

Syllabus
INT 601 Responsible Conduct of Research
(1 credit course)
Fall 2009

Course Description:

This course provides a concise overview of key subject areas in the responsible conduct of research. It is designed to make students aware of relevant guidelines, policies and codes relating to ethical research, as well as to provide, via a study of ethical theories, concepts, and case studies, the skills for identifying and resolving ethical conflicts that may arise in research. Cr.1.

The course will meet twice per week (3:15-4:30) for ten class sessions (approximately five weeks) at the beginning of the semester.

Course Goals and Objectives:

Basic premises for this course are that (1) the educational objective of a research-based graduate program is to produce competent scholars capable of original and independent research and (2) doing good science requires responsible conduct and integrity.

Goals for this course include:

- (1) Enhance understanding of the range of accepted practices in research. Practices may vary according to the norms of disciplines.
- (2) Heighten sensitivity to and appreciation for ethical issues associated with doing research
- (3) Improve abilities for resolving ethical conflicts
- (4) Increase knowledge about the laws, regulations, and policies – government and institutional –and professional guidelines that govern the conduct of research. ¹

Expected Outcomes:

Students exposed to the responsible conduct of research course material will have:

- (1) increased awareness of the ethical dimension in accomplishing research,
- (2) a greater sense of personal and social responsibility for resolving such values conflicts, and
- (3) improved skill in analyzing and resolving values conflicts.

Expectation of Students:

Students are expected to attend all sessions. To receive credit for this course, no more than two sessions should be missed unless there are very extraordinary circumstances. Classes will be conducted seminar style. It is imperative that students complete the readings and are prepared with comments and questions. Module question responses are used as a starting point for class discussions. For the last session, summaries by module editors may be used to review the primary lessons of the course. Students will also prepare a 5 page annotated bibliography on responsible conduct of research related to their specific discipline.

Faculty Information

Professor Harlan J. Onsrud

581-2175

onsrud@spatial.maine.edu or FirstClass (Harlan_Onsrud@umit.maine.edu)

¹ Frankel, Mark S., Importance and Goals of RCR Education, CGS Workshop on Ethics and the Responsible Conduct of Research, 6 Dec 2004

If you have a question that others may have as well, please post your question to the course folder on FirstClass (i.e. INT601@umit.maine.edu). All in the class are welcome to respond or comment on postings.

Office Hours: I am available in my office during the hour immediately before class. In addition, I am in the office most hours of the day when not in class and feel free to drop by if you have a short question or two. If you want to arrange a longer session, sending E-mail to set up an appointment is probably the simplest way to get a message through and a response.

Instructional Materials and Methods

All readings are available online, in the Info folder within the INT 601 class folder on FirstClass, or are available through the electronic subscriptions of Fogler library.

Grading, Class Policies and Course Expectations

Grades in this course will be based on the quality and completion of all requirements listed on the syllabus that may be reasonably altered at the discretion of the instructor as the course progresses. As a graduate level course, you are expected to exhibit high quality work that demonstrates sound understanding of the concepts and their complexity. Your written work should reflect professional quality in composition as well as in spelling and grammar. Earning an “A” represents oral and written work that is of exceptionally high quality and demonstrates superb understanding of the course material. A “B” grade represents oral and written work that is of good quality and demonstrates a sound understanding of course material. A “C” grade represents a minimally adequate completion of assignments and participation demonstrating a limited understanding of course material.

Notes Concerning First Class: You must have a FirstClass account for this course. See <http://it.umaine.edu/support/firstclass/index.php> if you do not yet have an account. You will communicate with other classmates and the instructor through the INT 601 FirstClass folder and deliver all out-of-class assignments to the FirstClass assignment folder for the course. I recommend that you download the FirstClass client software to your computer if you have not already done so. You should always be able to deliver your materials and access the materials of others by logging on to the FirstClass website or by using the client software.

