

## CPT Symposium at the Biennial Conference on Chemical Education

Pennsylvania State University  
University Park, PA  
July 29-August 2, 2012

### [Evolution of the ACS Approval Process: Moving Beyond the 2008 Guidelines](#)

Members of the ACS Committee on Professional Training will present background on the approval process and how it has evolved from its inception in the late 1930s to where it is today. The talks will focus on opportunities and challenges associated with increased flexibility of the curriculum under the 2008 Guidelines, and what the approval process could and should look like as we look ahead to the next version of the ACS Guidelines. An important aspect of this symposium is to provide a forum for discussion about opportunities as well as challenges associated with the current guidelines. Areas of focus include: how infrastructure requirements (e.g., contact hours, library resources, faculty size) impact approved programs, programs seeking approval and the ability of programs to educate chemists; and the role of online courses or distance learning. Ample time will be provided for discussion. The Committee welcomes feedback as we begin the process of revising the 2008 Guidelines.

**9:35 a.m.**      [Historical background of the ACS Approval Program](#)  
**Dr. Anne McCoy, The Ohio State University**

As the chemistry community is approaching the fourth anniversary of the adoption of the 2008 Guidelines, the ACS Committee on Professional Training (CPT) is beginning the process of reevaluating these guidelines in preparation for a new edition. The 2008 guidelines represented a large departure from previous editions in a number of ways. In this talk we will present an overview of the history of the approval program and a discussion of the changes made in the 2008 guidelines. These will be discussed further in the talks that follow. We will also present an overview of the process CPT plans to follow as we consider the upcoming revisions to the Guidelines.

**9:55 a.m.**      [The evolving landscape of chemistry education](#)  
**Dr. Richard Schwenz, University of Northern Colorado**

The science of educating chemists has changed, and will be changing. As our students have evolved, our knowledge of how our students learn evolves, the tools we can use to teach are researched and modified, and the constraints on our ability to educate students change. These systematic changes influence our expectations for our students and our students' expectations of us as technology advances and online education become more prevalent. One example is the move on the part of students and instructors from traditional text books to the use of a variety of sources to deliver material. Another is the move from traditional classroom settings to more flexible means for the delivery of course material. In this talk, we will consider the opportunities and challenges the evolving landscape of chemistry education presents to the guidelines for ACS approval of bachelor's degree programs.

10:35 a.m. [The role of undergraduate research in the certified chemistry major](#)  
Dr. Thomas Wenzel, Bates College

Undergraduate research provides an experience in which students can gain and exercise critical thinking and problem solving skills. An effective research experience also provides students with the opportunity to integrate chemistry concepts learned in classes into the broader context of a research question. Finally, it provides students with the opportunity to investigate previously unanswered questions or to synthesize and study new molecules. In recognition of the important role research plays in the education of professional chemists, the guidelines for bachelor's degree programs allow research to count for up to 180 of the 400 laboratory hours or for as much as four semester credit hours toward the four in-depth courses required for certification. In this talk, we will explore the role of research in the undergraduate curriculum and the expectations of the experience for certified chemistry majors.

11:10 a.m. [The increasingly multidisciplinary nature of chemistry](#)  
Dr. Joseph Francisco, Purdue University

As the central science, chemistry touches on many other fields. In recognition of this, as the Committee on Professional Training developed the 2008 guidelines we aimed to provide additional curricular flexibility that will enable students to gain both a solid foundation in chemistry as well as the possibility for them to focus on a specific area. These might include materials, environmental or biological chemistry. In this talk, we discuss how the multidisciplinary nature of chemistry is evolving and the challenges it generated as undergraduate programs move to address this breadth while providing students' with a solid background in the fundamentals.

11:30 a.m. [Challenges in preparing professional chemists: Impacting and assessing student skills](#)  
Dr. Joel Shulman, University of Cincinnati

Formal course work in chemistry provides students with an education in chemical concepts as well as training in laboratory practices. However, beyond the knowledge of chemical principles and how to apply them, it is incumbent on chemistry programs to develop additional skills in their students that will allow them to be successful in their careers. These skills include problem solving, laboratory safety, the use of chemical literature, written and oral communication, team building, and ethics. This talk will explore ideas on how these student skills can be integrated into a chemistry curriculum and, importantly, how evaluation criteria can be developed to assess the skills. In addition, the talk will discuss the role of faculty in student mentoring and advising.