

April 2, 2010  
G. Comstock, NC State

## **Instructor's Guide**

### **OpenSeminar in Research Ethics**

I teach the OSRE in 2 hour sessions, once a week, for 7 weeks. The following guide provides lecture notes with objectives and methods for each session.

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TWO MONTHS PRIOR to first class I try to line up discipline-specific seminars for students to attend. I write to the Graduate Directors of Program and/or Dept. Heads as follows. Sample text:

Dear Professor \_\_\_\_\_,

I teach PHI 816, Research Ethics, in Fall and Spring. It is becoming increasingly common that several Zoology/Biology/Toxicology students enroll. The course covers core issues in responsible conduct of research in common with all students, no matter their field, but the course also contains a "breakout" week during which students are encouraged to return to their home department for a discipline-specific discussion. The idea is to have a senior researcher in the student's department discuss an ethical issue that arises only for researchers in their discipline. By physically locating this seminar in the home department, we underscore the message that research ethics is not a separate subject students go to the philosophy department to study. Rather, it is an integral part of their own department's graduate education.

Would your department be interested in working with me to institute a regular, perhaps once or twice year, seminar on research ethics offered by a panel of your faculty?

I've been in touch with Bob Grossfeld about the possibility of offering a seminar this Fall and am copying him here. As you'll read below, there's no room on the schedule this term. But perhaps in the future?

Looking forward to hearing from you,  
Gary

## **TWO WEEKS PRIOR to the first class I send an email to make contact with students**

Hello, and Happy New Year!

You are registered for PHI 816, "Introduction to Research Ethics." The main objective of this course is to welcome you into the community of researchers, and I'm looking forward to getting to know everyone. Our first meeting will be Tuesday, Jan. 12 from 4:30 - 6:30 in Riddick 321.

Would you \*kindly reply to this message?\* I want to ensure I have email contact with everyone.

Thanks,  
Dr. Comstock

## **AND THEN to instruct them to complete the Pre-test.**

Thanks for responding to my message. Before our first meeting on Tuesday, please take 45 minutes to respond to a brief survey.

Background: I am participating in a UNC-system educational grant to enhance education about research ethics. As part of the project, a group of professors across North Carolina is conducting educational research about the most effective ways to provide this training. Toward this end we are surveying graduate students enrolled and not enrolled in research ethics courses.

Your responses to the survey will be anonymous in the sense that I will not have access to them. I will have access to whether you completed the survey. Before you begin, please review these 9 steps.

1. Go to the "EAREE" Pre-test: <https://survey.ecu.edu/perseus/se.ashx?s=0B87A656764CA244>
2. Follow instructions.
3. When you come to note #8 you will be asked whether you consent to let your answers be used in our research study, the Extend and Assess Research Ethics Education initiative (EAREE) funded by the National Science Foundation. If you give permission, EAREE will use your responses for research purposes only. All responses will be summarized, reported and/or published only in the aggregate. You will not be identified. All educational research data are kept strictly confidential and protected to the maximum extent allowable by law. Your answers will not be available to me and will not be considered as part of your grade for this class. Therefore, I hope you WILL give permission because doing so will help improve the class.
3. Are you a "control" student? = No
4. Create an identifying number as instructed
5. Student School = NCSU
6. Student Major = [fill in your designator, e.g., PY for Physics, BME for Biomedical Engineering]
7. Gender =
8. Age =
9. Click "Continue"

Complete the survey. DO NOT LOOK UP THE ANSWERS. As I say, this survey will NOT be a part of our grade, and the researchers conducting the study are interested in the current state of your knowledge of

research ethics. You will have the opportunity to complete a similar survey after you have completed the course. Please RECORD the identifying number you create because you will need it again for the post-test at the end of the term.

Thanks, and see you soon.

