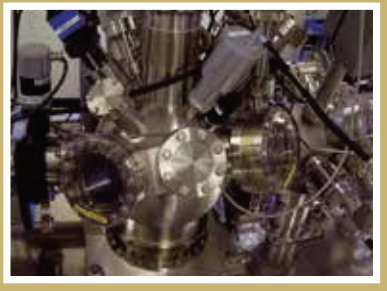
UNIVERSITY OF PITTSBURGH

The DIETRICH School of Arts & Sciences

Department of Chemistry



state of the art facilities



cutting-edge research resources

most livable city*

INNOVATION. PRESTIGE. EXPERIENCE.

Creating an environment focused on the success of each individual graduate student.

Visit our Web site for more information at chem.pitt.edu

** The Economist, 2014*

U.S. Food and Drug Administration

STUDENTS – *Learn How to Find a Job in Industry…*

New Reality of the Chemical Enterprise: Traditional and Non-traditional Career Paths

251ST ACS NATIONAL MEETING • SAN DIEGO, CA

Monday – Tuesday, March 14 – 15, 2016 • 8:30 AM – 5:00 PM

Sponsored by the ACS Industrial & Engineering Chemistry Division

ATTEND THIS SYMPOSIUM TO LEARN:

- Alternate career paths available to chemistry professionals.
- Strategies for finding employment in the chemistry fields.
- Ways to think 'out of the box' when planning your educational and career paths.
- How to become an entrepreneur and start your own business.

I&EC

Putting Science to Work

PRESENTATIONS INCLUDE:

- Common job titles for B.S.-level chemists
- Discovering chemistry careers outside the lab
- The path to success in the chemical industry for B.S.-level chemists
- Food, and pharma career options for B.S. chemists
- Student Q&A Session with Panelists
- AND MUCH MORE!

ACS Chemistry for Life®

ACS Chemistry for Life®

American Chemical Society
1155 Sixteenth Street, NW
Washington, DC 20036

REACTIONS

THE ACS UNDERGRADUATE BLOG

ACS Chemistry for Life®

FOLLOW us to read about:

- Demonstration inspiration
- Chemistry in culture commentary
- Current research
- Tips for surviving undergrad…and beyond
- And more!

WRITE for us!

We need your voice for our blog!
E-mail **undergrad@acs.org** for more details.

www.acs.org/undergradblog