

inchemistry

THE MAGAZINE FOR ACS STUDENT MEMBERS November/December 2012

ACS Student Chapter Awards



CELEBRATING 75 YEARS OF STUDENT INVOLVEMENT IN ACS

ALSO IN THIS ISSUE

- How the Right Electives Broaden Your Career Options
- What Employers Want: Wider Experience and Perspective
- The Benefits of Doing an International Research Experience



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As a busy student, you have a lot to keep track of – class work, lab assignments, due dates, grade point averages... not to mention all of the extracurricular activities and events you're involved with!

So how do you know when your ACS membership has expired? IT'S EASY!

1. Simply go to **www.renew.acs.org**
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THE MAGAZINE FOR ACS STUDENT MEMBERS

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Cover: Photos from the 2010–2011 Student Chapter Awards Ceremony, 243rd ACS National Meeting in San Diego, March 2012. 21

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EDITORIAL: Undergraduates Need a Safety Education!

BY ROBERT H. HILL

A series of devastating incidents in academic laboratories have raised questions about the adequacy of safety cultures in academic institutions — especially in their research laboratories. The members of the ACS Committee on Chemical Safety (CCS) recognized the need to aid their academic colleagues by developing a report, entitled *Creating Safety Cultures in Academic Institutions* (www.acs.org/safety). While this report is aimed at administrators, faculty, and teaching and laboratory staff, there are several issues that are of concern to YOU as an undergraduate.


I started working as a laboratory assistant when I was a freshman. I remember making a concentrated solution of sodium hydroxide and not wearing an apron or lab coat in the process. When my mom washed my clothes, she asked me what I had done to my clothes — because they came out shredded! This was the first lesson in my long safety education process.

I had always known I wanted to be a chemist, but I must admit that it took me some time to educate myself in safety — and it occurred through a process called on-the-job training. My impression is that many other chemists have had the same experience. However, although my safety education was lacking, I was fortunate enough to have talented chemists impart their safety knowledge to me. Perhaps I can pay it forward by helping bring more safety education to the academic sphere.

Today the increased interest in safety in the academic arena is way beyond anything that I experienced. Still, the proof is in the pudding, as they say. Can the academic community retool itself to build strong safety knowledge in its undergraduate students so that they will be ready for the independent research required of graduate students?

The CCS report calls for changes in the way academic institutions approach safety. It recommends teaching safety lessons in each laboratory session throughout the entire undergraduate learning process, and testing and evaluating the safety skills of undergraduates. I am optimistic that the academic community is up to task.

You can help make these changes happen. Your role as an undergraduate is to find a way to build your skills involving safety to the advanced level you will need by the time you graduate. You may have to be proactive in this effort and study safety on your own or get a faculty member to help you. The CCS report has a section about teaching safety that includes a table of topics (and resources) that you should have covered by the time you are ready to move to graduate school or to a laboratory in the public or private sector.

The thing to keep in mind is, contrary to the popular saying, what you don't know about safety *can* hurt you. 



Robert H. Hill, Ph.D., is a program manager at Battelle in Atlanta, GA, and Chair of the ACS Committee on Chemical Safety.

ACS CALENDAR

NOVEMBER

14–17

Southeastern Regional Meeting of the ACS (SERMACS), Raleigh, NC

DECEMBER

14 Applications for the SCI Scholar Summer Industrial Internship due (www.acs.org/sci)

JANUARY

10 Student Leadership Awards recipients announced for the 2013 ACS Leadership Institute

22 Applications for ACS National Meeting Travel Grants due

25–27

2013 ACS Leadership Institute, Dallas, TX

FEBRUARY

15 Women Chemists Committee Eli Lilly Travel Grant applications due

MARCH

1 Applications for ACS Scholars Program due (www.acs.org/scholars)

22 Activity Fact Sheets due for the Chem Demo Exchange event at the 245th ACS National Meeting in New Orleans, LA

APRIL

7–11

245th ACS National Meeting, New Orleans, LA

MAY

15–18

44th ACS Central Regional Meeting, Mount Pleasant, MI

16–19

44th ACS Middle Atlantic Regional Meeting (MARM), Philadelphia, PA

22 ACS Student Chapter Reports due

Call for Applications

SCI SCHOLARS

Summer Industrial Internship Program for Undergraduates

Summer 2013

The Society of Chemical Industry (SCI) is pleased to offer the **SCI Scholars Program**, which is designed to introduce exceptional chemistry and chemical engineering students to careers in chemical industry. Selected students will become SCI Scholars and participate in one of many prestigious 10-week industrial internships during the summer of 2013.

The deadline for applications is **December 14, 2012**.



BENEFITS:

- Industrial experience
- Generous award—the stipend is in the \$6,000–10,000 range for the 10-week internship
- Certificate and \$1000 travel award to participate in a scientific meeting
- SCI Scholars will nominate a high school chemistry teacher for recognition and a \$1000 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 detailed information and apply, visit www.acs.org/sci



Programs and Services for ACS Student Members

A Closer Look at the ACS Undergraduate Programs Office and How You Benefit

BY LORI BETSOCK AND CHRIS ZEIGLER


At the start of the 2012–2013 academic year, there were more than 1,000 ACS chartered student chapters and more than 18,000 undergraduate members of ACS. Undergraduates enjoy most benefits of ACS membership — plus a variety of unique services and resources provided by the Undergraduate Programs (UP) Office.

The UP Office develops and runs pro-

grams to help individual undergraduate students develop professional skills, learn about traditional and nontraditional career options in chemistry, and take advantage of opportunities to network with professional chemists. We also provide many resources for ACS student chapters, including chapter grants and support in starting, reactivating, or re-energizing chapters.

We're ready to help

Whether you're interested in the resources and opportunities we offer for individual students, entire chapters, or both, we encourage you to take full advantage of these unique benefits of your membership in ACS.

If you have any questions about any of these programs, please e-mail us at undergrad@acs.org. 

Resources for individual ACS student members

inChemistry MAGAZINE

Since you're reading this article, you've already encountered *inChemistry* magazine, which we publish four times each year and send to student members, faculty advisors, and chemistry department heads. As with other UP Office resources, the magazine is a resource to help you transition from a student into a professional chemist and to encourage you to take an active role in your community and your profession. Articles include information about career options in chemistry, professional skills development, study and research abroad opportunities, graduate school, and student chapters. These articles are contributed by professional chemists and freelance writers, along with student authors like you.

SOCIAL MEDIA ENGAGEMENT

As the Internet continues to change the way we interact with one another, the UP Office maintains a vigorous online presence on **Facebook** (ACS Undergrad Programs), **Twitter** (@ACSUndergrad), and **Reddit** to inform and support the online undergraduate chemists' community, as well as the **Reactions** blog at www.acs.org/undergradblog. In **Reactions**,

undergraduates blog about everyday chemistry, undergraduate life, and student chapter activities.

If you are interested in contributing articles to *inChemistry* or blogging for *Reactions*, e-mail undergrad@acs.org for more information.

NATIONAL MEETING PROGRAMMING

We work the Society Committee on Education (SOCED) Advisory Board on Undergraduate Programming to plan sessions, workshops, and other events for undergraduates at ACS national meetings. These programs typically consist of technical symposia, graduate school information and recruiting events, career workshops, and undergraduate research poster sessions.

Undergraduates who attend ACS national meetings learn more about the latest research in various chemical areas and about the educational requirements you need to be successful in these fields. Recent meetings have included programs on careers in government and academia and pharmaceutical chemistry, as well as career skills and leadership training and net-

working sessions with practicing chemists.

Each year, more than 1,600 undergraduates present their research at the undergraduate research poster sessions at ACS national meetings. Poster presenters enjoy valuable networking opportunities with potential employers, graduate school representatives, and other students. At the same time, they get to hone their skills in speaking and communicating their science to others.

GET EXPERIENCE DATABASE


Access a wealth of information on internships, summer work opportunities, fellowships, and co-ops for undergraduate chemical science students on the Get Experience online database. These experiential opportunities help you gain practical research experience in the United States and abroad; they also enrich your academic experience by helping you prepare professionally, gain exposure to the chemical industry, and make informed decisions about your career options and direction. Try the Get Experience database for yourself at www.acs.org/GetExperience. 



PHOTO COURTESY OF LOYOLA UNIVERSITY NEW ORLEANS

Support for ACS student chapters

ACS has student chapters at institutions throughout the United States, including Puerto Rico. Chapters typically engage in community service, chemistry outreach in schools and other locations, and professional development activities. When planning and carrying out these activities, student members learn to work together to put their thoughts and ideas into action. Chapter officers gain valuable leadership skills by learning to work with volunteers and by setting project schedules to ensure that their chapters reach their goals.

Many chapters have partnered with local elementary, middle, and high schools to conduct hands-on demonstrations, tutor, or serve as mentors. In the process, chapter members learn to function as teams and work together efficiently — important skills that carry over to the professional world. Chapters also collaborate with their ACS local sections on a regular basis to plan yearly National Chemistry Week celebrations and to promote Earth Day. And by the way, collaborating with your local section is a great way to interact with potential mentors, employers, and professional colleagues in a variety of industries.

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

At the same time, students who attend regional meetings can meet and network with local section officers and other members of ACS, who can become valuable resources and sounding boards for you as you make career choices and decisions.

GRANTS FOR STUDENT CHAPTERS

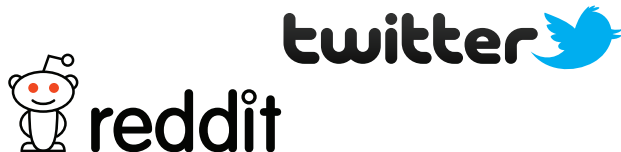
To support ACS student chapters, the UP Office offers grants for Innovative Activities, Community Interactions, and National Meeting Travel. The chapter grants provide funding for many worthy chapter activities while also benefiting the chapter members who take part in the application process. Preparing proposals and summarizing how grant monies were spent are just two examples of the types of skills and knowledge that you can carry into your professional career.

To apply for an Innovative Activities Grant or a Community Interactions Grant, members of a chapter are required to submit a detailed proposal outlining the project and how it will be of benefit to their chapter and/or community. The grants are reviewed by faculty advisors under the auspices of SOCED, and grants are awarded based on proposal content. All chapters receive feedback about their proposals, as well as tips for improving future proposal submissions. Chapters that receive grants are required to submit a mid-year progress report as well as a final report about the project.

NATIONAL RECOGNITION

The UP Office plays a key role in selecting ACS student chapters for recognition and sharing outstanding chapters' winning ideas with other chapters.

Student chapters are asked to submit their annual report forms in May of each year. Following the rules and criteria set down by SOCED, student chapter faculty advisors review the reports and select those that stand out in terms of originality, impact, or execution. At each ACS spring national meeting, SOCED recognizes these student chapters for their exceptional service and activities during the annual Student Chapter Awards Ceremony. These ceremonies have been held since 1992 and allow the Society and its officials the opportunity to thank and encourage the student chapters as they continue to promote the positive image of chemistry in their local communities. **irc**



Lori Betsock is a Senior Program Manager in the ACS Undergraduate Programs Office.



Chris Zeigler is an Education Associate in the ACS Undergraduate Programs Office.

