

Report from the United States

Morton Z. Hoffman (Boston University), National Representative to CCE

The American Chemical Society (ACS), its committees, technical divisions, and publications play an important role in maintaining and advancing the culture of chemical education in the U.S. through the production of materials across the educational spectrum, outreach to high school teachers, the encouragement of research in educational practices and teaching and learning, and by working to reflect the changes that are taking place within chemistry and the other molecular sciences in curricular content and pedagogical approaches. An important step is the proposed revision of the Committee on Professional Training (CPT) guidelines for the approval of departmental chemistry programs and the certification of their bachelor graduates by the ACS.

The present (2003) guidelines specify minima in the number of faculty members, number and type of equipment and instrumentation, and range of library holdings and on-line subscriptions, and provides the following curricular model for the chemistry major with specified minimum number of credits and laboratory hours: general chemistry; core courses in analytical, inorganic, organic, biochemistry, and calculus- and physics-based physical chemistry; advanced courses that may include undergraduate research. In addition to the required chemistry degree, other degree options in biochemistry, chemical physics, environmental chemistry, materials, polymers, and chemical education can be established.

The proposed revised guidelines, which will probably be approved by the ACS Council in 2008 and will be implemented within the next 3-5 years, continue to specify minima as before, but also make recommendations about pedagogy, general chemistry, foundation courses (the equivalent of one-semester courses in each of the five major areas of chemistry), in-depth courses (the equivalent of four one-semester courses that build on the foundation, laboratory experience that may include undergraduate research, and cognate courses. Degree tracks, which are specialized, department-designed curricula that meet the foundation, in-depth, and laboratory requirements, may be in chemistry, a specific chemistry subdiscipline, or chemistry-related multidisciplinary area. The proposed guidelines emphasize the development of skills by the students that will allow them to become effective and productive scientists, and successful professionals: problem solving, chemical literature, laboratory safety, communication, and teamwork. Ethics must be exemplified at every turn, and student mentoring and advising are recognized as central to student achievement. Finally, approved programs will have to have established processes whereby these student skills are assessed.

The proposed revised guidelines can be downloaded from the ACS website
<<http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=education\cpt\index.html>>.