

**CHEM 5600: Research Skills and Ethics  
Summer 2010**

**Professor:** Penny Beuning

**Phone:** x2865

**Lectures:** Monday, Tuesday

**Location:** 308 Hurtig

**Office Hours:** Monday 3-4:30 PM and Wednesday 4:30-6 PM, other times by appointment

**Key #:** 51825

**Course credit value:** 3 SH

**Office:** 006 Hurtig Hall

**Email:** beuning@neu.edu

**Time:** 6:00 - 8:30 PM

**Pre-requisites:** none

**Textbooks (available at the bookstore):**

Bloomfield, Victor and El-Fakahany, Esam *Tools for Success in Science: A Chicago Guide for Graduate Students and Postdoctorals*, University of Chicago Press, Chicago, IL, 2008.

*The ACS Style Guide (3rd ed.)*; Coghill, A.M., Garson, L.R. Ed.; American Chemical Society: Washington, DC, 2006.

Davis, Martha *Scientific Papers and Presentations*, Academic Press: San Diego, CA, 1997.

Macrina, Francis *Scientific Integrity*, 3rd ed., ASM Press: Washington, D.C., 2005.

*On Being a Scientist: Responsible Conduct in Research*, NAS: Washington, DC, 1995. (recommended)

*Note:* The above books and others that may be useful have been placed on reserve in Snell Library.

**Background information:**

This course is a required element for the M.S. (coursework and thesis) and Ph.D. programs in Chemistry & Chemical Biology and is normally completed by graduate students during their first year of graduate study. Attendance is mandatory. Please notify the instructor in advance of any necessary absence. Make-up assignments will be required for each absence. More than two unexcused absences will result in a failing grade.

**Grading:**

- CV, Resume, Cover letter 100 points
- Research Proposal: First draft 50 points; Peer review 50 points; Final draft 100 points
- Research Proposal Presentation 100 pts
- Short assignments 50 points (10 pts each; will be posted on Blackboard)
- Class Attendance and Participation 50 points

TOTAL 500 pts

A >450 pts

B 400 - 449 pts

C 300 - 399 pts.

F <300 pts

**Academic Honesty and Scientific Integrity:** Northeastern University is committed to the principles of intellectual honesty and integrity. All members of the Northeastern community are expected to maintain complete honesty in all academic work, presenting only that which is their own work in tests and assignments. You are to use care in the preparation of all written work (abstract, visuals, proposal, etc.) for this course. You must document all sources of information that are not your own. You are expected to follow the standards for reference format described in *The ACS Style Guide*. Academic dishonesty is outlined in the Undergraduate Student Handbook and at <http://www.neu.edu/osccr/academichonesty.html>.

**Tentative Course Schedule:**

**May 10: Course Introduction, Graduate Research, and Ethics in Science**

**May 11: Ethics in Science (cont'd)**

Reading: Bloomfield Ch 10, 13; Macrina Ch 1, 2

**May 17: Record keeping, data analysis and management**

Reading: Bloomfield Ch 11; Macrina Ch 11 and Appendix VI (and 1)

**May 18: Bibliographic Databases and Search Strategies, Chemical Information, Guest Speaker: Kathy Herrlich, Snell Library; Note Special Location: 120 Snell (6-7 PM)**

Reading: Bloomfield Ch 16; Davis Ch 4, 12

**Part II (308 HT) Attending Conferences (7:15-8:30 PM)**

Reading: Bloomfield Ch 17-20; Davis Ch 17 and pages 141-144 and [http://mit.edu/biology/www/outreach/pdfs/effective\\_posters.pdf](http://mit.edu/biology/www/outreach/pdfs/effective_posters.pdf)

**May 24: Grant-Writing Workshop, Karen Drew**

Reading: Bloomfield Ch 25; Davis Ch 5

**May 25: Authorship, Writing the Journal Article, Peer Review**

Bloomfield: Ch 21, 22, 24; Macrina: Ch 4; Davis: Ch 1-3, 7-13 (appendices recommended)

ACS Style Guide: required: Ch 1-3, 6-7; recommended: Ch 4-5

(May 31, no class, Memorial Day)

**June 1: Laboratory Safety, Fire Safety, Jack Price**

Macrina: Ch 10. You should also complete training required of your research laboratory.

**June 7: Human and Animal Subjects Research, Nan Regina and Sean Sullivan**

Macrina: Ch 5, 6

**June 8: Career Issues, Career Options**

Bloomfield: Ch 6-9

**June 14: Intellectual Property & Patents, Jeffrey Kosiba**

Macrina: Ch 9; Davis: Ch 12

**June 21: Joining and Working in a Research Group, Conflict Resolution, Collaborations**

Bloomfield: Ch 3-4, 12, 17; Macrina: Ch 3, 7, 8

**June 22: Skills for Effective Presentations, Effective use of Technology**

Bloomfield: Ch 5, 18-22; Davis: Ch 13-16

**June 28&29: Final Presentations**

**Final Research Proposal:**

You are to prepare a 10-page original research proposal (no less than 11-pt font, Times New Roman or Arial/Helvetica only, no less than 1-inch margins, 10-pg limit includes figures and references).

You are expected to prepare your proposal without the assistance of your thesis advisor.

However, you may seek advice and input from other graduate students or postdocs.

**June 9:** The first draft is due (electronically, PDF or Word formats only). Late papers will not be accepted.

**June 12:** Drafts will be distributed to peer review groups.

**June 20:** The peer review groups will review the proposals and return comments to me electronically. Each reviewer should review each proposal.

***To be turned in by June 20:***

By each reviewer: reviews for each proposal

By each review group: brief summary of review meeting

**July 2:** Final proposals are due; presentations will take place June 28-29.