Academic Honesty: Academic honesty is expected. Plagiarism is unacceptable in this course and will result in a failing grade. “Although a writer may use other persons’ words and thoughts, they must be acknowledged as such.” Joseph Gibaldi and Walter S. Achtert, *MLA Handbook* (Modern Language Association) 1977, p. 4.

Students with Disabilities: If you have a disability for which you may be requesting an accommodation, please contact either me or Ann Smith, Coordinator of Services for Students with Disabilities (Onward Building, 581- 2319), as early as possible in the term.

Contingency Plans in the Event of an Epidemic: In the event that an epidemic precludes the gathering of students, you should continue to deliver discussion documents to the First Class folder but class gatherings might be suspended at one or more sites. In the event that this happens, assume that your physical presence in the discussion sessions is excused but all other written submissions and reporting will proceed as usual. If you yourself become sick, simply inform me and we will arrange appropriate extensions based on your particular circumstances.

Course Requirements: To successfully complete this course for credit you must:

1. **participate in all eight modules** (i.e. modules A through H). This participation includes the following components:

- Responses to Critical Questions

Each module requires each student to respond to all of the questions posed and to post the responses on FirstClass by the date and time indicated. That is, prior to the class period in which the material will be discussed. Be concise. A hundred-words response is often adequate. You will be able to see compiled responses from all students posted by the instructor on the morning of the days when we meet.

- Module Editors (Reporters) and Class Discussion Moderators

(a) Each student is assigned to summarize one module as the **module editor**. You may or may not have a co-editor depending on the number of students in the class. Each editor or group of co-editors will publish a short summary (no more than one page per question) that describes the essence of our class findings and conclusions for each question. This summary should address issues raised in the initial written responses as well as those discussed in the class sessions. *I highly recommend that you submit this summary within a week of completing the class session in which you are the editor.* At latest, all summaries are due on or before **Wednesday October 7 at 8:00 pm** so that these summaries may be used to review the course during our last class session.

(b) Each student is assigned to be **class discussion moderator** for one or more class periods. You may have a co-moderator. *As moderator your role is NOT to give a lecture on what other people have stated in their written responses but to engage the class in a discussion of their responses and affiliated issues raised in the readings.* Please engage all or most class members in all class period discussions. Call on your classmates by name whenever possible.

2. **complete the University of Maine on-line training session and quiz on the protection of human subjects,**

3. **prepare a 5-page annotated bibliography** on the responsible conduct of research related to your specific discipline and research interests. **Due Friday October 9 by 8:00 pm.**

Requirements:

(1) Provide a cover page that includes the following:

<Your Name>, INT 601, Fall 2008

Annotated Bibliography on the Responsible Conduct of Research in the <Discipline of ...> <Field of ...>

(2) For each article entry, provide a standardized bibliographic citation (including a url if available) followed by an abstract in your own words (100 to 200 words typically) summarizing the content of the article. Ten citations is the practical minimum.

(3) Deliver the bibliography in electronic form to the First Class Assignment Folder (and in hard copy to the instructor's mailbox if on campus).

INT601 Responsible Conduct of Research

Detailed Schedule of Class Sessions
75 minute class sessions, Tues & Thurs

The core texts for the course are freely accessible on the web:

Reference (1)

Steneck, Nicholas H., *Introduction to the Responsible Conduct of Research*, Office of Research Integrity, U.S. Department of Health and Human Services,
http://ori.dhhs.gov/publications/ori_intro_text.shtml

Additional related web references:

<http://ori.dhhs.gov/education/products/>

Reference (2)

Committee on Science, Engineering and Public Policy, National Academy of Sciences, National Academy of Engineering and Institute of Medicine, *On Being a Scientist: Responsible Conduct in Research*, National Academy Press, <http://books.nap.edu/books/0309051967/html/index.html> or <http://books.nap.edu/html/obas/>
(Read online or pdf download available for \$6.50)

Many of the discussion questions listed below are drawn verbatim from the assigned materials from these two texts. If so, the reference number is indicated in the assignment. Additional documents are made available in the FirstClass Folder for the course.

