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2015 ACS Directory of Graduate Research

The ACS Committee on Professional Training is pleased to announce the release of the 2015 edition of the *ACS Directory of Graduate Research* (DGRweb).

DGRweb is a free, searchable online database that provides the most comprehensive compilation of information on graduate study in the chemical sciences at universities in North America.

CPT OPEN MEETING

We invite you to attend the CPT open meeting at the 251th ACS National Meeting in San Diego, California, from 4:00 to 5:00pm on Sunday, March 13, 2016. The location is not yet available. Please check the CPT Web page (www.acs.org/cpt) later for details.

CPT Symposium on Student Learning

The ACS Committee on Professional Training organized a symposium at the Fall 2015 ACS national meeting entitled “Promoting Engaged Student Learning through the ACS Guidelines.” Tom Wenzel, Chair of CPT, opened the symposium by talking about the various ways the ACS Guidelines and CPT supplements promote the use of engaged student learning through their emphasis on the development of student skills and their encouragement of the use of active learning strategies in the delivery of the curriculum. Five individuals representing a range of institutional types talked about specific ways they have incorporated engaged student learning into the undergraduate curriculum.

Dr. Jeanne Hamers described the use of calibrated peer-evaluation of lab reports in the foundation inorganic course and guided group research projects in the foundation analytical course at the University of Wisconsin-Madison. The analytical research projects were developed from research interests of the analytical faculty. Dr. Maria Oliver-Hoyo described the use of active learning in general chemistry, a method referred to as SCALE-UP, at North Carolina State University. The methods presented by Drs. Hamers and Oliver-Hoyo provided examples of the use of active learning in courses and laboratories with high enrollments. Dr. Oliver-Hoyo also described a smaller (16 students), upper-level elective course in forensic chemistry, which would be characterized as an in-depth course under the ACS Guidelines. This course is writing intensive and requires that the students use the primary literature to solve problems.

Dr. Kimberley Frederick from Skidmore College described her department’s inclusion of research and research-like activities in all upper-level laboratories beginning with the first semester of organic chemistry. The projects, which were created from and at times contribute to ongoing faculty research within the department, varied in length from a few weeks to the entire semester. Dr. Emily Niemeyer described the utilization of a flipped classroom, group activities, and inquiry-based laboratories in general chemistry and in upper-level chemistry courses at Southwestern University. The changes in chemistry at Southwestern are part of a broader, division-wide initiative aimed at incorporating inquiry-based learning throughout the introductory and advanced curricula. Dr. Ronald MacTaylor described the incorporation of team-based learning in general chemistry, the use of electronic lab notebooks in biochemistry, and the use of student active-learning sessions in physical chemistry at Salem State University. A sizeable growth in enrollments and majors was ascribed, in part, to the transition to active learning strategies throughout the curriculum. The emphasis on student skill development and flexibility enabled by the 2008 and 2015 ACS Guidelines was cited by all of the speakers as a factor that contributed to their incorporation of engaged student learning methods in the curriculum. ■

PhD Luncheon Explores Implications of New ACS Guidelines and the Report of the ACS Presidential Commission on Graduate Education in the Chemical Sciences

Chairs from 33 PhD-granting departments met to discuss critical issues in student training over lunch at the ACS national meeting in Boston. For the last several years, the Committee on Professional Training (CPT) has hosted annual lunches with department chairs of PhD-granting departments that provide feedback related to graduate and undergraduate student training and the impact of the ACS Guidelines for Bachelor's Degree Programs on institutions that grant both BS and PhD degrees. The Boston luncheon began with brief discussion of the increased emphasis of the 2015 ACS Guidelines and a recently completed survey of PhD students. This was followed by small group discussions that focused on safety, preparation (aside from research) of PhDs for professional careers, and improvements in undergraduate education that could better prepare students for successful graduate experiences. These topics were selected to assess the impact of the ACS Guidelines and to reflect important themes of the recent report of the ACS Presidential Commission on Graduate Education in the Chemical Sciences. Focus questions in each topic were discussed in small groups followed by reports to the entire group and more general discussion.

Some groups were asked to elaborate on how their institutions promote the development of safety skills amongst their graduate and undergraduate students. All agreed that the goal of effective safety training is creation of a "culture of safety". To create such a culture, one group emphasized the importance of commitment to safety at all levels of the university, from chancellor down to the entering undergraduate. Graduate student safety teams play a central role in the creation and propagation of safety consciousness at institutions such as the University of Minnesota. At other campuses, university-wide safety officers lead the safety education and enforcement activities. Safe operating procedures that are customized for local lab environments are being integrated into the research activities of most institutions. While there is broad attention to safety training and management at every university, there was little uniformity in the administration and tools applied across these representative departments.

