

MLIS₁ + Students₁₄₅ + PhD₁ → ∞ Critical Thinking: Teaching critical thinking and library skills to students at a medium sized public university

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ABSTRACT: How can one librarian teach large numbers of students the skills needed to be critical consumers of scientific information? The opportunity to do this has been created, but it is unclear how to sustain a class and have actual contact between a librarian and students. Educational technology, like chat software, blogs, wikis and automated tours are considered, but ultimately inconclusive. More research needs to be done to determine the feasibility of this kind of an undertaking.

KEYWORDS: scientific literacy, critical thinking, library partnerships, information fluency, Green Chemistry

CHEMISTRY 111 AT THE UNIVERSITY OF OREGON



- Non-lab class
- Prerequisite for courses in biology, human physiology and psychology
- Enrollment: 145 students/term (fall and spring)
- Diverse student population in terms of preparation (over 45 majors)

CRITICAL THINKING GOALS

- Make the students more astute consumers of scientific information
- Require students grapple with the primary and secondary literature in the context of their overall college education
- Pilot for course-integrated librarian-faculty collaboration

INFORMATION LITERACY IN SCIENCE

- How to search more effectively
- How to evaluate sources
- How to read peer-reviewed journal articles
- Library research
- Information management
- Effective use of networked technologies in the academic setting

DISCUSSION SECTIONS & THE SCIENTIFIC PROCESS

- Using computers,
- Asynchronous assignments,
- Web 2.0 tools.
- Sharing research strategies with each other to create a “lab like” learning environment.
- Weekly meetings to talk with the librarian and others in the class.

LEARNING OUTCOMES

By the end of term, students will:

- Know how scientific information is created & communicated.
- Understand how topic we talk about in class has unfolded.
- Know how to prepare a chemical life-cycle assessment & more about their topic.
- Acquire skills in library research & in evaluation of information in many formats.
- Have presented their findings to an audience using technology-based presentation tools.
- Gained experience using network applications such as bulletin boards and collaborative editing tools in an academic context.

RESULTS & DISCUSSION

The goal is to reinforce critical thinking and scientific literacy skills and is an important part of this course in specific, and of a scientific education in general, early in the students' undergraduate education.

The challenges:

- Developing faculty relationships.
- “Energy of Activation” problem.
- Building tools for asynchronous learning.
- Assessment tools used to evaluate learning outcomes.

- Most important of all is the **sustainability** issue.

The solutions:

- Internal grant for release time & help with computer related tools
- Still doesn't solve the sustainability issues.

Thoughts, suggestions or contacts are encouraged.

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Literature Cited:

Barefoot, B. (2006). Bridging the Chasm: First-Year Students and the Library. *Chronicle of Higher Education*, 52(20), B16.
Department of Chemistry. (2004). *Greener Education Materials for Chemists*.