Indulge Your Craving.

at the 245th ACS National Meeting in New

SUNDAY, APRIL 7

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

Making the Most of Your First ACS National Meeting
8:00 – 8:45 A.M.

Graduate School Reality Check, Step I: Getting in
9:00 – 10:00 A.M.

Graduate School Reality Check, Step II: You're in — Now What?
10:00 – 11:00 A.M.

Networking Social with Graduate School Recruiters
10:00 A.M. – 3:00 P.M.

Chem Demo Exchange
11:00 A.M. – 12:30 P.M.

Technical Symposium: How to Become an Exemplary Teaching Assistant
1:00 – 2:30 P.M.

Technical Symposium: Computational Neuroscience Advances in Drug Abuse and Addiction
1:00 – 2:30 P.M.

Workshop Part I: Essential Skills for Success — Oral Presentation of Scientific Results
2:45 – 4:00 P.M.

Workshop Part II: Essential Skills for Success — Write Like a Chemist
4:00 – 5:15 P.M.

Making Demos Matter Workshop
4:00 – 5:30 P.M.

Student Chapter Awards Ceremony
7:00 – 8:30 P.M.

Undergraduate Social
8:30 – 11:00 P.M.

MONDAY, APRIL 8

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

Outreach Workshop: Chemists Celebrate Earth Day Ideas
9:45 – 11:15 A.M.

Workshop: Employment in Chemistry—Academics, Industry, Small Business, and Government
9:45 – 11:15 A.M.

Undergraduate Research Poster Session
12:00 NOON – 2:30 P.M.

Eminent Scientist Lecture: Kendall Houk, University of California, Los Angeles
3:00 – 4:00 P.M.

Undergraduate Speed Networking with Industrial Chemists
4:00 – 5:30 P.M.

The Kavli Foundation Lecture
5:30 – 6:30 P.M.

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

TUESDAY, APRIL 9

Chemistry and the Environment Film Series, Movie TBA
NOON – 2:00 P.M.

All events are sponsored or co-sponsored by the Society Committee on Education Undergraduate Programs Advisory Board.

CHAIR: Matthew J. Mio,
University of Detroit Mercy, MI

PROGRAM CHAIR: Jeffrey D. Evanseck,
Duquesne University, Pittsburgh, PA

Program format and times are subject to change. Please consult the final program.



...for Chemistry

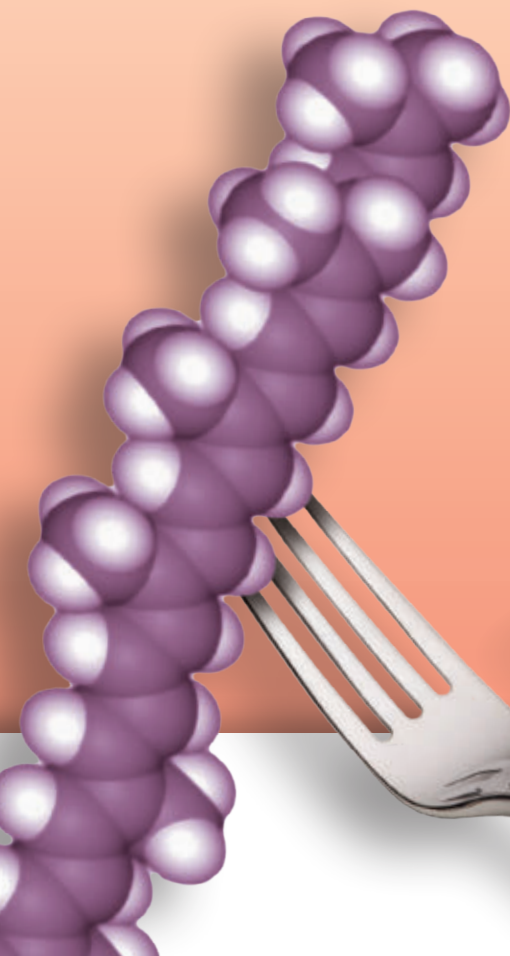
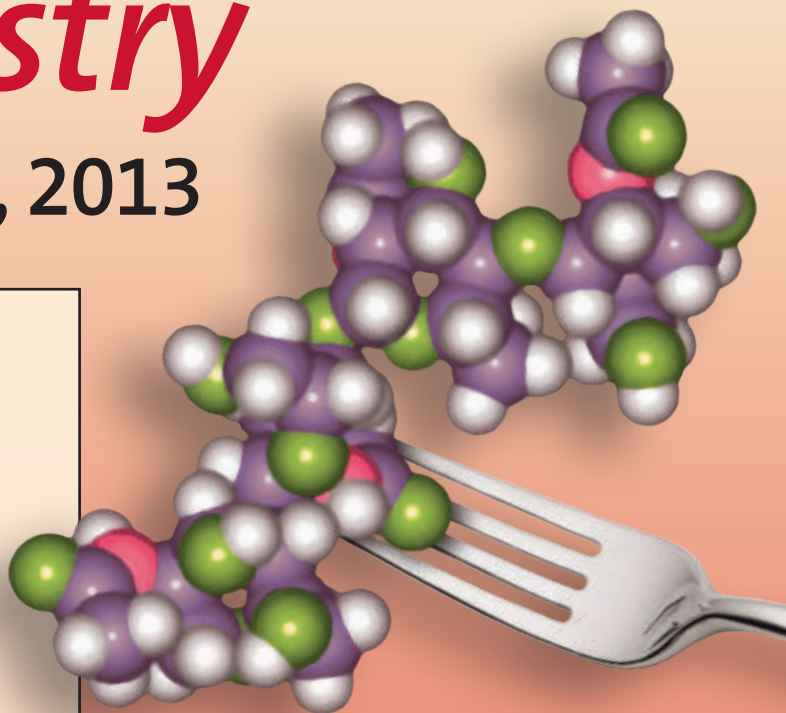
New Orleans, LA • April 7–11, 2013

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. For more information contact Lori Betsock at l_betsock@acs.org. To register, go to www.acs.org/GradSchoolRecruiters

Explore Graduate School Opportunities

The graduate school events provide great opportunities for undergraduates to network with graduate school students and recruiters representing a diverse variety of graduate programs and to learn about meeting the challenges of graduate schools.



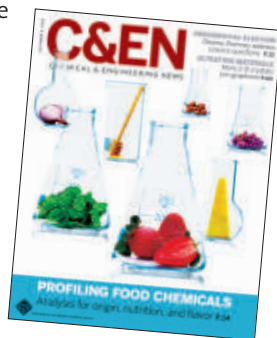
Beyond the “Easy A”

How Carefully Choosing Electives Can Broaden Your Career Options

BY JOHN K. BORCHARDT

As you begin selecting courses for the upcoming spring semester and beyond, think strategically and opt for courses that will enhance your résumé and complement your chemistry skills. Some elective courses can give you an edge in the job market and shape the course of your future career — and can also be a gateway to non-traditional chemistry careers.

To determine the skills you need to achieve your career goals and thus the elective courses you might take, read *C&EN* and trade magazines covering industries that interest you. Talk to your professors and develop contacts in the business world by attending ACS local section meetings; these people can offer useful advice based on their own experiences and observations. You might also try to persuade your ACS chapter to invite industrial chemists to campus as speakers to discuss their careers.



What are some of the strategies you can use to ensure that your electives will interest you, help in your job hunt, and boost your career after graduation?

Strengthen your communication skills

Hiring managers often complain that applicants and new hires come to them with poor communication skills, particularly writing skills. Taking courses in journalism, technical or science writing, and business writing can help you strengthen your writing skills. These electives can also give you something to highlight in cover letters and interviews to demonstrate you have these skills. If you have a choice, take these types of courses rather than creative writing classes offered by the English or other departments, because science writing and journalism are more similar to the type of writing you would be doing in industry.

Oral presentation skills are also important in both industrial and academic chemistry careers. While courses in public speaking can be useful, relatively few colleges and universities offer them. However, Toastmasters International offers an excellent, low-cost alternative for improving your public speaking skills. Check the website (www.toastmasters.org) to see if there is a club in your

area. There are even clubs located on some college campuses.

Foreign language skills can also boost your career. Increasing numbers of American firms are expanding their operations globally; at the same time, foreign firms are also expanding their operations here in the United States. Developing useful foreign language skills can expand your opportunities for overseas assignments in Germany, France, and other European countries as well as the rapidly growing economies in China, India, Brazil, and other countries. Some firms, particularly European ones, already have sizable U.S. operations. The right foreign language skills can expand your career opportunities with these firms in terms of communicating with co-workers in your employer's home country.

Give yourself career options

The U.S. Bureau of Labor Statistics, a unit of the federal government, issues forecasts of job growth and employment opportunities in many fields employing chemists. The “Occupational Outlook Handbook, 2012–13 Edition” is available for free online at www.bls.gov/ooh. For example, of interest to chemists, one of the fastest growing employment fields is biomedical engineering, which is the application of engineering technology to the solution of medical problems. Many surface chemists, polymer chemists, and materials scientists work in this growing field, and taking courses in biomedical engineering can give you a competitive edge when job hunting.

Many new industrial chemists find their jobs require engineering skills. For example, they may need to work with engineers in scaling up the manufacture of new products, or with customers to help them use chemical products in their processes. This is particularly the case when participating in multidisciplinary project teams, which are increasingly common in many industries. Having a solid background in a science or engineering discipline in addition to chemistry can substantially increase your value to such teams.

Choosing as few as one or two engineering courses as electives, particularly chemical engineering, can help you develop engineering skills, which often will prove useful on the job and help provide you with a skill dimension when job hunting that will attract the interest of employers.

Petroleum engineering and biotechnology electives could improve your competitive position in these



These strategies can result in a shorter job hunt and a more satisfying first job.

industries. Both industries currently represent relatively strong job markets for chemists. Check your college's website to find electives that might give you a competitive advantage when applying for jobs in other industries. Also try to consult with people working in these industries for advice.

Experienced industrial chemists can also be helpful sources of advice on which fields can be useful supplements to your chemical education. Attending ACS local section meetings enables you to meet these chemists and solicit their advice. ACS career consultants can also be helpful. Go to www.acs.org/careers to review the biographies of the more than 70 ACS career consultants to choose ones most likely to be helpful to you.

Explore business careers

One or more courses in marketing, sales, and business management could be useful in an industrial career outside of R&D.

Combining these electives with foreign language courses could help prepare you for a business career in the global marketplace.

Taking a course in a religion or a foreign culture could also be useful. An excellent next step could be to spend a college semester studying abroad in a country where most people speak the language you studied.

Go to your faculty advisor and other professors for advice on which electives to take. This can mean going to professors outside your major field of study for advice. For example, if you are interested in taking some environmental engineering courses, discuss your interest with professors in this department.

Look into specialized minors

Specialized minors are a carefully coordinated sequence of courses designed to provide you with an organized body of knowledge and set of skills. "Official" minors at a university or college may require as many as 18–22 credit hours of courses. This might require taking summer classes or an additional semester of undergraduate study. If you don't want to do this, consider taking fewer courses — perhaps a coordinated series of courses totaling 8–12 credit hours. Even this level of specialized study can be very useful for job hunting and starting your industrial chemistry career. There are many different specialized minors available at some universities and colleges. Recently, specialized minors in entrepreneurship have been established on some campuses, for example. Alternatively, you often can design your own.