University of Maine and UMS Documents:

UMS Student Conduct Code http://www.maine.edu/system/policy_manual/policy_section501.php

UMS Full Statement of Policy Governing Patents and Copyrights

http://www.maine.edu/system/policy_manual/policy_section209.php

University of Maine Student Handbook <http://www.umaine.edu/handbook/PolReg/policies.htm>

Protection of Human Subjects of Research Tutorial

<http://www.umaine.edu/irb>

Note: The module discussion approach used in the schedule that follows emulates an approach used by Elizabeth Allan, College of Education, University of Maine in a course on teaching at the college level.

Session 1

Research Values (Tuesday, Sept 1)

Introductory Lecture on Ethics, Values and Law

1. Ref (1), Chap 1 Rules of the Road
2. Ref (2), Introduction, The Social Foundations of Science (pp.1-3)
3. University of Maine and UMS Policy Documents: Become familiar with these documents. All are posted in the FirstClass Folder as well as at the links above. We will look at these in greater depth as specific conduct issues are raised.
4. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_general.shtml

Session 2

Research Misconduct (Thursday, Sept 3)

1. Ref (1), Chap 2 Research Misconduct
2. Ref (2), Experimental Techniques and the Treatment of Data, Values in Science (pp.4-7), Error and Negligence in Science, Misconduct in Science (pp.15-17)
3. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_misconduct.shtml

Module A

Editor: <insert student name(s)>, Moderator: <insert student name(s)>,

The critical questions for Module A are

- A-1 How is integrity in research monitored? Is self-regulation of integrity in research effective?
- A-2 Are the insights of individual researchers or the “sifting and winnowing” insights of groups of researchers more critical in advancing physical, biological and social science?
- A-3 Should other practices besides fabrication, falsification and plagiarism be considered misconduct in research?
- A-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to these questions before 8:00 PM on the evening before class.

Session 3

Protection of Human Subjects (Tuesday, Sept 8)

1. Ref (1), Chap 3 The Protection of Human Subjects
2. "Human Participants in Research" (NC State) (17 pages – download the germane pdf), http://www.chass.ncsu.edu/ethics/page.php?name=inst_mod
3. "The Belmont Report", <http://ohsr.od.nih.gov/guidelines/belmont.html>
4. "The Nuremberg Code", <http://ohsr.od.nih.gov/guidelines/nuremberg.html>
5. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_humans.shtml

Module B

Editor: <insert student name(s)>, Moderator: <insert student name(s)>,

The critical questions for Module B are

- B-1 What should subjects know about proposed research and their protection before they enroll as subjects? (Ref 1)
- B-2 Should subjects be allowed to enroll in experiments that either promise no direct benefit to them or cannot provide them with the opportunity to withdraw completely? (Ref 1)
- B-3 To what extent do the Belmont Report and Nuremberg Code provide useful guidance?
- B-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to these questions before 8:00 PM on the evening before class.

Further Assignment: Complete the *Protection of Human Subjects of Research Tutorial and Quiz* found at <http://www.umaine.edu/irb/>. If you prefer, you may download the tutorial material at <<http://www.spatial.maine.edu/~onsrud/UMaineHmnSbjctsTtrl.pdf>> and read it in hard copy. When done, click through to the last page of the tutorial and take the quiz. The quiz has help links to the relevant sections to refresh your memory.

Session 4

The Welfare of Animals Used in Research (Thursday, Sept 10)

1. Ref (1) Chap 4 The Welfare of Laboratory Animals
 2. Guide for the Care and Use of Laboratory Animals, Read Introduction (a.k.a. Executive Summary) and skim other portions as appropriate (<http://books.nap.edu/>)
- Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_animals.shtml

Module C

Editor: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module C are

- C-1 Are there some animals that should not be used in research? (Ref 1)
- C-2 What circumstances justify pain and suffering of experimental animals? (Ref 1)
- C-3 How should research animals be procured? How should they be housed and treated during experiments? (Ref 1)
- C-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to these questions before 8:00 PM on the evening before class.