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Gary Comstock

## Hour 1

*Goal is to welcome students, help them to feel part of a scholarly community*

1. Write outline of day's activities on board (Syllabus; Introductions; Pre-test; OpenSeminar)
2. Review syllabus (10 min.)
3. Explain how the online readings and quiz questions work on [OpenSeminar in Research Ethics](#) (OS). (5 min).
4. Introduce myself (3 min.)
5. Self-introductions (15 min. for 20 students)

Go around room state name, department, and a paragraph about your research. The intent is to insure everyone has met at least one person by the end of the class, making good on our promise to do all we can to help them feel part of community, right from the get-go. They all should meet a partner with whom to discuss the NIH quiz questions. And, if they take nothing else from the first day, they've taken away one acquaintance, preferably someone from their department

6. OSRE: Introduction ppt. (OSRE Fall 09/1\_Opening\_session)
7. Syllabus quiz (hand in the answers):
  - What is the goal of this course?
  - Are you required to do a human subjects online tutorial?
  - What is the name of our website?

## Hour 2

*Note: Plan on only having 45 minutes if teaching class in 2-hr sessions*

1. Introduction to research, introduction to ethics (5 min.)
2. With partner, watch following video and identify the ethical issues, if any, in the research:  
Nicolelis Brain-control monkey
3. NIH new questions

Distribute one page (of 111 pages) to each student. Answer all questions. Compare your questions with your two partners'. Pick the easiest and the hardest questions between the three sheets of questions. Discuss.

### 2. Assignment for Hours 3 and 4

#### A. Read OS modules 1.0 – 1.4, namely:

##### 1.0 My interests

- 1.1 Egoism: Take the long view
- 1.2 Progress to degree
- 1.3 Report falsification
- 1.4 Avoid plagiarism

#### B. Be prepared to discuss these questions on the Mary Allen case (Module 1.3)

- What happened to Elizabeth Goodwin?
- What happened to the grad students in her lab?
- What lessons do you take from the case?

#### C. And these questions:

- What is egoistic ethics, and why is lying wrong according to egoism? (Module 1.1)
- How much copying and pasting does your field allow before you're accused of plagiarism? (Module 1.4)

## Hour 3

*Goals of today's class: Motivate students, and tackle the "Who cares?" question*

1. Today's assignment was:

### **1.0 My interests**

- 1.1 Take the long view
- 1.2 Progress to degree
- 1.3 Report falsification
- 1.4 Avoid plagiarism

2. On board:

1. Review
2. Intro to Research Ethics
3. Report falsification
- BREAK
4. Plagiarism
5. My ethical method

3. Review: Long review for benefit of any new students just joining class (15 min.)

1. Met each other (self-intros)
2. Syllabus (review) -- Hand back quizzes. First, remind them of questions:

What is the goal of this course?

Are you required to do a human subjects online tutorial?

What is the name of our website?

3. Openseminar.org (learned to navigate)

4. Intro to research ethics *A PPT to guide discussion is here: (but I don't have time to use anything other than the picture of Elizabeth Goodwin's lab)*

**G. Comstock, 1.0 Egoism and 1.3 Report falsification:**

(OSRE Fall 09/1\_Opening\_session (35 min.))

I take 10 minutes to introduce the Mary Allen story, covering as many details as I can remember. Students should experience it as a powerful and effective introduction to the "who cares?" question. What could Mary have done differently? Where do you see ethical (harms, who decides?) issues in it? What role did the dept. chair and the administration play in the case? How should you respond if you find yourself in a similar situation?

5. Discuss Mary Allen case (1.3 Report falsification) (45 minutes)

- **What happened to Elizabeth Goodwin?**

- **What happened to the grad students in her lab?**
  - Ly: "During my committee meeting I was told to seriously think about a career working as a lab manager and basically forget about getting a PhD. I don't know how my fellows students felt, but I found the advice from my committee to be especially unhelpful. Having felt that I had no support from any faculty from the Genetics department, no support from my committee members and no support from the worm community, I decided to leave the PhD program with a Masters in Science degree. I strongly felt that if I stayed to pursue my PhD in Madison, I would have an uphill battle trying to get a fresh start. ...I have had to throw all that away," Ly told *Science*. "I did not accomplish my professional potential. It is very disappointing."
  - Padilla?
  - Mary Allen?
  