One "traditional" minor for chemistry majors is taking the education and psychology courses needed to obtain a teaching certificate and teach high school chemistry (and often other science)

courses. The terminal course in an education minor is teaching one or more high school science courses under the supervision of an experienced high school science teacher and an education professor from your college or university.

Completing a specialized minor is a major commitment, ironically. Therefore it is important that you have clear career goals in mind and understand how you want your specialized minor to help you achieve these goals. Designing your own specialized minor can be challenging, since the courses you want to take may be offered by two or more departments, not just one. Again, consulting with your faculty advisor, faculty members in other departments, and a dean can be very helpful in clarifying your


thoughts and learning what is possible on your campus.

Fitting courses into your curriculum

You may not have room in your course schedule to take all of the electives that interest you, so you should try to take electives that most closely align with your interests and goals. Of course, the earlier in your college career you start choosing electives strategically, the more flexibility you'll have in squeezing in useful courses. Fitting electives into your curriculum can be tough, particularly if you are a junior or senior. Going to summer school at another college to take electives not offered by your own school is an excellent strategy to squeeze additional elective courses into your curriculum. Night courses may be another option. I used summer night courses to squeeze in nine credit hours of courses.

If you are still job hunting after you graduate, taking one or more additional elective courses can be a useful way to enhance your professional credentials — particularly if you don't want to make the commitment to attend graduate school.

Some schools offer a monthlong period between semesters or trimesters during which students can take courses to expand their education. If your school does so, this can be another opportunity to take electives and broaden your career options. Another strategy you might try is to take an online course or evening college course during your summer break. If you do so, check with your faculty advisor or dean to determine if your college will give you academic credit for an elective course taken elsewhere. It's best to do this prior to paying the tuition fee for the elective, as your college will likely provide credit for courses taken at some institutions but not others.

These strategies, practiced separately or in combination to suit your interests and needs, can result in a shorter job hunt and a more satisfying first job. Your choice of electives can also demonstrate your creativity to potential employers. 



John K. Borchardt is an industrial organic chemist, freelance writer, ACS career consultant, and former high school chemistry teacher. He holds 30 U.S. and more than 80 international patents, and is the author of more than 120 peer-reviewed technical papers. He was awarded the Henry Hill Award for his contributions to the chemical profession.

Students Tutoring Students

Key Questions a Chapter Should Explore before Starting a Chemistry Tutoring Program

BY CARL "BURT" HOLLANDSWORTH

Many ACS student chapters have decided to start their own peer-led chemistry tutoring programs. These programs not only provide much-needed help and guidance to current students but also assist the tutors in recalling long-forgotten course content. Tutoring programs are an excellent idea for providing chapter services to your chemistry department, but before starting a chemistry tutoring program, chapter officers and advisors should take the time to answer some very important questions.

Question #1: Why?

Possibly the most important question to ask is, "Why start a chemistry tutoring program in the first place?" Obviously, chemistry students in need of tutoring will usually benefit greatly from the advice of those who have completed the course before them.

Less apparent at first glance is that the chemistry tutors themselves also benefit in a number of ways. Consider that much of a course's content can be forgotten if it is not put into practice — even if that practice is simply helping someone else understand the concepts. Anthony Eid, chapter president at Radford University (VA),

explains, "Our members found that by teaching students, they were learning more than if they took the class over again. This helped the chapter to benefit its members as well as members benefiting

from students and vice versa. Early in the year, we had about eight students working with three tutors, but eventually it grew to about fifteen students working with five tutors. We were proud of the difference we made in students' grades, and even more proud of the information we got to brush up on."

A volunteer tutoring program provides a great opportunity for student tutors to revisit some earlier concepts that they would not otherwise study. Many upper-level chemistry students are preparing to take an entrance exam for professional school (for example, their MCAT or chemistry GRE) and will benefit from teaching other students. Enuye Cho, chapter president at Columbus State University (GA), confirms this point when she says, "The tutoring experience strengthened the members by reinforcing chemistry fundamentals and broadening their scope of understanding through the process of teaching."

Question #2: Are we re-inventing the wheel?

The next question to ask when investigating a chemistry tutoring program is, "Is this service already being offered on our campus?" If so, great! Your student chapter may be able to provide volunteer members to help staff the existing program. Often, there is a Student Success Office, Student Learning Center, or Academic Achievement Program on campus that is already providing tutoring programs in all subject areas. Contact the office and see if it needs help finding tutors in chemistry. Barbara Kramer, faculty advisor at Truman State University (Kirksville, MO), notes that ACS student members at her university co-partner with the local Alpha Chi chapter to provide tutoring. Similarly, at Brigham Young University-Idaho (Rexburg), management of the student chapter's chemistry tutoring program was taken over by the campus library system. Faculty advisor David Collins explains, "After observing the chapter's success with chemistry tutoring, the library staff decided to start a similar program for all disciplines. Many of the chemistry tutors at the university are now tutoring in the program managed by the library."

Ask around to see if there is another organization that already has a framework in place for tutoring. By adding to the efforts of an existing tutoring program, you might be able to start making a difference sooner; what's more, a tutoring program would still count as a service project for your ACS student chapter.

Question #3: Who?

This question really has two parts. The first is, "Who will be tutored?" The second is, "Who will provide the tutoring?" The answer to the first question might depend on the ambitions of your chapter. It might be best to start out small, by providing tutors for first- and second-semester general chemistry. These are courses with typically high attrition rates and a high demand for tutors.

Potential tutors who have finished higher-level chemistry courses will be familiar with the material in general chemistry and should be able to answer most questions. General chemistry students also make up the bulk of the students taught in most chemistry departments. Influential and meaningful personal contact with general chemistry students has the added benefit of helping to attract talented, undecided students to a major in the chemical sciences.

Larger or more experienced chapters might opt to provide tutoring for both general and organic chemistry, or possibly all chemistry courses. Keep in mind that offering tutors for advanced courses

requires tutors with significantly more training and skill in teaching others. Martin St. Clair, faculty advisor at Coe

College (Cedar Rapids, IA), reports that many more of Coe's general and organic chemistry students took advantage of their local tutoring than did students taking physical chemistry. However, chapter officers still sought to schedule junior- and senior-level tutors who could help with a wide range of course material, including all advanced chemistry courses.

Not all students who have earned a passing grade in a course are cut out to teach others the material. Several chapter advisors suggested having a knowledgeable faculty member check the list of potential tutors to screen out students who might be better suited for another area of service. Set some minimum criteria for tutoring, such as having a 3.0 grade point average in all chemistry courses or an A or B in the course tutored. Volunteers need to understand that their commitment to tutoring is above and beyond their normal coursework. Some students who are particularly overburdened with coursework or other extracurricular activities should be encouraged to put off tutoring until they have a lighter schedule.

When?

Questions #4 and #5: When and where?

There are many ways to schedule a tutoring program — some flexible and some more formal. The simplest scheduling system would involve posting a list of volunteers, courses tutored, contact information, and hours available. Each student contacts a tutor to set up a time and place. This type of system requires very little oversight. It also helps ensure that the time of each tutor is not wasted by sitting in a room during slow times with no students to help. However, posting a list of tutors this way might mean that a student has to call five or six tutors to find one who is not already fully booked. This might discourage some students from really seeking out help if they give up after the first or second call.

Many chapters opt to staff a certain room on campus with qualified tutors for a set number of hours during the week.

These types of programs allow students to "drop in" whenever help is needed, and without having to arrange for an appointment ahead of time. Nicholas Greco, faculty advisor at Western Connecticut State University (Danbury), initially made the mistake of trying to overmanage a tutoring schedule by assigning tutors for every hour of every day. At busier times during the semester, this type of scheduling can become burdensome for chapter officers and advisors. Greco advises building in some flexibility from the start.

Where?

He explains, "Perhaps instead of set hours, have a location on campus (the student chapter meeting room or 'hangout') where students will be available most of the time, with others available by appointment with posted contact information. Always insist

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PHOTOS COURTESY OF COLUMBUS STATE UNIVERSITY

At Columbus State University, the Principles of Chemistry tutoring sessions offered each semester are a collaborative effort between students currently enrolled in the course and peer tutors — students who have previously taken and passed the course. Both groups solve problems and study together while using all available resources to make sure their answers are correct. The role of the tutors is to lead their groups by offering educated conclusions and inferences.

that tutors find their own replacements if they cannot make it to a session. This takes the burden of finding replacements off of chapter officers and advisors.”

Sarah Anciaux, chapter president at Coe College, offers another suggestion. “Pick a time and place for tutoring and stick with it — changing times leads to confusion. Two times would be better, as some students will always have conflicts, but one time is probably a good place to start.”

Also, why not consider “virtual” tutoring? It may be a good idea to have some tutors available for online chat or to answer questions via e-mail. This is especially convenient for students who live off-campus.

For most campuses, the “where” question can only be answered after the “when.” If a physical room is needed for tutoring then it needs to be in a quiet area and capable of being partitioned. Check with the campus library and see if rooms are available during the hours needed. Also check to see if those rooms can be reserved in advance or are “first-come, first-served.” If a classroom is to be used for tutoring, it needs to be big enough that multiple students can be assisted without interference from other groups. Be sure that there is a chalkboard or dry-erase board available in each room. Don’t forget to check on campus for conference rooms or other facilities that may not be frequently used. These rooms are typically free for campus groups but must still be reserved in advance. For reasons of safety and professionalism, ACS student member sponsored tutoring should not be provided in off-campus housing or in personal dorm rooms.

How?

Question #6: How can we do this right?

Staffing a room for a few hours a week with upper-level chemistry students is the easy part. It takes much more time and effort to ensure that each tutor is trained in the proper methods of helping a chemistry student. Ideally, tutors would help students with concepts from lecture (or lab) by explaining concepts in their own words or working through carefully chosen problems. Most paid tutors will do just this. In fact, good tutors will stay ahead of each of their students and prepare advance material in order to maximize the benefit of each session. However, for most chapters that

decide to offer tutoring, their tutors cannot really plan ahead in this way, since they are not sure who will walk through the door at any given time.

Plan a time when faculty members can meet with the tutors to discuss the best ways to answer both big and small questions that students might bring with them to a session. Have them suggest strategies for helping different types of students — ranging from the student who is completely lost to the top students who only need help with one or two problems. Invite a variety of faculty members to train tutors in the preferred ways to teach and find sample problems for their subdiscipline. Faculty can illustrate ways to lead each student so that they arrive at their own answer and can begin to understand chemistry independently. Ask faculty to alert tutors to especially busy times of the week or semester, when major exams are coming up or lab reports are due. These are often times when a tutoring program might get “slammed” with students looking for quick help. Faculty members may also have strict rules for what level of help can be given. For instance, they might have given a take-home test or lab report where no outside help is to be sought. In such cases, tutors need to be aware of the possibility of students attempting to commit academic integrity violations.

Keep track of any training sessions offered to tutors and the number of hours spent in training. Document how many hours each tutor works, how many students they see, and the student:tutor ratio for all sessions. Consider working with faculty members to properly collect objective data on the performance of tutored students and compare this with non-tutored students.

