

Chemistry Research Seminar

(Chem 475) – Fall 2018

Monday, 1:10 – 4:00 pm, Tomsich 206

Instructor: Sheryl Hemkin

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Office hours: Mon and Wed 9:05-11am and by appointment!

class website: Moodle

Course Objectives

To complement standard coursework 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 prepare students 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 and Resources

- Required: Three-ring binder – for handouts
- Required: Laptop or tablet – for in-class work (equipment can be borrowed from the library)
- Required: access to Moodle page – for electronic resources and submission of materials
- Recommended: Joshua Schimel *Writing Science*, 2012

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 *Account of Chemical Research*), including 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 Senior Exercise paper.*

Grading

The grade will be based on:

- progress reports and active participation in the course 30%
- oral presentations 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 the Chemistry Department colloquia throughout the semester. Please inform the instructor if you have a conflict with another class or curricular commitment. Fall research talks:

Talk dates and times will be disseminated as they are announced

College Policies

A. ACADEMIC HONESTY:

Kenyon College is, at the core, an intellectual community of scholars – students and faculty – engaged in the free and open exchange of ideas. Critical to this lively exchange and deep engagement with ideas is the academic integrity of our work, both inside and outside the classroom. At Kenyon we expect all students, at all times, to submit work that represents these standards of academic integrity. It is the responsibility of each student to learn and practice the proper ways of documenting and acknowledging those ideas and words you have drawn upon (*see Academic Honesty and Questions of Plagiarism in the Course Catalog*). 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. BIAS/DISCRIMINATION/HARASSMENT:

Kenyon College seeks to provide an environment that is free of bias, discrimination, and harassment. If you have been the victim of sexual harassment/misconduct/assault we encourage you to report this. If you report this to a faculty member, she or he must notify our college's Title IX coordinator about the basic facts of the incident (you may choose whether you or anyone involved is identified by name). For more information about your options at Kenyon, please go to: www.kenyon.edu/directories/offices-services/title-ix/sexual-assault-and-harassment/

C. ACCOMMODATIONS:

Students who anticipate a need for accommodations in this course because of the impact of a learning, physical, or psychological disability are encouraged to meet with me privately early in the semester to discuss their concerns. In addition, students must contact Erin Salva, Director of Student Accessibility and Support Services (740-427-5453 or salvae@kenyon.edu), as soon as possible, to verify their eligibility for reasonable academic accommodations. Early contact will help to avoid unnecessary inconvenience and delays. No accommodations of any kind will be given in this course without notification from the Director of Student Accessibility and Support Service at least one week prior to the special accommodations.

D. RESPONSIBILITY

As a member of the Kenyon College Faculty, I am concerned about the well-being and development of our students and am available to discuss any concerns. However, I want you to know that faculty members are legally obligated to share certain information with the College's Title IX coordinator. This is to ensure the student's safety and welfare is being addressed, consistent with the requirements of the law. These disclosures include, but are not limited to, reports of sexual assault, relational/domestic violence, and stalking.

E. ATHLETICS and CO-CURRICULAR ACTIVITIES:

If your participation in athletics or co-curricular activities conflicts with a class 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.

Fall 2018 SCHEDULE

week	date	topic	due
1	Sept. 3	Organizational meeting	Self-assessment questionnaire
2	Sept. 10	Introduction to chemistry literature	Progress Report 1: possible topics
3	Sept. 17	Searching for primary sources using SciFinder Scholar, SCI, EJC, ACS	Progress Report 2
4	Sept. 24	Reading primary literature	Progress Report 3
5	Oct. 1	Oral presentation skills and Annotated Bibliographies	Topic background Set of 10-15 primary articles
6	Oct. 8	Oral presentations (#1)	7 minute talk on research topic background
7	Oct. 15	Writing workshop 1: organizing a literature review and introductions	Progress Report 4: annotated bibliography
8	Oct. 22	Writing workshop 2: improving writing style, abstracts	Progress Report 5: paper outline
9	Oct. 29	Discussion of conduct in scientific research	
10	Nov. 5	Preparation for life after Kenyon and Revising other's drafts	Paper draft #1
11	Nov. 12	Writing workshop 3: revising your own work	Paper draft #2
12	Nov. 19	<i>;;Thanksgiving Break!!</i>	
12	Nov. 26	References and citations and Effective use of graphics	
13	Dec. 3	Oral presentations (#2)	Paper draft #3 7 minute talk on research topic background
14	Dec. 10	Individual consults	
exam week	Dec. 19		<i>final paper is due by 1:30 PM</i>

This syllabus is subject to change pending notification in class or via the email list