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A second question concerned the mechanisms that programs use to prepare graduate and undergraduate students for their post-degree lives. A range of resources are now available to students as they evolve toward a career in chemistry. Departments certainly anticipate that students use virtual resources, such as those listed in the ACS Graduate Education Careers website (<http://www.acs.org/content/acs/en/education/students/graduate/gettingready.html>). Many departments are beginning to use Individual Development Plans (IDPs, <http://myidp.sciencecareers.org>), and a member of CPT presented a brief summary of a new Individualized Development Plan tool for graduate students and postdocs that is under development by ACS [now available in beta release at ChemIDP@acs.org]. Others bring professionals to campus through seminar programs or career planning workshops (including the ACS Preparing for Life after Graduate School program). Participants expressed the sense that the majority of students still depend on informal contacts made through their departments to better understand career options and find long-term employment.

The question concerning shortcomings in the preparation of students entering graduate programs elicited a lively discussion and much agreement. Concerns about writing skills dominated the conversation. The specifics of a student's preparation can vary greatly, and this presents a challenge for the first-year curriculum of many departments. Developing safety training and awareness and writing skills for students were highlighted as challenges. ■

Announcements

2015 ACS Directory of Graduate Research

NEWLY
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DGR
web | ACS Directory
of Graduate
Research

DGRweb is a free, searchable online database that provides the most comprehensive

compilation of information on graduate study in the chemical sciences at universities in North America.

- Facilitates research collaborations in the chemical sciences
- Enables networking across chemical subdisciplines
- Helps students with selecting a graduate program
- Identifies Research Experiences for Undergraduates (REUs)

Conduct free online searches at [www.acs.org/dgrweb!](http://www.acs.org/dgrweb)

Watch these two videos to learn more about DGRweb.

https://www.youtube.com/watch?v=gXMYACABH_w

<https://www.youtube.com/watch?v=gead1izlHKM>

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Certificates Available for ACS-Certified Graduates

Chemistry majors who receive a baccalaureate degree from an ACS-approved program and complete a curriculum described in the ACS Guidelines may be certified to the Society for membership purposes by the head or chair of the approved program. If you would like to have certificates available for presentation to your certified graduates, please contact the office by email at cpt@acs.org.

Congratulations!

The Committee congratulates the following schools on their newly ACS-approved bachelor's degree program in chemistry:

University of New Haven

Pepperdine University

The current number of ACS-approved programs is 682.

ACS Launches an Individual Development Plan for Graduate Students and Postdocs!

ACS introduces ChemIDP, an individual development planning tool designed to help graduate students and postdoctoral scholars in the chemical sciences plan and prepare for rewarding careers. The beta site is available at ChemIDP.org. For more information or to volunteer as a tester, contact ChemIDP@acs.org.



Preparing for Life After Graduate School

A career development workshop from ACS

This two-day workshop is designed to inform chemistry graduate students and postdocs about their career options and how to prepare for them:



- Examining careers for PhD chemists
- Describing careers in business and industry
- Knowing critical non-technical skills
- Finding employment opportunities

To bring this workshop to your department, see www.acs.org/gradworkshop or contact GradEd@acs.org; 202-872-6864.

This program is supported by the Graduate Education Advisory Board, with members appointed by CPT, SOCED, and YCC.

ACS Committee on Professional Training 2015

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BATES COLLEGE

Dr. Clark R. Landis (Vice Chair)
UNIVERSITY OF WISCONSIN-MADISON

Dr. Edgar A. Arriaga
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FULLERTON

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UNIVERSITY OF NORTHERN
COLORADO

Dr. Greg M. Swain
MICHIGAN STATE UNIVERSITY

CONSULTANTS

Dr. Suzanne Harris
UNIVERSITY OF WYOMING

Dr. Cynthia K. Larive
UNIVERSITY OF CALIFORNIA,
RIVERSIDE

Dr. Lee Y. Park
WILLIAMS COLLEGE

Dr. Joel I. Shulman
UNIVERSITY OF CINCINNATI

ASSOCIATE

Dr. Steven A. Fleming
TEMPLE UNIVERSITY

COMMITTEE SECRETARY

Cathy A. Nelson
AMERICAN CHEMICAL SOCIETY
1155 16th Street, NW
Washington, DC 20036
Telephone: (202) 872-4589
Fax: (202) 872-6066
Email: cpt@acs.org