Consider starting a tutoring program with your campus student chapter, but insist on a high-quality program with measurable goals, and seek to improve the tutoring program from year to year. Find answers to the important questions before starting the program, including “Who, what, and where?” At the end of the day, tutoring is about students helping other students to maximize their knowledge and develop a love of chemistry. **irc**



Carl “Burt” Hollandsworth is an assistant professor of chemistry at Harding University in Searcy, AR.

Exchange Theories

Testing the Benefits of an International Research Experience

BY ADEBOLA ADENIRAN

My journey into international research began in 2010 at the University of Freiburg with a three-month summer internship arranged through the German Academic Exchange Service (DAAD).

I returned to school with the desire to work abroad again and applied for a Fulbright grant during my senior year. The 10-month research grant allowed me to return to Germany after graduation and work at the Institute of Biochemistry and Biology at the University of Potsdam.

The chance to work and live abroad has been an incredible experience for me, and looking back at this time has led me to develop a few theories as to why it was so amazing. Not only does the collaborative nature of science foster

far beyond your lab bench your research actually goes. The techniques and protocols you use may have been developed halfway around the world. When you read new publications, it's not uncommon to see co-authors from institutions on different continents. Working abroad is your chance to see the fruitful-

ness and functionality of international collaborations, and to learn about science culture and public perception of scientists in other countries.

Perhaps more



The author on a weekend trip to Hohenschwangau in Bavaria, Germany, to see Neuschwanstein Castle.

PHOTO COURTESY OF ADEBOLA ADENIRAN



great opportunities to work abroad, immersing yourself in the culture and living with your host family is also an amazing and unforgettable personal experience. I hope that you seize an opportunity so you can test out these theories for yourself.

Find where you fit

Regardless of the specific field, research is an international endeavor. If you're involved in research now, consider just how

importantly, you will see how you can play a role in the international research community. Your time abroad will introduce you not only to new colleagues but also to new career prospects that you may not have considered, or weren't even aware existed.

Let your time abroad encourage you to find and pursue opportunities that either aren't available in your home country or would be drastically improved by an international contribution. Maybe you'll find new colleagues to establish future conferences with, or learn about a new company where you could see yourself working in the future. You could even find that the education system in a foreign country is more to your liking, and create a new goal to study further or teach in your host country. After all, behind the international conferences and research collaborations are real people who have learned to make connections and work toward a common goal, overcoming cultural and often geographical barriers to do so. Your presence in a foreign country is a powerful tool to begin closer collaboration between your home and host countries, and to expose you to new possibilities as a scientist.



Gain cultural perspective

As influential as my time abroad was for learning about new frontiers of science, it was just as memorable for learning about new cultures, and teaching me to look at my own culture with a new set of eyes. The opportunity to relate to people from other cultures and the ability to adapt your mindset are, in my opinion, the best gifts that living abroad will give you.

Sometimes it can just be the little things you change, like wishing everyone *Guten Appetit* before starting a meal, or getting used to all businesses and shops being closed on Sundays. However, I've found that the real treasure comes after you've learned to adapt and move past these small differences. As much as textbooks can tell you about the history of a place, they can't connect you with the stories of people whose lives were changed directly by those historical events. Sure, reading about the Berlin Wall was interesting, but sitting

down with my host mother and hearing her explain in her native tongue how the wall affected her life and her country was an entirely different and unforgettable experience.

In addition to learning about the culture of your host country, you'll get the opportunity to learn how your home culture is perceived abroad. For me, the grand scope of American political and economic actions was not something I could have grasped had I never left. Seeing how people in foreign countries looked at America, in both positive and negative ways, was crucial for helping me to understand America's place on the global stage. Discussing the politics and culture of your home country while abroad can be a daunting experience, but educational nonetheless. I certainly gained a new appreciation for what it means to be an American, and also learned to look more closely at the global impacts of the decisions of both my home and host countries. My education abroad undoubtedly went far, far beyond my lab bench.

Expand your network

Your experience working abroad will give you ample opportunities for networking. Naturally, you'll meet people in your field and people who have similar career aspirations as yours. If pursuing your career abroad is something you decide to do, you'll be able to get advice from senior scientists in your host country on just how to do so.

That said, if you also put effort into expanding your network outside of career contacts, your time abroad will be much more fulfilling. Being a guest student puts you at a special advantage, as you have both intense academic and cultural aspects to your learning experience, a chance many students don't often get.

If you're at an institution that caters to international students, you probably won't have trouble finding activities that have an international flair, or people who are interested in cultural exchange. If you're at a place that has less of an active international community, take the opportunity to reach outside your comfort zone. You can easily meet people through language institutes and clubs. Also, look to see if you can pursue interests and hobbies you've already developed at home. If you play an instrument, look for a local ensemble you could play with. If you're interested in



sports, try to join a club, set up a team, or even ask to join a pickup game in the park. Before you know it, you'll have colleagues, and friends, all over the world.

Increase self-awareness

If you live and work abroad, you'll have the chance to watch your self-awareness grow and develop in a foreign environment. Before living abroad, I'd never given much thought to my abilities as a communicator. I was definitely at an advantage being abroad, as English is the operating international scientific language; however, and as silly as it may sound, I hadn't heard my own accent, or realized my self-inflicted idiosyncrasies on the English language, until they caused me a bit of trouble trying to communicate. I'm now more aware of my verbal communication skills, especially when considering an international audience. I'm learning to be more clear and concise, a skill that comes in handy in science every day.

Being abroad will certainly test your ability to deal with new constraints, but will also teach you how resourceful and flexible you can be. As a guest, you're subject to the norms that are already in place. With time, you'll come to understand some of the differences that initially seemed puzzling, or maybe even unbearable. Living abroad is a great chance to take time to observe and listen as you find your way in your new environment.

Perhaps if you were very proactive in your home community — for example, in politics, or as an administrator or leader of a group — you could take more of an observer role in your new community, allowing yourself more time to learn how things can work in a different setting. This applies to lab work as well. Taking the time to learn alternative approaches to solving similar problems can only enhance your comprehension of the problem at hand, and hopefully encourage you to re-examine your own experimental approaches and techniques.

Additionally, removing yourself from your comfort zone will teach you what you actually need in order to feel comfortable and at home wherever you may be. You may find that completely different things make you feel comfortable in your host culture as opposed to what you're used to in your home culture. Hopefully, adapting to your new environment will help you to discover new ways of living that you enjoy and can take back with you. You

could even discover a new hobby or skill that hadn't been brought forth before.

Test your theories

If you haven't had the chance to live abroad, I encourage you to push yourself, test these theories, and see what else is out there. I've lived in a country where I hadn't planned on living, learned a good amount of a language I never expected to speak, and made good friends whom I never would have met were it not for this experience. It wasn't always a breeze living abroad, but it was undoubtedly worth it.

You have a world of opportunities

The Fulbright Program offers fellowships to over 140 countries, and if it's Germany you're craving in particular, head to www.DAAD.org for more scholarship opportunities. To get information on other exchange programs, be sure to access the fellowship office at your school and any contacts your professors may have from international collaborations. If there's a specific lab you have your eye on, go ahead and send the principal investigator an e-mail — the lab just might have some extra funding available. Viel Glück and happy travels! 



Adebola Adeniran is a first-year Ph.D. student in the Chemical and Biological Engineering department at Northwestern University in Evanston, IL.



Closing the Skills Gap

Biotech Jobs Are Going Begging because New Ph.D.s Lack the Industry Experience that Companies Want

BY LINDA WANG

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Editor's note: At first glance, you may wonder why this article from Chemical & Engineering News about Ph.D. employment in the biotech industry has been reprinted in inChemistry—the magazine for undergraduate student members of ACS. The answer is simple: knowledge is power. inChemistry's goal is to help undergraduates become more aware and more proactive—now and through graduate school—about what they need to be doing to prepare themselves for employment in a highly competitive job market. As Debbie Durso-Bumpus, director of talent acquisition at Cubist Pharmaceuticals, mentions in the article, "There are lots of opportunities for the people who want them and are prepared to enter the world of industry and understand how it works. If you do your homework and you focus on your professional development, there will be opportunities for you."

After years of belt-tightening, the biotechnology industry is starting to see signs of recovery. "Companies are definitely hiring," says Kerry Boehner, an executive recruiter at pharma and biotech recruiting firm KOB Solutions. "I'm extremely busy, and most recruiters I know are very busy." Large numbers of newly minted Ph.D.s looking for jobs should provide no shortage of talent, yet employers say they can't find enough qualified candidates to fill their open positions. "The industry has reinvented itself," Boehner says. "Companies have very specific skill sets that they're looking for, and they're not willing to compromise. They're willing to wait until they find the ideal person."

New Ph.D.s are increasingly finding that their academic credentials are just not enough to get them a job, because

companies are looking for candidates with industry experience, whether from an internship or full-time employment. "The reason industry experience has become more important is because there are more people out there looking for jobs," says Debbie S. Yaver, a director of R&D at Novozymes. "You somehow have to separate them, and one criterion is, 'Do they have some industrial experience?'"

But for many graduate students, getting industry experience can be difficult. "Most Ph.D. advisors don't want to let their graduate students out of the lab to do an internship once they've started their thesis research," says Joel I. Shulman, an ACS career consultant and an adjunct professor at the University of Cincinnati.

Yaver notes that typically only 10% of the résumés she receives from new Ph.D.s include industry experience; for some jobs, no applicants have industry experience.

Efforts to address the deficit in industry vary. Some graduate biotechnology programs, for example, require that students complete an industrial internship. And ACS has formed a committee to examine this issue and recommend strategies to improve graduate education that can be adopted by academic institutions.

The shortage of skilled workers in the biotech industry is emblematic of a broader skills gap problem that has developed in many other sectors, from nursing to information technology to advanced manufacturing. According to staffing

firm ManpowerGroup's 2012 Talent Shortage Survey, released in May, 49% of U.S. employers reported experiencing difficulty filling positions that were critical to the mission of their organizations.

But it's not just technical skills that companies need. They're also seeking candidates with the right combination of soft skills for the job. Companies are looking for people who "have exceptional communication skills and the personality to work in a team," Boehner says.

Cubist Pharmaceuticals, in Lexington, MA, recently revised its hiring criteria to reflect its changing expectations. "We look for talent that not only has that key experience and the specific knowledge that most companies are looking for [but also] key competencies or personal attributes that are critical to where the organization is going from a strategic perspective," says Debbie Durso-Bumpus, director of talent acquisition at Cubist. "I think because we look at it from four to five different perspectives, finding that right individual is a little tougher than if you were just to say, 'Do they have the right experience and education to do the job?'"

The Biotechnology Predoctoral Training Program, supported by the National Institute of General Medical Sciences (NIGMS) at the National Institutes of Health, offers training grants to help graduate students gain both the industry experience and the soft skills necessary for success in an industrial career. NIGMS is currently funding biotechnology training programs at 21 academic institutions, and graduate students from various departments who are accepted into these programs are required to seek out and complete an industrial internship.

