MEES 608B Seminar
Responsible Conduct of Research (RCR); (1 credit) Grade Method: REG/AUD

Drs. Russell Hill and Thomas Miller
Fall 2023
Time TBA
Zoom Link TBA

Course Instructors:
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Course Description:
The last 50 years has seen many significant advances in a broad diversity of scientific fields. These changes continue today at an even faster rate. Collaborative teams involving many highly specialized researchers are more common now than individual researchers with broad training. We have access to data from multiple sources including web-based distributed databases, sophisticated instruments that automate many analyses and computers that permit rapid calculations that combine to increase research capabilities. At the same time, competition to achieve precedence in a research field has intensified. Over this period of dramatic change, the scrutiny of science and scientists has increased, leading to high profile examples of misconduct in several fields.

In this seminar we explore the "rules of the road" for being a scientist today. Using a case study approach, the seminar will cover concepts of how science is regulated, what constitutes misconduct, how research is planned, conducted and reported, authorship and data ownership, as well as the ethical treatment of human and animal subjects. The seminar will focus particularly on mentor and trainee interactions.

Grading will be based on participation in weekly discussions, and posting of comments on the course web site. In addition, each participant will be responsible for leading discussion of one case study.

Class Schedule:
TBA

Grading for MEES608B:
Case study presentation 60%
Class participation 40%

Presentation of case study:
Each student will present a case study that raises important issues regarding a particular topic in RCR. Presentations should include a general introduction, detailed presentation of the situation to be discussed, and a series of questions designed to stimulate discussion by the entire class. The presenter should then summarize key points raised in the discussion and give their opinion on the best way that the particular issue should be resolved.

The learning outcomes for this course are:

1. An understanding of scientific regulation and research planning.
2. The ability to recognize and knowledge of how to report scientific misconduct.
3. The ability to recognize and manage conflicts of interest.
4. The ability to manage data ownership, protection and sharing.
5. Understanding of mentor, trainee and collaborator responsibilities and expectations.
6. The ability to select appropriate authors and authorship order on publications and to judge the credibility of journals, including avoidance of predatory journals.
7. An understanding of the importance and process of peer review.

Date	Topic	Discussants
30-Aug	Scientific regulation: self-regulation, government regulation, policies and personal responsibility	Miller
6-Sep	Research planning – IRB, IBC and IACUC	Hill
13-Sep	Title 9 issues & Diversity in STEM	
20-Sep	Conflicts of interest – conflicts of commitment	
27-Sep	Conflicts of interest – reporting and managing conflicts	
4-Oct	Data management – Ownership, protection and data sharing	
11-Oct	Trust in science	
18-Oct	Research misconduct	
25-Oct	Mentor responsibilities	
1-Nov	Trainee responsibilities –expectations	
8-Nov	Mentor-trainee conflicts of interest	
15-Nov	Being an effective collaborator	
22-Nov	Authorship and Publication	
29-Dec	Proposals	
6-Dec	Peer Review	

Resources:

Nicholas H. Steneck. Introduction to the responsible conduct of research. 2007.
https://ori.hhs.gov/ori-introduction-responsible-conduct-research
Download pdf from https://ori.hhs.gov/sites/default/files/2018-04/rcrintro.pdf

Kelly Moore. Some sources of information on ethical research conduct for scientists and engineers. 2011.
http://www.nsf.gov/bfa/dias/policy/rcr/resources/ethics_oct11.pdf

Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering (1997) Committee on Science, Engineering, and Public Policy. Can be read free on-line. Go to
http://www.nap.edu/catalog/5789/adviser-teacher-role-model-friend-on-being-a-mentor-to

On Being a Scientist: A Guide to Responsible Conduct in Research: Third Edition (2009) Committee on Science, Engineering, and Public Policy. Can be read free on-line after signing up. Go to http://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in

National Science Foundation. America COMPETES Act RECR Training Requirements. https://www.nsf.gov/bfa/dias/policy/rcr.jsp