Information Fluency in Chemistry 100/101 at Mount Holyoke College

Sean Decatur and Donald Cotter, Department of Chemistry
Sandra Ward, Science Librarian
Mary Glackin, Instructional Technologist

Goals

- Promote acquisition of a chemical "world view"; directed / productive curiosity within a discipline
- Introduce students to chemical information sources and searching across a variety of media
- Encourage critical evaluation of source material
- Encourage recognition and development of meaningful organization of information
- Provide students (mostly First-years) with extended exposure to technological tools and resources
- Foster group learning skills
- Introduce students to the formal-yet-informal modes of oral communication in the sciences

Participant Key: F = Faculty member, L = Science Librarian, IT = Instructional Technologist, S = Students (self-directed), SG = Student Groups (self-directed).

Preparative Activities

First lab: Chemistry in the Outside World (F. L; S)

Introduction to Library Resources (L, F; S)

Second lab: Densities of unknown materials (S)

IT guest lecture/demo (IT)

Three asynchronous training workshops (S, IT)

Group Project: Web Site

Project proposal (SG; F)

Refinement (SG; F, L)

Rough draft (SG; F, L, IT)
Final product (SG; F, L, IT)

Oral presentation (SG; F, L, IT)

Peer evaluation (S; F, L, IT)

Evaluation

Qualitative evaluations result from in-depth conversations between F, L, IT, S, and staff, followed by F, L, IT de-brief.

- Successful: student questions revealed lively engagement, broad variety of appropriate and interesting questions, increased investment in course.
- Short term success, some gains lost over mid-to-long term. Students initially consult wide variety of sources, then revert primarily to simple web searching when unsupervised.
- Insufficiently addressed in current design.
- Success equivocal. Many well organized products, but unclear whether project supports this directly, or provides students with opportunity to apply prior skills.
- Successful: High yield of students at workshops, high technical level of product. (Particularly efficient use of campus resources for course support.)
- Somewhat unsuccessful: dynamics of many groups highly problematic.
- Current design fails to distinguish between "web site" and "seminar supported by slides" formats.

Where Do We Go From Here?

- Stay the course: exploratory lab and library intro mutually reinforce and work well.
- First library experience succeeds. Reinforcement required thereafter. Ideas: model bibliography, electronic bibliography forms, writing mentors.
- We need to reward aggressive source evaluation. Idea: Require bibliography to include brief critical description of each source: origin, reliability, level of peer review, strengths, weaknesses.
- All of these goals can be enhanced via faculty modeling of outstanding and unacceptable results. Idea: "Good" and (humorously, but pointedly) "bad" projects on identical topics presented by faculty early in assignment period.
- Though this works well, student technology mentors would help many students produce still better work.
- Attach portion of grade to self- and group-evaluations by each group member.