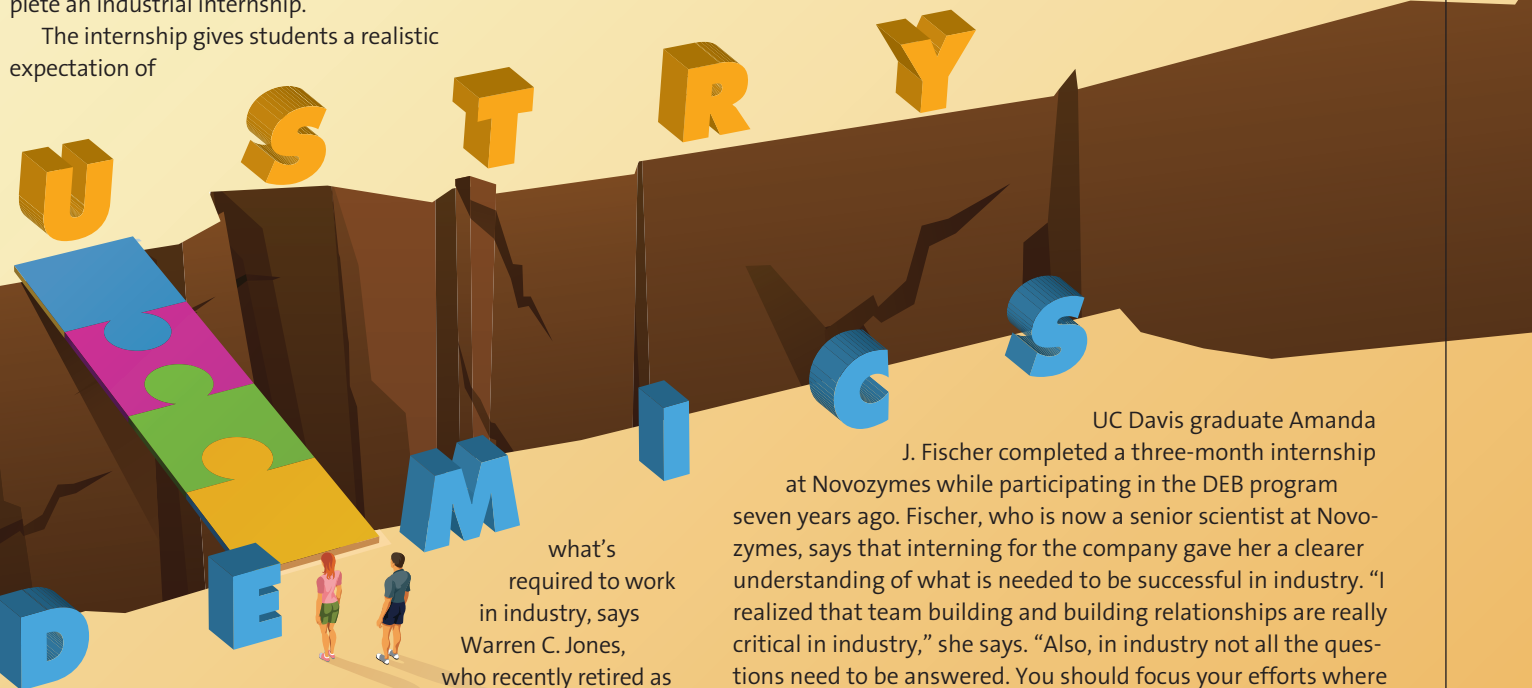
The internship gives students a realistic expectation of

perspective is as much a part of the thinking behind our requirement as anything."

In addition to doing a mandatory three- to six-month internship, students in the biotechnology training program at Northwestern University participate in a biotechnology research club, organize seminars where they invite industry speakers to talk about various aspects of biotechnology, and give poster presentations on their research. "The program exposes students to more than just biotechnology at the university," says Lonnie D. Shea, director of Northwestern's program.

The Designated Emphasis in Biotechnology (DEB) graduate program at the University of California, Davis, is an extension of its original NIH-NIGMS biotechnology training program, which was first funded in 1992. Students complete a mandatory three- to six-month industrial internship, take a core curriculum in bioethics and team science, participate in seminars led by industry scientists, learn about entrepreneurship, and tour biotech companies. Graduates of the program earn a special distinction on their diploma.

"The old model of education was to complete an apprenticeship and learn from the master," says Judith A. Kjelstrom, director of the UC Davis biotechnology program and program manager of the DEB graduate program. "Universities drifted away from that model over the past 30 years to a model focused on didactic learning without offering on-the-job training. Our program addresses these shortcomings."



what's required to work in industry, says Warren C. Jones, who recently retired as director of the NIGMS biotechnology training program. "The industrial mission is not what it is in academia," he says. "It's hard-nosed 'Let's get a product out the door' kind of thinking. It's not academic research where the end goal is a publication. So that kind of broadening of

UC Davis graduate Amanda J. Fischer completed a three-month internship at Novozymes while participating in the DEB program seven years ago. Fischer, who is now a senior scientist at Novozymes, says that interning for the company gave her a clearer understanding of what is needed to be successful in industry. "I realized that team building and building relationships are really critical in industry," she says. "Also, in industry not all the questions need to be answered. You should focus your efforts where the outcome will lead to product innovations that can benefit the company."

Now in a hiring capacity herself, Fischer is looking for candidates who have industry experience. Her biggest concern about candidates without industry experience is whether the environ-

ment will suit them and whether they'll be happy "with the way the projects flow," she says.

Biotechnology training programs such as the ones at Northwestern and UC Davis are invaluable but limited in how many Ph.D. students they can accept. The Northwestern program, for example, accepts just three students per year for two-year terms, and students are funded by an NIH-NIGMS training grant. The DEB program is larger, with 230 students currently enrolled and funding provided by NIH-NIGMS, the National Science Foundation, and other sources. For the program to grow further, Kjelstrom says, she would need more companies to partner with the university to offer paid internships.

Meanwhile, ACS is also helping graduate students prepare for a career in industry. The ACS Graduate & Postdoctoral Scholars Office, for example, offers a two-day career development workshop designed to inform graduate students and postdocs about the various career options available to them. The "Preparing for Life after Graduate School" workshops are cosponsored by academic chemistry departments and answer questions such as, "What skills are needed to work in industry?"

In addition to this effort, ACS President Bassam Z. Shakhshiri has formed a Presidential Commission on Graduate Education to assess the state of graduate education and develop recommendations on how to better prepare students for their careers (*C&EN*, Nov. 21, 2011, page 40). The commission is soliciting input from graduate students, postdocs, and others and will issue a report later this year. The report will include recommendations that can be adopted or adapted by graduate education institutions, federal and state funding agencies, and business and industry. Comments can be sent to graduatecommission@acs.org.

It may take a while for improvements to be made to graduate education, Cincinnati's Shulman says. Ultimately what's needed, he says, are more academic-industrial partnerships to help students bridge the transition between academia and industry. "Establishing an ongoing relationship between universities and companies would be really helpful," he says.

For now, it's up to individuals to pursue the industrial training they need. "If I were advising graduate students on how to make themselves most employable by industry, I would say to find yourself an industrial internship while you're in graduate school," Shulman says. "Take a summer off, and even if it slows you down getting your Ph.D. by three months, the fact that you've seen what goes on in industry is going to make you more attractive to a lot of companies."

Biotech companies such as Cubist offer paid internships to students working toward B.S., M.S., and Ph.D. degrees. This summer, Cubist will employ 40–50 interns for 10 weeks. The internship opportunities are listed on the company's website.

An internship isn't the only way to gain industry experience, however. Taking some time off between undergraduate and graduate school to work in industry can also be beneficial. Such candidates "would also rise to the top for me," Novozymes' Yaver says. "They have at least some perception of what the difference is between an industrial research setting and an academic setting."

Another way for recent Ph.D.s to gain some industry experience

is to seek out an industrial postdoc or even a temporary position, Shulman says. Companies are increasingly looking for such short-term hires because they enable a firm to evaluate potential candidates to fill permanent positions, he notes.

For job seekers who don't have industrial experience, Durso-Bumpus suggests they focus their job search on larger companies that might have more resources to train new employees. "As a midsize organization, we prefer people who had been there and done that and could do it again," she says of Cubist. "Although as we continue to grow, we've actually gone to the market with more entry-level posi-

tions that we didn't necessarily have in the past."

But perhaps the most important thing job seekers can do to increase their chances of getting a job is to maintain a positive attitude.

"There are lots of opportunities for the people who want them and are prepared to enter the

world of industry and understand how it works," Durso-Bumpus says. "If you do your homework and you focus on your professional development, there will be opportunities for you."

Boehner, the recruiter, agrees. The economic situation is "really forcing scientists to come up a few notches," she says. "The competition is tough, but for those people who understand what has to get done to get a position, they're succeeding and getting multiple offers." *irc*



PHOTO: LINDA WANG/C&EN

ABOVE: Joel Shulman offers graduate students tips on how to get an industrial job.

LEFT: Amanda Fischer says her internship at Novozymes prepared her for a career in industry.



PHOTO: DAN HELED



Linda Wang is a senior editor at Chemical & Engineering News, where she covers employment, education, and ACS-related news.

SPOTLIGHT

Angelo State University

San Angelo, TX

COMPILED BY CHRIS ZEIGLER



Chapter president: James R. Martinez **Number of chapter members:** 32 **Number of ACS student members:** 13
Website: www.angelo.edu/org/acs **Institution description:** Small, public, urban, minority-serving, 4-year institution

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

A: Our ACS chapter elects new officers about a month before the end of the spring semester. After the elections, previous officers meet face-to-face with the newly elected officers at least once before the conclusion of the school year. This allows the previous officers to assume a mentoring role with the newer officers.

Q: Do you have any unique positions?

A: We have a webmaster who manages all of our Web and technology needs, including our ACS chapter website, Facebook, e-mails, and text messages. These technologies enable streamlined inter-chapter communications.

Q: What is your most popular or unique chapter activity?

A: We participate in Science Days, a collaborative project involving all of the science departments at ASU. Throughout the year, over 1,500 fourth-grade students from the San Angelo area come to the ASU campus for a day of science fun. Students rotate through rooms focused on reptiles, mammals, math, geology, and hands-on chemistry and biology activities. Our chapter finishes the day with a Chemistry Magic Show, complete with a chemical safety discussion, followed by lots of explosions.

Q: Do you collaborate with other clubs on campus on activities?


A: We have collaborated with the Tri-Beta biology honors society and the Society of Physics Students (SPS) for some outreach activities,

including the annual ACS/SPS Magic Show for our local Expanding Your Horizons (EYH) event. EYH is organized by the Girl Scouts and ASU for middle- and high-school-age girls to promote interest in science, technology, engineering, and mathematics.

Q: If your chapter has recently attended an ACS regional, national, or local section meeting, how did members benefit?

A: Some of our members were fortunate enough to attend the 2011 ACS Southwest Regional ACS meeting in Austin, Texas. By attending this meeting, they advanced their knowledge about how chemistry is used in everyday life. We also participated in the Chem Demo Exchange at the ACS national meeting in San Diego and brought back ideas for our outreach activities.

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

A: Although our chapter has many chemistry and biochemistry majors, we also welcome members from the biology, physics, geology, and computer science departments who participate because of our involvement with ASU and the surrounding community. 



With an active membership, the ASU chapter is able to sponsor many events for younger students, including Science Days events on campus, the San Angelo Eco Fair, and Science Nights at elementary schools.

Faculty advisors:

Kevin Boudreaux, 5 years
 Edith Osborne, 4 years

Q: How did you become a faculty advisor?

Boudreaux: I stepped in to become an ACS faculty advisor when the previous advisor left ASU. For a number of years prior to that, I had helped out with setting up demonstrations and other activities.

