University of Maryland
CENTER FOR ENVIRONMENTAL SCIENCE

# Responsible Conduct of Research
1 credit

**MEES 608B**
Fall 2018

## Course Objectives / Overview

The last 50 years has seen many significant advances in a broad diversity of scientific fields. Collaborative teams involving many 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. All increase research capabilities. At the same time, competition to achieve precedence in a research field has intensified. During this period of dramatic change and especially in the last decade, 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 -trainee interactions and on issues pertaining to diversity in the sciences are also discussed.

## Expected Learning Outcomes

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

## Course Assessment / Grading

Case study presentation 60%; Class participation 40%
Each student will present a case study that raises important issues regarding a particular topic in RCR. Presentations should include an introduction, an overview of the case, 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.

**INSTRUCTOR DETAILS:**

**Tom Miller**
miller@umces.edu
410-326-7276

**Russell Hill**
hill@umces.edu
410-234-8802

**CLASS MEETING DETAILS:**

**Dates: Monday Wednesday**
**Times: 11:30-12:30 am**
**Originating Site: CBL & IMET**
**IVN bridge number:**
**Phone call in number:**
(***)
**Room phone number:**
(*****)

**CURRICULUM FULLFILMENT:**

MEES 608B fulfills a PD MEES requirement.

**Prerequisites**
N/A

**Teaching Assistant**
TBD

# Tentative Weekly Course Schedule

| Date | Topic | Discussants |
|---|---|---|
| Week 1 | Scientific regulation: self-regulation, government regulation, policies and personal responsibility. | Miller |
| Week 2 | No class – Labor Day | |
| Week 3 | Research planning – IRB, IBC and IACUC. | Hill |
| Week 4 | Research misconduct | |
| Week 5 | Conflicts of interest – conflicts of commitment. | |
| Week 6 | Conflicts of interest – reporting and managing conflicts | |
| Week 7 | Data management – Ownership and protection | |
| Week 8 | Data management – Data sharing. | |
| Week 9 | Mentor responsibilities. | |
| Wek 10 | Trainee responsibilities –expectations. | |
| Week 11 | Mentor-trainee conflicts of interest. | |
| Week 12 | Overcoming bias and achieving diversity in recruitment | |
| Week 13 | Being an effective collaborator. | |
| Week 14 | Authorship and Publication. | |
| Week 15 | Proposals. | |
| Week 16 | Peer Review. | |
| Week 17 | Submit class evaluation. Class does not meet formally. | |

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## Required textbooks, reading and/or software or computer needs

Nicholas H. Steneck. Introduction to the responsible conduct of research. 2007.
http://ori.hhs.gov/sites/default/files/rcrintro.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. Go to
http://www.nap.edu/catalog/12192/on-being-a-scientist-a-guide-to-responsible-conduct-in

All readings are posted on the model site

## Course Communication

All course communication is conducted through the UMCES Moodle site.

## Resources

## Campus Policies

The University of Maryland Center for Environmental Science has drafted and approved of various academic and research-related policies by which all students and faculty must abide.

Please visit http://www.umces.edu/consolidated-usm-and-umces-policies-and-procedures for a full list of campus-wide academic policies.

## Course-Specific Policies and Expectations