Mellon Technopedagogy Initiative: Kalamazoo College Chemistry Team
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Needs:
1. Chemistry majors struggle with writing introductions to the Senior Independent Projects (SIPs).
2. There is no place to insert research instruction into the Chemical Sciences curriculum.
3. Students go on Study Abroad for most of their junior year, so there is little time to teach them research skills before they begin their SIPs.
4. The Chemical Abstracts database is too limited in scope for an accurate introduction to the Chemical Sciences.

Solution:
This project developed a hybrid model of research instruction through which students experience face-to-face teaching with a librarian and a Web tutorial on developing research skills.

Method:
• The Team developed a Web-based tutorial for developing searching skills in Scifinder Scholar.
• Students met with a librarian and their instructor for three sessions during the Chemistry Junior Seminar. Students filled out a pre-session survey.
• The librarian and instructor discussed research methods and how to use the Scifinder Scholar database.
• Students completed the tutorial before the next class meeting.
• The librarian attended two follow-up class sessions during the Junior Seminar time. Students filled out a post-session survey.

Class Sessions:
• During the first session, students filled out the Pre-Session Survey. Then Chemistry faculty members discussed briefly what they expected in the introduction to a chemistry SIP. The Librarian explained research methods students could use to begin their exploration of chemistry literature using Scifinder Scholar. In this session, she also introduced the Scifinder Web-based tutorial, which is geared toward training students in the mechanical skills needed to search Scifinder Scholar.
• Students completed the tutorial before the second session. During the second session, students learned about the structure searching portion of Scifinder Scholar, which enables searching for molecules, compounds, or reactions using structure symbolism rather than words or phrases. Since this portion of Scifinder Scholar is very specialized and jargon-intensive, the chemistry faculty member on the team taught the session, and the Librarian was available to answer students’ questions about other aspects of Scifinder Scholar.
• The third session was a general “wrap-up” session in which students were able to ask any questions they still had about the research process or Scifinder Scholar. Students filled out the Post-Session Survey.

Advantages:
• Acquired a strong database for the sciences
• Librarians know Scifinder Scholar very well
• Muscled into the Junior Seminar (3 classes)
• Get to know student needs
• Experienced creating a Web-based tutorial
• This model reinforces concepts students learn in their First Year Seminars (FYS). Though librarians teach research skills in these sessions, librarians may not reach these students again in any systematic way without intervention such as this project.
• Research instruction, especially in the spring term of a student’s junior year, will help students write their SIPs.
• Students learn to navigate Scifinder and use it to gather resources.
• Students will be able to access the Web-based tutorial at any time and place they have Web access.

Challenges:
• Finding time for the team to meet
• Finding a time slot to teach the students; Junior Seminar was the only option since it immediately follows the juniors’ return to campus after Study Abroad
• Creating a skill-based rather than concept-based tutorial
• Subscribing to Scifinder Scholar; we went with a “two logins for three colleges” agreement where Kalamazoo College shares 2 logins with Hamilton College in Clinton, New York and Muhlenberg College in Allentown, Pennsylvania
• Student participation. One student was a senior who graduated in the middle of the project, and another student left for Study Abroad her junior year. The team relied on other students, mainly senior chemistry majors, to help with aspects of the project.

Conclusion:
Students felt they had a better understanding of Scifinder Scholar and found this format to be helpful.