

CHEMISTRY 475: Chemistry Research Seminar Fall 2009 course syllabus

INSTRUCTOR

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OFFICE HOURS

My schedule is posted on my office door and at:
<http://chemistry.kenyon.edu/cummings/schedule.htm>
You are welcome and encouraged to meet with me throughout the semester.

CLASS MEETING TIMES

Mondays 1:10-4 PM in Tomsich 207

COURSE OBJECTIVES

To complement standard course work in chemistry, the ACS recommends that instruction in (1) chemical literature and information retrieval, (2) developing effective *written and oral communications skills*, and (3) *professional ethics* be part of every undergraduate chemistry curriculum.

A recent report by the Carnegie Commission (“*Reinventing Undergraduate Education*”) includes ten recommendations for improving undergraduate education, one of which was that every major course of study should culminate with a *capstone course*. “Senior seminars or other capstone courses... need to be part of every undergraduate program. . . [They] should prepare undergraduates for the expectations and standards of graduate work and the professional workplace” the study asserts.

Finally, the Chemistry Department encourages students to be involved in and aware of *research in the chemical sciences*, and to apply the knowledge gained in courses to research questions. Our departmental *Senior Exercise* involves a presentation of research results from literature articles. To adequately prepare oral and written presentations on a research topic, students should be able to (1) search the primary chemistry and biochemistry literature effectively using online databases, (2) find appropriate resources in the primary, secondary and tertiary literature to assist in learning about a topic, (3) carefully read, analyze and critique research papers, and (4) organize and present effectively this newly-acquired knowledge.

To meet these goals, the Chemistry Research Seminar has been established. In this course, students will:

- (1) explore a research topic by searching chemistry literature sources, evaluating primary research articles and organizing and writing a review paper; and
- (2) discuss the nature of research in terms of conduct, publication and professional development.

MATERIALS

- Beall, Herbert and Trimbur, John *A Short Guide to Writing About Chemistry*, 2nd Edition, 2001
- Three-ring binder for handouts

GRADING

The grade will be based on:

- | | |
|---|-----|
| • active participation in the weekly seminars | 10% |
| • progress reports | 25% |
| • short oral presentation | 20% |
| • comments and corrections to others' papers | 5% |
| • progress made between drafts of your paper | 10% |
| • final paper | 30% |

DEPARTMENT COLLOQUIA

Members of this class are expected to attend the Chemistry Department colloquia throughout the semester. Most are held on Tuesdays at common hour, and the dates will be distributed at the beginning of the semester. Please inform the instructor if you have a conflict with another class or curricular commitment.

COLLEGE POLICIES

A. ACADEMIC HONESTY:

I call to your attention the College policy on Academic Honesty, see the *Course of Study*. A violation of academic honesty is among the most serious matters in the academic division of the College. Issues of plagiarism, including proper referencing, should be understood clearly before submitting work for a grade.

B. STUDENTS WITH DISABILITIES:

If you have specific physical, psychological or learning disabilities that require an accommodation to allow you to carry out assigned course work, you must contact the Office of Disability Services to schedule an appointment. The Coordinator of Disability Services, Erin Salva (salvae@kenyon.edu), will review your concerns and determine, with you, what accommodations are appropriate. ONLY the Coordinator of Disability Services can make accommodations, but please feel free to discuss your concerns in private with me. All information and documentation of disability is confidential.

C. ATHLETICS and EXTRA-CURRICULAR ACTIVITIES:

If your participation in athletics or extra-curricular activities conflicts with a class, scheduled exam time or project due date, please let me know as soon as possible, but at least 2 weeks in advance. Typically, you will be expected to complete your work before (not after) the deadline for the rest of the class, so please plan accordingly.

CHEMISTRY 475 Fall 2009 SCHEDULE

| week | date | topic | due |
|--------------|-----------------------------------|---|--|
| 1 | Aug. 31 | Organizational meeting | |
| 2 | Sept. 7 | Nature of chemistry literature: secondary and reference sources | Self-assessment questionnaire Progress Report 1 |
| 3 | Sept. 14 | Searching for primary sources using SciFinder Scholar | Progress Report 2 |
| 4 | Sept. 21 | Searching for primary sources using SCI, EJC, ACS | Progress Report 3 |
| 5 | Sept. 28 | Oral presentation skills and Annotated Bibliographies | topic background Set of 10-15 primary articles |
| 6 | Oct. 5 | Oral presentations | 10 minute talk on research topic background |
| reading days | Oct. 12 | <i>no class</i> | |
| 7 | Oct. 19 | Writing workshop 1: organizing a literature review and Introductions | Progress Report 4: annotated bibliography |
| 8 | Oct. 26 | Writing workshop 2: improving writing style, Abstracts | Progress Report 5: paper outlines |
| 9 | Nov. 2 | Discussion of conduct in scientific research | |
| 10 | Nov. 9 | Discussion of conduct in scientific research | paper draft #1 |
| 11 | Nov. 16 | Writing workshop 3: reviewing & revising | paper draft #2 critique of two other student papers |
| Thanksgiving | Nov. 23 | <i>no class</i> | |
| 12 | Nov. 30 | Peer evaluation of research papers and References and Citations | paper draft #3 critique of two other student papers |
| 13 | Dec. 7 | Peer evaluation of research papers and Using Graphics | |
| 14 | Dec. 14 | | |
| finals week | <i>Dec. 18 9:00 AM</i> | | <i>final paper is due in electronic and paper format.</i> |