Session 5

Conflicts of Interest and Data Management Practices (Tuesday, Sept 15)

1. Ref (1) Chap 5 Conflicts of Interest
2. Ref (1) Chap 6 Data Management Practices
3. Ref (2) Conflict of Interest (p.8)

Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_conflict.shtml and http://ori.dhhs.gov/education/products/rcr_data.shtml

Module D

Editor: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module D are

- D-1 Should researchers be allowed/encouraged to profit personally from their research apart from their normal compensation? (Ref 1)
- D-2 What are appropriate mechanisms for managing financial conflicts of interest? (Ref 1)
- D-3 Should research data belong to researchers rather than to research institutions? (Ref 1) In the absence of institutional policies what does the law say? What is the institutional policy at the University of Maine?
- D-4 Should data recording practices be standardized to facilitate sharing and monitoring? If so, what recording and archiving practices could be standardized? (Ref 1)
- D-5 Who should have access to underlying research data after results have been published? How can that access be provided? Who should bear the cost? How can one ensure that data won't be tampered with?

All students respond to these questions before 8:00 PM on the evening before class.

Session 6

Mentor and Trainee Responsibilities (Thursday, Sept 17)

1. Ref (1), Chap 7 Mentor and Trainee Responsibilities
2. *Adviser, Teacher, Role Model, Friend: On Being a Mentor to Students in Science and Engineering* (1997), Committee on Science, Engineering, and Public Policy, National Academy of Science, <http://books.nap.edu/books/0309063639/html/index.html> (pp. 1-16 and skim pp. 65-68).
3. "Truth and Trustworthiness in Research", by Caroline Whitbeck, [Read section on "The Moral Soundness of Trust Relationships in Research; The Relationship Between Thesis Supervisor and Supervisee"] This essay was first published in *Science and Engineering Ethics*, 1:4 (October 1995) 403-416. <http://www.onlineethics.org/CMS/research/resessays/cw2.aspx>
4. "Guidelines for Advisor/Advisee Relations: Department of History, University of Illinois, Urbana-Champaign" <http://www.history.uiuc.edu/grad/guidelines/>
5. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_mentoring.shtml

Module E

Editors: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module E are

- E-1 What are the qualities of a good mentor? A good trainee? (Ref 1)
- E-2 What are the qualities of a good research environment and how can they be fostered? (Ref 1)
- E-3 What are safe or comfortable ways for graduate students to learn about the differences among the policies of individual supervisors, inquire about a potential supervisor's policies before becoming that person's supervisee, and to assess their own treatment by a supervisor? (Whitbeck)
- E-4 Should elements of the mentor-trainee relationship be reduced to a written agreement that both parties would sign at the beginning of the relationship? (Ref 1)

All students respond to these questions before 8:00 PM on the evening before class.

Session 7

Collaborative Research (Tuesday, Sept 22)

1. Ref (1), Chap 8 Collaborative Research
2. "Mentor vs. Protégé", Chronicle of Higher Education; 12/17/2004, Vol. 51 Issue 17, pA14-A15, 2p, 1c, <http://chronicle.com/free/v51/i17/17a01401.htm> (Or gain access through Fogler online publications or see the extra copy on FirstClass)
3. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_collaboration.shtml

Module F

Editors: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module F are

- F-1 What are the benefits of collaborative research? (Ref 1)
- F-2 What are the drawbacks to collaborative research and how can those drawbacks be lessened? (Ref 1)
- F-3 If working collaboratively with another and using or building from the ideas or labor of your collaborator, what level of credit or acknowledgement is warranted for your collaborator in scholarly outlets if you don't have a formal agreement? Should it be acknowledgement of contributions? Citation to documentation? Co-authorship?
- F-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to these questions before 8:00 PM on the evening before class.