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

Boudreaux: As a faculty advisor it's very rewarding to hear from former ASU graduates and see what impact their time as student members of the ACS has had on their subsequent activities, whether in graduate school or in the workplace.


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

Osborne: As a student, ACS involvement helped me network with other chemists and plan my career path. As an ACS advisor, I can give back to the ACS by mentoring the next generation of members.

Q: What challenges have you faced in your position?

Osborne: Helping the students maintain momentum from year to year as the membership and officers change is challenging. I try to encourage good record-keeping so that information is not lost during transition periods.

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

Osborne: Let the students run the chapter as much as possible, but encourage an open line of communication and ask questions. Using network drives and file sharing sites can really help make sure everyone has access to needed files from year to year. 

SPOTLIGHT

University of Missouri-St. Louis St. Louis, MO

COMPILED BY CHRIS ZEIGLER

Chapter president: Allison Saettele **Number of chapter members:** 40 **Number of ACS student members:** 13
Website: www.umsll.edu/chemistry/Undergraduate%20Studies/chemclub.html
Institution description: Large, public, urban, 4-year institution

Q: Do you have any unique positions?

A: In addition to the usual positions, we have a student government representative and a public relations/historian position. Furthermore, we try to have chairs for each event and encourage underclassmen to hold these positions.

Q: How did you celebrate National Chemistry Week?

A: We held an interactive event outside of the science complex, where we made liquid nitrogen ice cream, built candy molecules, and offered face painting with molecules and atoms. We also constructed and painted wooden billboards with different chemistry equations and molecules to attract students and faculty.

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

A: We participate in the Cancer Research Relay for Life and assist the Chemistry Graduate Student Association with team events and fundraising. We also give a chemistry demonstration for ACS Career Day, which is designed for high school students in the St. Louis area and held at UMSL each year.

Q: What are some of the interesting ways your chapter recruits/retains its members?

A: We typically hold an open house each year for all interested students and continually recruit with sign-up sheets at all events. In addition, we use the university's Blackboard system for all chapter announcements. We also try to make sure that everyone has a say in chapter activities and that work is evenly spread among members.

Q: What are your most popular or unique chapter activities?

A: We hold a chili cook-off, where all members and faculty are invited to enter a dish and

everyone has an opportunity to vote. We also offer a research fair every year, where chemistry and biochemistry faculty members speak for five minutes each on their research programs and opportunities for undergraduate research in their labs. In addition, the chapter hosts a study night for students, where graduate assistants and upperclassmen help with the studies. Our chapter also celebrates Pi Day by organizing and holding a "Pi Walk" with pizza pies and fruit pies; we also sell grilled hot dogs and lemonade, and offer face painting with the symbol pi.

Q: What is the most effective communication tool that your chapter uses to promote chapter activities?

A: We have found that the most effective communication is actually face-to-face during meetings, although we also use text messaging a lot. The discussion board on the Blackboard system has been helpful as well. A new discussion board is started for each event, which helps people who can't attend the regular meeting. Meeting minutes are also posted on the Blackboard system.



PHOTO COURTESY OF UNIVERSITY OF MISSOURI-ST. LOUIS

By establishing a weekly schedule for meeting, posting meeting minutes online, and maintaining an online discussion board, the UMSL chapter increased its membership and overall participation in its activities.

Q: Describe a challenge your chapter recently faced and how members overcame it.

A: A recent challenge was starting the year with a completely new slate of officers and finding an acceptable meeting time with all of the busy schedules. An ongoing challenge to our chapter is trying to increase or maintain membership and to keep everyone involved in a largely commuter school, particularly with significant numbers of evening classes and no classes on Friday. **inc**

Faculty advisor:
Michael R. Nichols, 8 years

Q: What challenges have you faced in your position?

Nichols: The most challenging aspect is continually recruiting new officers for the chapter. We have always had great officers, but they tend to be seniors who are very busy. I would love to have more underclassmen as chairs and officers.

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

Nichols: The ACS student chapter is typically the hub of our undergraduate chemistry program. As advisor, I get the opportunity to interact with our students and be involved in all of the latest news and happenings. Of course, following the students' progress and then watching them graduate and go on to successful positions is also very rewarding.

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

Nichols: Offer guidance and suggestions, but let the students run the chapter, even during the times when the group may be facing some challenges. **inc**



CELEBRATING 75 YEARS OF STUDENT INVOLVEMENT IN ACS

Congratulations to the winners of the 2011–2012 Student Chapter Awards

I am pleased and excited to recognize the many accomplishments of ACS student chapter members and their faculty advisors as we celebrate 75 years of undergraduate involvement in ACS. Student chapters exist to foster an awareness of the responsibilities and challenges of the modern chemist: to help sustain Earth and its people in the face of population growth, finite resources, malnutrition, spreading disease, deadly violence, war, climate change, and the denial of basic human rights, especially the right to benefit from scientific and technological progress.

I am impressed by your creativity, initiative, and enthusiasm. Our success depends on the creativity and dedication of members who are proud to belong to the world's largest scientific organization and who are eager to enhance its offerings and accomplishments. ACS offers you professional opportunities, support, and assistance, and you, in turn, can participate in serving ACS and its mission: "to advance the broader chemistry enterprise and its practitioners for the benefit of Earth and its people."

Thank you for working with me to do your best for ACS, for science, and for society. I encourage you to continue your efforts to communicate science not only as students, but throughout your careers. I invite you to begin now by exploring the ACS Climate Science Toolkit (www.acs.org/climatescience)—the fundamental science to help you understand and communicate climate science. And I know you will want to be on the lookout for the forthcoming report of the ACS Presidential Commission on Graduate Education in the Chemical Sciences.

As we celebrate this milestone year for undergraduates, I wish you all the very best for a safe, happy, and healthy winter break and holiday season.



Bassam Z. Shakhashiri
President, American Chemical Society
Professor of Chemistry, University of Wisconsin-Madison

SPECIAL RECOGNITION FOR 2011–2012 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 2011–2012 annual reports. They will be honored at the 245th ACS National Meeting in New Orleans, LA, on Sunday, April 7, 2013.

We congratulate the 46 Outstanding, 81 Commendable, and 114 Honorable Mention award-winning chapters.



KEY: **Winning Institutions** Chapter Presidents Faculty Advisors

Alvernia University, Reading, PA

Amanda McGettigan & Daniel Kwasniewski
Rosemarie Chinni & Kevin Burns

California Polytechnic State University-San Luis Obispo

Ying-Ying Chow
Jennifer Carroll

California State University-Fresno

Alicia Alter & Jonathan Powell
Melissa Golden & Joy Goto

Cameron University, Lawton, OK

Sylvia Clery & Godsfavour Umoren
Elizabeth Ann Nalley & Gary Buckley

Canisius College, Buffalo, NY

Jessica Stachowski & Andrew Forrestel
Phillip Sheridan

Central Michigan University, Mount Pleasant

Sarah Murphy & Mary Martin
Sharyl Majorski & Dale LeCaptain

Duquesne University, Pittsburgh, PA

Jared Romeo & Kimberly Daley
Jeffrey Evanseck

East Los Angeles College, Monterey Park, CA

Antonio Tinoco & Lauren London
Veronica Jaramillo & Armando Rivera
Figueroa

Eastern Oregon University, La Grande

Theresa Hampton & Patrick Kelsey
Anna Cavinato

Emory University, Atlanta, GA

Charlene Chan & Amanda Mui
Douglas Mulford & Jeremy Weaver

Florida International University-Biscayne Bay Campus

Dalton Steele & Geysa Ortiz
Milagros Delgado & Mayra Exposito

Francis Marion University, Florence, SC

Yana Sivolobova & Bryce Bullard
Jennifer Kelley & Thomas Anderson

Georgia College & State University, Milledgeville

David Wilder & Katie Fredo
Catrena Lisse

Gordon College, Wenham, MA

Benjamin Stewart & Bria Pelletier
Joel Boyd

Huntingdon College, Montgomery, AL

Blakely Sanders & Rondarius Hall
Maureen Kendrick-Murphy

Illinois State University, Normal

Angela Howard & Justin Lange
Jun-Hyun Kim & Jeremy Driskell

Lake Forest College, IL

Maria Zawadowicz & Leah Frenette
Elizabeth Fischer & Dawn Wiser

Middle Tennessee State University, Murfreesboro

Miguel Hurtado & Jamie Taylor
Gary White & Andrienne Friedli

Millikin University, Decatur, IL

Stephanie Gates & Kirsten Daykin
George Bennett

Northeastern University, Boston, MA

Christine Dunne & Elise Miner
Kathleen Cameron

Saint Francis University, Loretto, PA

Gregory Mountain
Edward Zovinka

Salt Lake Community College, UT

Charles Kambourian & Zach Jones
Ron Valcarce

South Texas College, McAllen

Juan Gonzalez & Jessica Tanguma
Ludivina Avila & Joe Studer

Spring Hill College, Mobile, AL

Matthew Malus & Patience Wright
Carolyn Simmons

St. John's University, Queens, NY

Muhammad Altaf & Alger Liang
Neil Jespersen

Texas Christian University, Fort Worth

Sandi Dang & Katelyn Poole
Kayla Green

The College of New Jersey, Ewing

Marisa Sanders & Anthony Judilla
Benny Chan & Abby O'Connor

***The University of Texas at Dallas,
Richardson***

Michael Kraft & Sussana Elkassih
John Sibert

Truman State University, Kirksville, MO

Laura Marolt
Barbara Kramer

Union University, Jackson, TN

Jonathan Boyd & Kendra Sanderson
Randy Johnston & Brenda Peirson

University of Arizona, Tucson

Kara Saunders
John Pollard

University of Central Arkansas, Conway

Venusia Phomakay & Amanda Wallace
Faith Yarberry & Karen Steelman

University of Detroit Mercy, MI

Candice Kashat
Matthew Mio & Kendra Evans

University of Louisiana at Monroe

Marlena Patrick & Katherine Davis
Laura Beal

University of Michigan-Flint

Caitlin McCarthy & Kristopher Keipert
Jessica Tischler & Monique Wilhelm

***University of Northern Iowa,
Cedar Falls***

Chelsea Meier & Justin Wurtzel
Dawn Del Carlo

University of Pittsburgh, PA

Rachel Harris & Joshua Glass
George Bandik

University of Puerto Rico-Aguadilla

Natalia Sola & Pablo Marrero
Brenda Ramos-Santana

***University of Puerto Rico-Mayagüez
Campus***

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Nilka Rivera

***University of Puerto Rico-Río
Piedras Campus***

Euvelisse Jusino-DelValle & David Vasallo
Rodriguez
Ingrid Montes

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Saint Paul, MN***

Nicholas Serratore
Lisa Prevette

University of Tennessee at Martin

Gilbert Forgays & Lee Elliott
S.K. Airee

Waynesburg University, PA

Benjamin Crawshaw & Timothy Van Riper
Evonne Baldauff & Robert La Count

***West Virginia State University,
Institute***

William Rollyson & Joshua Kim
Micheal Fultz & Thomas Guetzloff

***Western Washington University,
Bellingham***

Nicole Koeppen & Alvin Jeffers
Elizabeth Raymond & Steven Emory

***Xavier University of Louisiana,
New Orleans***

Ashley Matthew & Asia Matthew
Michael Adams & Janet Privett



KEY: ***Winning Institutions*** Chapter Presidents Faculty Advisors

***Anne Arundel Community College,
Arnold, MD***

Tyler Jenish & Perry Kimberley
Lynn Tracey & June Bronfenbrenner

Arkansas Tech University, Russellville

Joshua Trujillo
Charles Mebi

Augustana College, Sioux Falls, SD

Kayla Vastenhout & Jared Drenkow
Jetty Duffy-Matzner

Ball State University, Muncie, IN

Mallory Dobson & Alec Ribblett
Jason Ribblett & Jason Dunham

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Daniel Morales & Susana Chan
George Fisher

