

**CHMG200: Research Skills and Ethics
Summer 2009**

Professor: Penny Beuning

Phone: x2865

Lectures: Monday, Wednesday

Location: 115 Hurtig (ChemCentral)

Office Hours: Wednesday 2:30-5:30 PM, other times by appointment

Registrar's Key #: 26550

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. Academic dishonesty is outlined in the Undergraduate Student Handbook and at <http://www.neu.edu/osccr/academichonesty.html>.

Tentative Course Schedule:

May 4: Course Introduction, Graduate Research, and Ethics in Science

May 6: Ethics in Science (cont'd)

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

May 11: Record keeping, data analysis and management

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

May 13: Bibliographic Databases and Search Strategies, Chemical Information, Guest Speaker: Kathy Herrlich, Snell Library; Note Special Location: 120 Snell (6-7:15 PM)

Reading: Bloomfield Ch 16; Davis Ch 4, 12

Part II (130 HT) Attending Conferences (7:30-8:30 PM)

Reading: Bloomfield Ch 17-20; Davis Ch 17 and pages 141-144 and http://mit.edu/biology/www/outreach/pdfs/effective_posters.pdf

May 18: Grant-Writing Workshop, Karen Drew

Reading: Bloomfield Ch 25; Davis Ch 5

May 20: 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 25, no class, Memorial Day)

May 27: Joining and Working in a Research Group, Conflict Resolution, Collaborations

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

June 1: Intellectual Property & Patents, Susan Keyes

Macrina: Ch 9; Davis: Ch 12

June 8: Laboratory Safety, Fire Safety, Jack Price

Macrina: Ch 10 (recommended Ch 5, 6). You should also complete on-line and classroom training required of your research laboratory.

June 15: Skills for Effective Presentations, Effective use of Technology

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

June 17: Career Issues, Career Options

Bloomfield: Ch 6-9

June 22, 24: 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 3: The first draft is due (electronically, PDF or Word formats only). Late papers will not be accepted.

June 6: Drafts will be distributed to peer review groups.

June 15: The peer review groups will review the proposals and return comments to me electronically. Each reviewer should review each proposal. You will then have time to consider the comments and revise your proposal accordingly.

To be turned in by June 15:

By each reviewer: draft comments, final reviews for each proposal

By each review group: brief summary of review meeting

June 26: Final proposals are due, and presentations will take place this week (June 22-24).