

Project Year

2004

Project Team

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Project Title

Safe Chemistry

Audience

Teaching assistants and undergraduate students working in research laboratories

Pedagogical Issue

Over half of the TAs in the introductory and organic chemistry laboratories are undergraduates with little prior lab experience. Currently, the undergraduates watch a video on safety designed for new graduate students. There is no safety training specifically for undergraduates working in research labs.

Solution

We propose to create a series of online modular units, housed in a WebCT site, to be used to deliver the knowledge necessary for practicing safe chemistry. The units will be accompanied by assessments to assure the faculty that TAs and students are familiar with the basics of laboratory safety.

Technologies Used

Courseware (WebCT development), Digital Audio, Digital Video

Project Abstract

The goal of this project is to develop online modular units with built-in assessments that can be used to deliver the knowledge necessary for practicing safe chemistry. The modules will include topics such as choosing appropriate personal protective equipment, handling common laboratory situations (spills, breakages, etc.), and handling chemical wastes. We will use short videos and photographs where appropriate to make the content more clear. Dr. Pasternack intends to include training exercises such as pictures of lab scenes, asking students to identify safety violations. The assessment feature will be used to assure faculty that their TAs and research students know the basics of lab safety. We will use WebCT to deliver the content and assess the learning. The modules will be used by the 20-30 undergraduate TAs, undergraduate researchers, the students in the introductory laboratory (500 students/year), possibly the organic laboratory (400 students/year), and, eventually, the new graduate students (30/year). Modules necessary to train the TAs for the introductory and organic labs, as well as modules appropriate for the students in Dr. Pasternack's introductory chemistry lab, will be completed by fall. To assess the project's success, Dr. Pasternack will observe whether TAs are able to more quickly recognize

and correct potential hazards in the lab, and will collect feedback from the TAs as they use the modules. In the future, to build on this project, this team intends to create more advanced modules that are specific to the research labs, to be used as part of a more complete safety training program for undergraduates choosing to do individual research and for graduate students in the chemistry department. (Dr. Pasternack plans to apply to the department for funds for a work-study student or a student aide so that she can maintain and expand this resource.)