Bellevue College, WA

Kimberly Giddings & Nathan Rollins
Carole Berg & Gina Fiorini

Belmont University, Nashville, TN

Fatin Jweinat & Grant Anderson
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Brigham Young University, Provo, UT

Nicholas Teodoro
Daniel Austin

***Brigham Young University-Idaho,
Rexburg***

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David Collins & Stephen Ott

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Catawba College, Salisbury, NC

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Mark Sabo

Central Washington University, Ellensburg

Troy Kilburn & Michael Mullan

Dion Rivera & Tim Sorey

College of Mount Saint Vincent, Bronx, NY

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Pamela Kerrigan

College of Saint Elizabeth, Morristown, NJ

Kristen Kurtz & Alexa Bogstahl

Sr. Marian José Smith & Catherine Lee

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John Freeman

Elizabethtown College, PA

Ayusa Sinha & Sarah Strohecker

Kristi Kneas

Elmira College, NY

Natalie Winters & Jaclyn Johrden

Corey Stilts & Marcia Metcalfe

Ferris State University, Big Rapids, MI

Harrison Roy

Pasquale Di Raddo

Georgia Southern University, Statesboro

Caleb Swain & Lindsey Sequeira

Michele Davis McGibony

Henderson State University, Arkadelphia, AR

Katarina Bejarano & Diamond Shelman

Janice O'Donnell & T. David Bateman

Hendrix College, Conway, AR

Meredith Miles & Sloane Zimmerman

Liz Gron

Hiram College, OH

Jennifer Pekar & Adam Miller

Carol Shreiner

Hofstra University, Hempstead, NY

Cindy Schmelkin & Timothy Clark

Ronald D'Amelia & Nanette Wachter

Illinois Valley Community College, Oglesby

Shelby Wagner & Erin Salz

Matthew Johll & Promise Yong

Inter American University of Puerto Rico Metropolitan Campus, San Juan

Carlos Hernandez Larracuente & Maylin Hernandez

Agnes Dubey

Inter American University of Puerto Rico San Germán Campus

Dannajoe Galarza-Ramos & Juan Velez

Angela Gonzalez

Iona College, New Rochelle, NY

Erin Morgan & Zuzanna Michalak

Sunghee Lee

Lawrence Technological University, Southfield, MI

Justin Vail

Jerry Crist

Miami University, Oxford, OH

Katherine Babbitt & Todd Brophy

David Tierney

Mississippi State University

Jesse DuPont & Kerry Barnett

Emily Rowland

Missouri State University, Springfield

Eric Tague & Jordan Hobbs

Diann Thomas & Bryan Breyfogle

Monmouth College, IL

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Audra Sostarecz & Eric Todd

Morehead State University, KY

Amanda Sullivan & James Bradley

Mark Blankenbuehler

Morgan State University, Baltimore, MD

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Louise Hellwig

Nazareth College of Rochester, NY

Michelle Scotland & Emily Benton

Jane Shebert

Newberry College, SC

Brandon Davis & Tonya Tuberville

Christina McCartha

Niagara University, NY

Eric Stoutenburg

Ronny Priefer

Northern Kentucky University, Highland Heights

Marilyn Henry & Kara Chan

Patrick Hare & Lili Ma

Northwestern University, Evanston, IL

Teresa Mills & Margaret Yu

Shelby Hatch & Owen Priest

Ohio Northern University, Ada

Russell Spatney

Tervey Celius

Ouachita Baptist University, Arkadelphia, AR

Hollyn McCarty

Martin Perry & Joseph Bradshaw

Penn State Berks, Reading

Heather Young & Heather Schmale

Greglynn Gibbs

Radford University, VA

Anthony Eid & Jacob Shelton

Cindy Burkhardt & Joseph Wirgau

Saint Louis University, MO

Patrice Vallot

Brent Znosko

Saint Vincent College, Latrobe, PA

David Tiberi

Jason Vohs

Santa Clara University, CA

Maxwell Giammona & Elena Naderzad
Linda Brunauer

South Dakota School of Mines and Technology, Rapid City

Stephany Bjstrom & Maria Luze
Justin Meyer

Southwest Minnesota State University, Marshall

Tim Binsfeld & Sirocco Peterson-Wahl
Noelle Beyer & Frank Schindler

St. Edward's University, Austin, TX

Pablo Romano & Kelly Servage
John Lewis & Donald Wharry

Suffolk University, Boston, MA

Stephanie Laurer & Meaghan Sebeika
Doris Lewis & Andrew Dutton

Tarleton State University, Stephenville, TX

Emryse Geya & Karl Mueller
Peter Bell & William Whaley

Tennessee Technological University, Cookeville

Benjamin Davis & Jessika Pinto
Daniel Swartling

Texarkana College, TX

Keith Chase & Chris Kinney
Patricia Harman & Mike Buttram

The Evergreen State College, Olympia, WA

Hattie Osborne & Alexander Dodwell
Dharshi Bopegedera

The Pontifical Catholic University of Puerto Rico, Ponce

Issgrely Torres-Pagan
Lizette Santos & Carmen Collazo

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Leslie Gentry & Kirstin Sockwell
Laura Busenlehner & Patrick Frantom

The University of Utah, Salt Lake City

Bryce Leishman & Joshua Jackson
Anita Orendt & Holly Sebahar

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Jerome Darsey

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Ritankar Das
Richard Saykally

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University of Houston-Downtown, TX

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Darrell Watson

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Maiella Ramos & Vanessa Montalvo

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Peter Woodruff & James Ford

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Lisa Berreau

Utica College, NY

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Michelle Boucher & Alyssa Thomas

Western Kentucky University, Bowling Green

Sarah Ward & Amar Patel
Jeremy Maddox

Wilkes University, Wilkes-Barre, PA

Shauna Anderson
Donald Mencer & Adriana Dinescu

York College of Pennsylvania

Melissa Friscia & Kate Steinle
Kathleen Halligan

Honorable Mention

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Reyna Reyes & Casey Penland
Renee Beeton

Adrian College, MI
Joanna Slisinger & Krystin Stiefel
Laura Polchinski & David Bartley

Agnes Scott College, Decatur, GA
Christine Franzel & Alexandra Wagner
Thomas Venable

Allegheny College, Meadville, PA
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Mark Ams & Ivelitza Garcia

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Carrie Brennan & G. Robert Shelton

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Christopher Lafratta

Barnard College, New York, NY
Eileen Smith & Faizunnahar Dewan
Marisa Buzzeo

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Randall White & Corey Davis
Thomas Ticich

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Paige Aiona
Daniel Wellman

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Dennis Merat

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Doris Espiritu

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Kristin Wustholz & Douglas Young

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Amy Prieto

Colorado State University-Pueblo
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David Lehmpuhl & David Dillon

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Daniel King

Eastern Illinois University, Charleston
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Chandler Adkins & Portia Thomas
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Amber Charlebois

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Martin Noguera & Andrew Bolhassani
Jaroslava Miksovska & Joseph Lichter

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Carmen Gauthier & Jason Montgomery

Furman University, Greenville, SC
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Brian Goess

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Harold Conder & Charles Kriley

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Vinh Lu

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Nathan McElroy

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Tom Fisher

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Chelsea Coley

Diana Cermak

Lebanon Valley College, Annville, PA

Lindsay Carl

Marc Harris

Lock Haven University of Pennsylvania

Eric Driscoll

Kevin Range

Los Angeles City College, CA

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Terry Boan

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Loyola University New Orleans, LA

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Kurt Birdwhistell

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Messiah College, Grantham, PA

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Hannah Tims

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Randal Hallford & Jianguo Shao

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Lyman Rickard

Mississippi College, Clinton

Brandon Holloway & Daniel Roberson

Dale Rosado & Leland Benton

Mount Saint Mary College, Newburgh, NY

Alana DeTone

Lynn Maelia

Muhlenberg College, Allentown, PA

Matthew Fitzsimons & Jenna Kotak

Bruce Anderson

**North Carolina Agricultural and
Technical State University,
Greensboro**

Lariah Edwards

Marion Franks

North Central College, Naperville, IL

Cassandra Schneider & Kira Adams

Paul Brandt

**North Dakota State University
Main Campus, Fargo**

Alisa Fairweather & Rylan Wolfe

Seth Rasmussen

Pace University, New York, NY

Wendy Drury & Nazary Nebeluk

Jaimelee Rizzo

Pacific Lutheran University, Tacoma, WA

Ashley Marshall & Skylar Johnson

Neal Yakelis & Craig Fryhle

Park University, Parkville, MO

Frances Venable & Samuel Hansen

Donna Howell & Gregory Claycomb

Portland State University, OR

Naneki Collins & Natasha Hippler

Albert Benight

Princeton University, NJ

Matthew Landry & Sara Rubin

Steven Bernasek

Principia College, Elsau, IL

Calvin Nyapete & Garrett Fielding

Jeffrey Cornelius & Joseph Ritter

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Beatriz Cisneros

Rensselaer Polytechnic Institute, Troy, NY

Evan Beauvilliers & James Buchwald

James Moore

Roanoke College, Salem, VA

Jonathan Perkins

Kelly Anderson

Roger Williams University, Bristol, RI

Liseth Silva & Lauren Salerno

Stephen O'Shea

Sacred Heart University, Fairfield, CT

Josephine Ferrantelli & Kelli Rutledge

Linda Farber

**Saginaw Valley State University,
University Center, MI**

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Stephanie Brouet

**Saint Louis Community College
at Florissant Valley, MO**

Jordan Aach & Denise Brengard

Donna Friedman & Samuel Tremont

Sarah Lawrence College, Bronxville, NY

James Parichy & Lauren Shepard

Colin Abernethy

Siena College, Loudonville, NY

Nick DeMarte & Sara Erlichman

Jodi O'Donnell & Jesse Karr

**Southeast Missouri State University,
Cape Girardeau**

Joshua Long & Sariah Cantrell

Rachel Morgan Theall

Southeastern Oklahoma State University, Durant

Courtney Tolar & Jason Freeman
Nancy Paiva

Southern Illinois University Edwardsville

Jase Camp
Ed Navarre

St. Catherine University, Saint Paul, MN

Shannon Doherty
James Wollack & Gina Mancini-Samuelson

St. Cloud State University, MN

Kaitlin Carlson & Keith Voeller
Sarah Chapman Petitto

Stern College for Women-Yeshiva University, New York, NY

Emily Levine
Donald Estes & Chaya Rapp

Stonehill College, North Easton, MA

Katherine O'Toole & Meghan Harley
Cheryl Schnitzer & Marilena Hall

Temple University, Philadelphia, PA

Angela Snow & Ashley Gilman
Frank Spano

Texas State University-San Marcos

Matthew Milner & Jose Navarrete
Benjamin Martin

The University of Memphis, TN

Nicole Whitaker & Melanie Sparks
Richard Petersen & Mark Freilich

Transylvania University, Lexington, KY

David Saxon
Eva Csuhai

Union College, Schenectady, NY

Megan O'Connor & Faraz Khan
Laura MacManus-Spencer & Margot Paulick

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Caleb Jones & Michael Longmire
Jacqueline Nikles & Gary Gray

