

Module RCR: Responsible Conduct of Research

This module is designed to acquaint those who plan to do research in physics with ethical standards in science, with an emphasis on the field of physics. The assignments are mostly reading based, with two essays required.

Ethics as used in this module is not the same as morality. Debates on morality are grounded in philosophical discussions and require identification of underlying assumptions about what is right and what is wrong. In the context of this module, ethics refers to a set of standards within a professional community (in this case, the physics community) that guide the members of the community toward taking actions that are generally accepted as beneficial to the community and to society at large. Throughout your completion of the reading and written assignments in this module, it is important to keep in mind the very concrete nature ethical standards. That is not to say that ethical standards are always easy to apply—they are often not. However, every time you use a phrase such as “that is unethical”, you need to be able to back it up with a specific reference to a code of conduct or to some other generally accepted standard.

Reading Assignments:

This will work on an honor system. You should submit the first essay only after you have completed the Group 1 reading assignments. Likewise, you should submit the second essay only after you have completed the Group 2 reading assignments.

Group 1 Reading Assignments:

1. Work through the following modules found at www.rcr.emich.edu.
 - Module 3: Data Acquisition, Ownership, Management and Sharing
 - Module 5: Research Misconduct
 - Module 6: Publication Practices and Responsible Authorship

- Module 8: Peer Review
- Module 9: Collaborative Research

2. Read all of the “Ethics & Values” statements by the American Physical Society, found at

<http://www.aps.org/policy/statements/index.cfm>.

3. Read the Chemist’s Code of Conduct, found at

<http://www.chemistry.org/portal/a/c/s/1/acdisplay.html?DOC=membership%5Ccode.html>

Group 2 Reading Assignment:

Choose one of the following books to read (all are available at the EMU library):

- Bad science : the short life and weird times of cold fusion / Gary Taubes.
- Cold fusion : the scientific fiasco of the century / John R. Huizenga.
- Too hot to handle : the race for cold fusion / Frank Close.
- Voodoo science : the road from foolishness to fraud / Robert L. Park
- Leo Szilard, his version of the facts : selected recollections and correspondence / edited by Spencer R. Weart and Gertrud Weiss Szilard.

Essay Assignments

For each essay, plan on submitting 3-6 pages, double-spaced. You should include a list of references at the end (not counted in the page range) and cite those references as appropriate in your paper. You should cite references for any information that would not be common knowledge to fellow students who have not done the reading for this course. I’m not picky about what format you use for citations, as long as it conveys all the necessary information and is consistent throughout your paper. While resubmissions on essays

are allowed, please make your first submission a polished, well thought out paper.

Essay #1

Choose one of the case studies in one of the RCR modules that you worked through. Your goal is to analyze it in more detail. In particular, what specific ethical standards (such as those from the APS or ACS code of conduct) are relevant? What additional information would it be useful to know in order to better decide on a course of action? Give examples of the type of information that might be uncovered and what course of action it would suggest. Are there procedural changes that the people involved in the case could make to avoid a similar situation arising in the future? Include the full text of the case study in your paper (just the case study itself, not the discussion that follows it).

Essay #2

Discuss ethical issues that are relevant to the book you chose to read. Avoid making vague statements like “That was the wrong thing to do.” What I’m looking for are specific actions that someone took that may have been ethically unsound, and I am looking for a reference to a specific ethical standard (for instance from one of your group 1 readings) that was perhaps violated. One goal of this module is to make sure you are aware that standards and procedures exist that can help guide our decisions in the context of responsible conduct of research. We can go beyond relying on a “gut feeling” of what is right or wrong. It is my hope that this essay will bring out your ability to make ethical analysis concrete.