CHEMISTRY 475: Chemistry Research Seminar
Fall 2014 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, encouraged, and expected to meet with me throughout the semester.

CLASS MEETING TIMES

Mondays 1:10–4 PM in Chalmers Computer Lab (CHL114)

COURSE OBJECTIVES

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

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 prepare students to meet these goals is the purpose of the Chemistry Research Seminar. 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 research in terms of peer review and publication, ethical conduct, and professional development.

MATERIALS

- Beall and Trimbur *A Short Guide to Writing About Chemistry* 2nd Ed., 2001
- three-ring binder for handouts

RESEARCH PAPER

The main project in CHEM 475 is exploring an individual research topic and writing an original and well-defined literature review. The format of this document should follow that of standard reviews (such as those in *Accounts of Chemical Research*), including an Abstract, Introduction, body (with labeled sections and subsections), Conclusion and References. The body should contain information gathered from 10-15 recent primary research articles (as well as other respected sources), include effective graphics, and be organized such that it gives a modern overview of the chosen topic. It is expected that the student will insert his/her own comments and perspectives into the paper using review convention. This paper will be 4000-6000 words in length.

Your CHEM 475 review paper can be submitted to the Department as your Sr. Exercise paper.

GRADING

The course grade will be based on:

- active participation in the weekly seminars 10%
- progress reports 20%
- oral presentation 10%
- comments and corrections to others' papers 10%
- progress made between drafts of your paper 10%
- final paper 40%

DEPARTMENT COLLOQUIA

Members of this class are expected to attend and participate in the Chemistry Department colloquia throughout the semester. 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 and Questions of Plagiarism* in the *Course Catalog*. **It is the responsibility of each student to learn and practice the proper ways of documenting and acknowledging those whose ideas and words you have drawn upon. Ignorance and carelessness are not excuses for academic dishonesty. If you are uncertain about the expectations for academic honesty in this class, please ask for clarification before submitting work for a grade.** A violation of academic honesty is among the most serious matters in the academic division of the College.

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 Erin Salva (X5453; salvae@kenyon.edu), the Director of Student Accessibility and Support Services, who will review your concerns and determine, with you, what accommodations are appropriate. ONLY the Director 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 two 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 2014 SCHEDULE

week	date	topic	due (usually Sunday night *before class*)
1	Sept. 1	**Organizational meeting**	research topic selections (Fri.)
2	Sept. 8	**Introduction to the chemistry literature**	Self-assessment questionnaire
3	Sept. 15	**Searching the chemistry literature using Web of Science (Science Citation Index), EJC, ACS**	Progress Report 1: Exploring your research topic
4	Sept. 22	**Searching the chemistry literature using SciFinder**	Progress Report 2: Reference literature
5	Sept. 29	**Oral presentation skills** and **Research Summaries**	Progress Report 3: Primary literature
6	Oct. 6	**Oral presentations**	10-minute talk on research topic background
7	Oct. 13	**Writing workshop 1: organizing a literature review and Introductions**	Progress Report 4-A: Research Summaries
8	Oct. 20	**Writing workshop 2: improving writing style, Abstracts**	Progress Report 4-B: Research Summaries
9	Oct. 27	**Discussion of conduct in scientific research**	Progress Report 4-C: Research Summaries
10	Nov. 3	**Discussion of conduct in scientific research**	Progress Report 5: paper outlines
11	Nov. 10	**Writing workshop 3: reviewing & revising**	
12	Nov. 17	**Peer evaluation of research papers** and **References and Citations**	paper draft #1
	Nov. 24	*no class*	
13	Dec. 1	**Peer evaluation of research papers** and **Using Graphics**	paper draft #2 critique of two other student papers
14	Dec. 8	**individual consultations**	paper draft #3 critique of two other student papers
	Dec. 18 1:30 PM		**CHEM 375 final paper is due in electronic format.** **** Remember: your Senior Exercise Paper, a separate submission, is also due at the end of the semester.***