Session 8

Authorship and Publication (Thursday, Sept 24)

1. Ref (1), Chap 9 Authorship and Publication
2. Ref (2), Publication and Openness (p.9-11), The Allocation of Credit (p12), Authorship Practices (p. 13-14)
3. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_authorship.shtml

Module G

Editors: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module G are

- G-1 What are the accepted criteria for authorship in your field of research? If there are none, what should they be? (Ref 1)
- G-2 What should a researcher do if the journal that has accepted a publication will not let the researcher publish the method or results in as much detail as the researcher feels is necessary? (Ref 1)
- G-3 What are the benefits or drawbacks of inserting in an article an explanation of the contributions of each author and why the authors are listed in the order shown?
- G-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?
- G-5 Complete the assignment in Attachment A.

All students respond to these questions before 8:00 PM on the evening before class.

<< one week break due to travel by instructor >>

Session 9

Peer Review (Tuesday, Oct 6)

1. Ref (1), Chap 10 Peer Review
2. Responsible Authorship and Peer Review (NC State),
http://www.chass.ncsu.edu/ethics/page.php?name=inst_mod
3. Optional Additional Materials: http://ori.dhhs.gov/education/products/rcr_peer_review.shtml

Module H

Editors: <insert student name(s)>, Moderator: <insert student name(s)>

The critical questions for Module H are

- H-1 What information contained in a manuscript or proposal should reviewers be expected to check?
(Ref 1)
- H-2 Should reviewers be anonymous? Should authors be anonymous?
- H-3 Some disciplines and open access journals have moved to immediate posting of non-refereed preprints with authors names credited while an article is undergoing formal peer review. What are the benefits and drawbacks of this approach?
- H-4 Which question or issue related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to these questions before 8:00 PM on the evening before class.

DUE DATE: Summaries of Modules by Editors, if not already submitted, are due Wednesday Oct 7 before 8:00 pm. Post the summaries to First Class.

Session 10

Responsibilities to Society (Thursday Oct 8)

1. Ref (2), Responding to Violations of Ethical Standards (p. 18-19), The Scientist in Society (p.20-21)
2. "The Ethical Implications of the New Research Paradigm", Scott Peter, *Science and Engineering Ethics*, Ja 2003; 9(1): 73-84 (PDF) (Access through Fogler Library e-journals or see Firstclass folder)
3. "In the Grip of the Python: Conflicts at the University-Industry Interface", David Healy, *Science and Engineering Ethics* (2002) 9, 59-71(PDF) (Access through Fogler Library e-journals or see Firstclass folder)
4. "Towards the Conscientious Development of Ethical Nanotechnology", Rosalyn W. Berne, *Science and Engineering Ethics* (2004) 10, 627-638(PDF) (optional) (Access through Fogler Library e-journals or see Firstclass folder)

Module I

I-1 Which questions or issues related to the readings would you most like to raise and discuss with the rest of the class?

All students respond to this question before 8:00 PM on the evening before class.

Class activity:

Review by editors of the key lessons of the semester's class modules.

Open discussion of the three final assigned readings.

Appendix A

Tools for Checking for Plagiarism

Feel free to do this assignment earlier in the course than required.

1. Create a mock paper that contains three reasonably long paragraphs. The *first paragraph* should be completely original. The *second paragraph* should be quasi original (i.e. include some phrases copied from the web or a published article). The *third paragraph* should be plagiarized from the web or a published article or perhaps from some other person's assignment in the same class.

2. Go to <http://www.turnitin.com> and create a student profile by clicking on *New Users* in the upper right hand corner.

Class ID: 2383960

Password: cheater09

If you have difficulty setting up the account, click the *Training: Get Started* menu item and watch the movie at the url above.

3. Do Assignment 1. It is titled *Testing the Virtual Copier Catcher*. Submit your mock article by uploading it to the system. Return the next day to see the analysis of your submission.