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Tammy Chew & Luxi Chen
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Annie Jia & Rebecca Ou
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Alexandra Taraboletti
Stephen Kuebler

University of Central Missouri, Warrensburg

Brittany Hagenhoff
Innocent Pumure

University of Colorado at Colorado Springs

Godwin Anyanwu
David Weiss

University of Mary Washington, Fredericksburg, VA

Sarah Smith & Elena Fernandez
Leanna Giancarlo

University of Maryland Baltimore County, Baltimore

Katelyn Erickson & Mary Kelly
Tara Carpenter & Stephen Mang

University of Michigan-Ann Arbor

Dana Anderson & Daniel Semaan
Paul Jones

University of Michigan-Dearborn

Amy Bondy & Alberto Lopez
Krisanu Bandyopadhyay & Angela Allen

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Krista Patel
Marykay Orgill

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Lyudmila Kovalenko & Richard Ojeda
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Danea Burgess & Gwendolyn McIrvin
Kimberly Pacheco

University of Portland, OR

Diane Le & Megan Supinski
Angela Hoffman & Kevin Cantrell

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W. Matthew Reichert & Diane Roe

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Raja Annamalai

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Matthew Allen & Mary Pflum

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William King & Laura Given
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Westminster College, New Wilmington, PA

Hannah Anderson & Jamie Daum
Sarah Kennedy

Westminster College, Salt Lake City, UT

Bryant Sheppard & Tyler Sutton
Paul Hooker & Robyn Hyde

Wichita State University, KS

Sarah Jack & Carmen Gott
Douglas English

Yale University, New Haven, CT

Colin Lu & Maxwell Kushner-Lenhoff
Kurt Zilm

Youngstown State University, OH

Ricky Kaiser & Randi Dangerfield
Nina Stourman

2011–2012 Green Chemistry Student Chapters

Student involvement in applying green chemistry principles and practices is essential to the integration of environmentally benign technologies in academia and industry. The ACS Green Chemistry Institute® recognizes student chapters that have engaged in at least three green chemistry activities during the academic year. Listed below are the 56 recipients of the 2011–2012 Green Chemistry Award, by institution.

Alvernia University, Reading, PA

Angelo State University, San Angelo, TX

Augustana College, Sioux Falls, SD

Barry University, Miami Shores, FL

Bellevue College, WA

California State University-Fresno

California State University-Long Beach

Carlow University, Pittsburgh, PA

Christian Brothers University, Memphis, TN

College of William & Mary, Williamsburg, VA

Emory University, Atlanta, GA

Ferris State University, Big Rapids, MI

Florida International University-Biscayne Bay Campus, Miami

Georgia College & State University, Milledgeville

Gordon College, Wenham, MA

Hendrix College, Conway, AR

Huntingdon College, Montgomery, AL

Loyola University New Orleans, LA

Middle Tennessee State University, Murfreesboro

Millikin University, Decatur, IL

Northeastern University, Boston, MA

Northwestern University, Evanston, IL

Portland State University, OR

Roger Williams University, Bristol, RI

Saint Francis University, Loretto, PA

Salt Lake Community College, UT

Sarah Lawrence College, Bronxville, NY

South Texas College, McAllen

Southeast Missouri State University, Cape Girardeau

Southeastern Oklahoma State University, Durant

Suffolk University, Boston, MA

Texarkana College, TX

Texas State University-San Marcos

The College of New Jersey, Ewing

The Pontifical Catholic University of Puerto Rico, Ponce

The University of Texas at Dallas, Richardson

Union University, Jackson, TN

University of Arizona, Tucson

University of California-Berkeley

University of Louisiana at Monroe

University of Mary Hardin-Baylor, Belton, TX

University of Michigan-Ann Arbor

University of Pittsburgh, PA

University of Puerto Rico at Arecibo

University of Puerto Rico-Aguadilla

University of Puerto Rico-Humacao

University of Puerto Rico-Mayagüez Campus

University of Puerto Rico-Río Piedras Campus

University of San Diego, CA

University of Southern Maine, Portland

University of Tennessee at Martin

University of Texas at Tyler

West Virginia State University, Institute

Western Washington University, Bellingham

Xavier University of Louisiana, New Orleans

York College of Pennsylvania

2012–2013 Community Interactions Grants (CIG)

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

For the 2012–2013 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 winning chapters.

Barry University, Miami Shores, FL
Travis Connick • George Fisher
Science Outreach to Minority-Serving Elementary Schools
\$400

Boston College, Chestnut Hill, MA
Douglas Brown • Eranthie Weerapana
Chemistry in Action
\$272.85

Emory University, Atlanta, GA
Boru Wang • Douglas Mulford
ChEmory IMAGE Science Collaboration
\$250

Florida International University, Miami
Martin Noguera • Jaroslava Miksovska
Inspiring Chemistry in South Florida
\$500

Georgia Gwinnett College, Lawrenceville
Jackie Bassong • Gillian Rudd
Science It Forward
\$500

Morgan State University, Baltimore, MD
Brent Powell • Louise Hellwig
Balances for MUCH Program
\$150

Penn State Berks, Reading
Kristin Kamowski • Greglynn Gibbs
NCW Kick-Off at the Reading Public Museum
\$500

St. John's University, Queens, NY
Alison Hyslop • Neil Jespersen
Chemistry is Fun
\$250

Stern College for Women-Yeshiva University, New York, NY
Elizabeth Goldberger • Donald Estes & Chaya Rapp
Chemistry and Beauty
\$300

Temple University, Philadelphia, PA
Sarah Carson • Frank Spano
8th and Diamond Community Center Project
\$325

Texas Christian University, Fort Worth
Erica Zimmerman • Kayla Green
Creating New Bonds Between DFW and Chemistry
\$500

Union University, Jackson, TN
Stephanie Chleadle • Randy Johnston
Using Drama to Develop Scientific Inquiry Skills
\$454

University of Tennessee-Chattanooga
David Colangione • Jisook Kim
Chemistry in the Underprivileged Regions of Chattanooga
\$400

West Virginia State University, Institute
Joshua Kim • Micheal Fultz
Making Science More Accessible to Underserved High School Students
\$250

Westminster College, Salt Lake City, UT
Lizeth Davis & Natalie Batty • Paul Hooker
The Essence of Luminescence
\$331.50

2012–2013 Innovative Activities Grants (IAG)

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

For the 2012–2013 academic year, the ACS Society Committee on Education has selected the following seven IAG proposals to receive funding. The ACS Undergraduate Programs Office is pleased to announce the winning chapters.

Florida International University, Miami
Martin Noguera • Jaroslava Miksovska
Catalyzing the University Experience
\$300

Stern College for Women-Yeshiva University, New York, NY
Sarah Elimelech • Donald Estes
Chemistry and Beauty
\$100

Stony Brook University, Stony Brook, NY
Christopher Rooney • Stephen Koch
Mentorship Program of the Stony Brook ACS
\$250

University of Detroit Mercy, MI
Nic Stroeters • Matthew Mio & Kendra Evans
A Department Lab Safety Video for First- and Second-Year Undergraduates at University of Detroit Mercy
\$500

University of the Sciences, Philadelphia, PA
Tashnia Babar • Catherine Bentzley
Science Field Day
\$250

University of Tennessee at Martin
Gilbert Forgays • S.K. Airee
Networking with High Schools for Colorful Demonstrations Involving Transition Metals and Halogens
\$250

University of Puerto Rico-Río Piedras Campus
Euvelisse Jusino-DelValle • Ingrid Montes
Community Outreach through Qualitative and Unique Interactions
\$500

A Lasting Tribute

How the ACS Student Chapter at Muhlenberg College Honored the Legacy of Charles E. Russell

BY ACS STAFF

In 2012 spring semester, the ACS student chapter at Muhlenberg College in Allentown, PA, was looking for a unique way to honor Charles E. Russell, a popular organic chemistry professor at Muhlenberg who passed away in January 2012.

After mulling over a few ideas, the chapter decided to pay tribute to Professor Russell by installing a bike rack near the front entrance of Trumbower Hall, home of Muhlenberg College's chemistry department. Professor Russell's biggest passion, aside from teaching and conducting research, was cycling. He frequently participated in bike marathons and also volunteered his time with a nonprofit group that provides needy residents with reconditioned bikes.

To raise money for the bike rack, the chapter organized a liquid nitrogen ice cream fundraiser and stormed the residence halls for donations. By April 2012, chapter members succeeded in raising sufficient funds to buy the bike rack and a plaque honoring the memory of Professor Russell. Ten members helped to install the bike rack, and on May 1, 2012, the chapter held a dedication ceremony.

Matthew Fitzsimons, president of the Muhlenberg College ACS student chapter, and Bruce Anderson, faculty advisor and professor of chemistry at Muhlenberg College, contributed to this article.

PHOTOS WITH THIS ARTICLE ARE COURTESY OF MUHLENBERG COLLEGE



Charles E. Russell began teaching at Muhlenberg College in the fall of 1988 and was an active member of ACS. He is fondly remembered for his summer research program for undergraduates and his longtime dedication to his students. Dr. Russell's most recent research interest was in the Heck reaction and organometallic chemistry. Other long-term interests included *p*-allyl palladium chemistry and the development of enantioselective alkylation reactions.

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LEFT: Matt Del Ciello, Monty LaSasso, and Beshar Tolymat dug holes for the bike rack.

ABOVE: Chapter members held a dedication ceremony for the bike rack on May 1, 2012.



LEFT: The finished bike rack includes a plaque in memory of Dr. Russell. In honor of Dr. Russell, his bike was the first bike to occupy the newly installed rack.

ABOVE: Mission accomplished! Chapter members pose proudly with the Muhlenberg mule after successfully installing the bike rack.

ABOVE RIGHT: Kelcie Molchany helped mix the cement.

BELOW RIGHT: Chapter members who installed the bike rack put their thumbprints in the drying cement.



Correction

inChemistry September/October 2012, p. 26:

The photo used in the Penn State Berks Chapter Spotlight was of the ACS student chapter at the University of Missouri-St. Louis. Shown is the correct photo for the ACS student chapter at Penn State Berks.

LEFT TO RIGHT: Penn State Berks Chancellor R. Keith Hillkirk, ACS Student Chapter Faculty Advisor Greglynn Gibbs, Chapter Vice President Heather Schmale, Chapter President Heather Young, Chapter Treasurer and Student Government Representative Meserret Zekarias, Lehigh Valley ACS Local Section NCW Chair Lorena Tribe, Lehigh Valley Local Section ACS Chair David J. Aurentz, and Penn State Berks Division Head of Science Pradip K. Bandyopadhyay celebrate the chapter's 2010–2011 Honorable Mention Chapter Award. For 2011–2012, the Penn State Berks chapter received a Commendable Chapter Award.





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