

MCB 580: Research Ethics and Responsibilities

Course Directors: Jim Imlay and Lori Raetzman

Course Times: Mondays, 6:00-7:45pm
October 18-December 6

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Course Location: 150 Animal Sciences Lab

Course Description

The objectives of this course are threefold:

1. To review the basic principles of the responsible conduct of research (RCR), as identified by the Department of Health and Human Service's Office of Research Integrity (ORI);
2. To develop practical strategies for identifying and handling the ethically tenuous issues a scientist is likely to encounter throughout her/his career; and
3. To thoughtfully examine the scientific enterprise through critical analysis of the social and ethical dimensions of science.

Required Texts

National Research Council. *On Being a Scientist: A Guide to Responsible Conduct in Research*. 3rd ed. Washington, DC: National Academies Press, 2009. **FREE** online: http://www.nap.edu/catalog.php?record_id=12192. Hereafter, *OBAS*.

Steneck, NH. *ORI Introduction to the Responsible Conduct of Research*, revised ed. Washington, DC: Dept. of Health and Human Services, 2007. **FREE** online: <http://ori.hhs.gov/ori-introduction-responsible-conduct-research>. Hereafter, *ORI*.

Please read the chapters that are relevant to the topic of the evening

Online Resources

Course Moodle website, where required texts, readings from those texts, and additional resources will be posted. Go to learn@illinois to find it.

These websites provide great resources for further information relevant to this class:

HHS Office of Research Integrity: <http://ori.hhs.gov/>.

UIUC's own Ethics CORE: <http://nationalethicscenter.org/>

Attendance

Attendance is mandatory. If you are unable to attend a session, **please contact me BEFORE your absence**. If you need to miss a session, you will need to **submit a 500 word essay** on the topic that you missed using the online resources and the discussion questions as a guide.

Given the limited number of sessions and the fact that dialogue is the most important way to "do" ethics, **two or more absences will result in an unsatisfactory grade**, even if one absence is excused. Excessive tardiness is the same as an absence.

Grading and Assignments

Grades (satisfactory/unsatisfactory) will be based on attendance and class participation

Academic Integrity

Due to the nature of this course, attendance is required and is documented by signing in at the end of class. Signing in for another student or coming in at the end of class to sign in are considered a breach of academic integrity. Please familiarize yourself with the University of Illinois Student Code that outlines your rights and responsibilities: <https://studentcode.illinois.edu> Specifically, the academic integrity policy is contained in Article 1, Part 4.

Disability-Related Accommodations

To obtain disability-related accommodations, please contact the course instructors and/or the Disability Resources and Educational Services (DRES) as soon as possible. For more information about DRES: <https://www.disability.illinois.edu> or call (217) 333-4603.

Course Outline

Topic 1: Overview: Ethics and the Crisis in Reproducibility

Questions for discussion:

What does “ethics” mean, and what does it have to do with research? What ethical issues would you like to discuss during our time together? Why are we having a research reproducibility crisis? What are good laboratory practices?

Validation of Research Materials

Questions for discussion:

What research items should be validated? How often should you do this?

Recordkeeping and Data Management

Questions for discussion:

What does “data” mean to your field? What steps can you take to ensure the integrity of your data? How should research records be maintained? Is it ever okay to exclude data from your analysis? If so, should that exclusion be reported? If so, how should it be reported? How should your data be retained? Who owns data?

Statistics

Questions for discussion:

What does statistical significance mean? How do you choose the right statistical test?

Topic 2: Research Integrity—Fabrication, Falsification, Conflicts of Interest and Whistleblowing

Questions for discussion:

What are fabrication and falsification? Why are they detrimental to science? What are factors that can make FFP tempting to researchers? What are other forms of research misconduct beyond FFP? What are measures you can take to reduce the likelihood of engaging in research misconduct? What kind of support would you need from your PI, department, or institution? What are the differences you see between a genuine scientific disagreement and potential

misconduct? What are conflicts of interest? Who/What do they damage? Is it ever okay to exclude data from your analysis? If so, should that exclusion be reported?

Conflicts of interest

Questions for discussion:

Do conflicts need to be real, or do perceived conflicts matter? Can one have an *interest* without it being a conflict? If so, what makes an interest a conflict for an investigator? What can a researcher do to minimize a conflict? What institutional support is needed?

Topic 3: Publication, Assignment of Authorship and Research Collaborations

Questions for discussion:

In your opinion, what are appropriate criteria for authorship? What are the risks/benefits of excluding someone from authorship on a manuscript? What are the risks/benefits of *including* someone as an author? How do you select a journal for publication? When should a manuscript be divided into multiple papers? Should you put your article out as a preprint? How does peer review of a manuscript work? What constitutes plagiarism?

Collaborations

Questions for discussion:

What steps can you take to foster healthy collaborations? What considerations should be made at the beginning of a collaboration? Navigating trust in collaborations? When do collaborations end?

Topic 4: Protection of Human Subjects and the Welfare of Laboratory Animals

Questions for discussion:

What are the ethical principles supporting the protection of human subjects in research? What are common methods for protecting the rights and welfare of human subjects? When might it be inappropriate to enroll human subjects in research?

When (if at all) should animals be involved in research? Are there animals that should not be involved in research? What are reasonable protections for animals involved in research?

Topic 5: Mentor/Trainee Relationships

Questions for discussion:

What qualities does a good mentor possess? What qualities do you want to cultivate as a trainee? What core competencies do you have and what do you still need to learn? What institutional support do you need in your work as a grad student/post-doc/mentor? Time to degree discussions: when to have them? How do you navigate shifts in career goals?

Topic 6: Creating a healthy and professional workplace

Questions for discussion:

What is a healthy workplace environment? What does professional work environment mean? How do you handle conflict? What is implicit bias and how does it impact the workplace? How do you integrate work and family/home life?

Topic 7: Moving on: finding your next position

Questions for discussion:

When should you start planning for your career transition? What resources are available to explore career options? What resources are available to look for positions?