

Ethics in Life Science Research (Bi 610)

Course Information:

5:00- 6:20 Wednesday April 4 -- May 23 in Onyx 275

Course Objective:

- The first objective is that the research scientists taking this course will understand the formal requirements set in place by the NIH regarding research ethics. For instance, we will learn the policies regarding research misconduct, data management or research on animal subjects.
- The second objective is that the research scientists taking this course will read weekly articles that cover real life scenarios related to that week's topic. They will be prepared to discuss the content of the article, and engage in an open discussion about the complexity of these ethical issues
- The third objective is to privately (or openly if you wish) reflect upon real-life scenarios, and in cases where its relevant strategize a plan to cope with the real-life issue.

Requirements Regarding Who Should Take the Course:

NIH requires that all those who are supported by NIH training grants, research grants, or career development awards should have training in Responsible Conduct of Research (RCR). To satisfy these requirements, all biology PhD students are required to take ethics in their second and sixth year of graduate school.

Class Policy Regarding Attendance and Accountability:

- This class is Pass/No pass.
- Attendance is mandatory. If you need to miss a class contact me for special arrangements.
- At the end of the term you will take a small test that evaluates your understanding of the policies regarding research ethics.

	Topic	Faculty Present
April 4	Research Misconduct and Healthy Research Environment Cass Mosley	Tory Herman
April 11	Financial Conflict of Interest Carolyn Craig	TBD

April 18	Data presentation	Alice Barkan
April 25	Publication Process: Responsibilities of all involved	Jeff McKnight
May 2	Lab Notebook and Data Management Jonathan Cain	Santiago Jaramillo
May 9	Animal Subjects Monte Matthews	Kryn Stankunas
May 16	Human Subjects	TBD
May 23	Science and Society	Diane Hawley

Weekly Objectives:

April 5: Research Misconduct and Healthy Research Environment

- Understand responsible conduct, integrity, and trustworthiness
- Identify research misconduct and fabrication, falsification, and plagiarism
- Explore causes and consequences of misconduct
- Learn the formal policies for dealing with misconduct;
- Explore challenges surrounding the reporting of misconduct and consequences of not reporting misconduct
- Explore means to prevent misconduct and promote professional and responsible culture of research practice.
- Examine the key features of a healthy, safe, productive, and respectful research environment
- Understand the responsibilities of mentors and of students and what they expect from one another, and learn to cultivate strong mentor-student relationships.

April 12: Financial Conflict of Interest

- To understand compliance and conflict of interest (COI) issues as they relate to grants and research administration
- To understand your responsibilities as a grad student/post doc in a lab where the PI also manages a business.

April 19: Publication Process-Responsibilities of all Involved

- Explore responsibilities of authors and co-authors and criteria for inclusion as author
- Examine processes of peer review of submitted articles
- Explore responsibilities of journal and journal editors

- Explore ethical issues regarding publication: quality, integrity, conflict of interest, responsible review, collaborative science, editorial independence, recognition.
- Understand procedures for preparing, writing, and submitting articles for publications

April 26: Data Presentation

- Explore responsible experimental design; experimental bias; verification bias; data interpretation.
- Examine ethical issues surrounding experimental design, and interpretation.
- Examine proper ways to report numerical data and use of statistics
- Look at ways of presenting image data
- Appropriate and inappropriate uses of Photoshop in data presentation

May 2: The Lab Notebook and Data Management

- Consider how to keep a lab notebook
- Lab notebook in the digital era and problems to prevent
- Understand the importance of proper data management and integrity for research
- Examine professional standards of data management, data retention, sharing, ownership, documentation, storage

May 9: Animal Subjects in Research:

- Explore rationale for research using animal subjects
- Understand the policies regulating the use of animal subjects in research
- Explore the ethical and moral underpinnings of these policies
- Explore ethical dilemmas in animal experimentation.

May 16: Human Subjects in Research

- Explore rationale for research using human subjects
- Understand the policies regulating the use of human subjects in research
- Explore the ethical and moral underpinnings of these policies
- Explore ethical dilemmas in human experimentation

May 25 Science and Society

- Explore roles, responsibilities, and approaches of researchers in informing and influencing the views of our society
- Explore ethical issues relating to life sciences technologies, health, and the environment
- Understand the foundation and administration of science policy and law