- **What lessons do you take from the case?**
  - Excellent research is not always ethical research.
  - Misconduct can result from cutting corners.
  - Ethics entangles emotions (bad and good).
  - Cheating has consequences.
  
- What do you think of Suja's reaction to the Mary Allen Story?
  - "*Are women recipients under even greater pressure than men? In scientific research, do they feel compelled to tamper with data? That was the primary reason offered as excuse in the story of my friend, and others that I know. Though I don't personally think [Dr. Goodwin] merits 'softer' treatment than would a man in her position, I can't help wondering if she was driven to such an action simply because the pressure to perform was greater on her than that on any man in her field.*"

## Hour 4

*Note: Plan on only having 45 minutes if teaching class in 2-hr sessions*

1. Plagiarism: What is it? Theft, lying. Differing cultural norms. In Russia, for example, instructors allow students to plagiarize up to 1/3 of paper. Why would they allow so much? Different history, totalitarian regime, people survive as best they can (10 min.)
2. Exercise: (30 minutes) Work through the Electrical Engineering online exercise.
3. Egoism's plausibility Is egoism a complete moral theory? (10 min)
4. Ethical method (probably there won't be time for this) What considerations would you take into account if having to make a decision like the one faced by Mary Allen in research? Write down as many ethical considerations as you can think of. Then try to systematize them, placing them in order with the most serious and important considerations first.

After 10 minutes: Which group has most? Read your list. Do other groups have considerations to add?

5. Assignments for Hours 5 and 6 (5 min.)
  1. Read Modules 1.5 - 1.7, and 2.0 – 2.4

### **1.0 My interests**

- 1.5 Inquire critically
- 1.6 Strengthen the community
- 1.7 Egoism's weaknesses

### **2.0 Our interests**

- 2.1 Contractarianism
- 2.2 Professional codes
- 2.3 Mentoring
- 2.4 Women and under-represented minorities

2. Print your profession's code and bring to class.
3. In Facebook group, contribute 250 words to the discussion of ways your professional code is probably similar to—and different from—other professional codes. If you prefer, begin a discussion on Moodle.

In preparation for the Mentoring assignment coming up in one week, send an informational email to all dept heads and ask them to forward to their grad faculty.

Dear Michael,

As you know, a cohort of Physics graduate students is enrolled in "PHI 816, Research Ethics" to learn about responsible conduct of research and to be welcomed into the community of researchers at NC State. Toward this end, I require them to interview a faculty member about research ethics generally and, in particular, assignment of authorship, mentoring issues, and data management. Students are encouraged to conduct these interviews in groups when possible to use faculty time most efficiently.

Would you kindly alert your faculty about this assignment by forwarding this email to them? I'm happy, of course, to answer any questions about the activity. The course website is <http://openseminar.org/ethics/courses/29/index/screen.do>, and the interview questions are here: <http://faculty.chass.ncsu.edu/comstock/langure/documents/InterviewPIworksheet.pdf>.

Many thanks.

Gary

## Hour 5

*Goals: Introduce research as critical inquiry and ethics, cover mentoring and URMs*

1. Today's assignment:
  - 1.0 My interests
    - 1.5 Inquire critically
    - 1.6 Strengthen the community
    - 1.7 Egoism's weaknesses
  - 2.0 Our interests
    - 2.1 Contractualism
    - 2.2 Professional codes
    - 2.3 Mentoring
    - 2.4 Women and under-represented groups
2. On board: Today:
  1. Review
  2. Critical inquiry
  3. What is ethics? Egoism and contractualism
  4. Mentoring
  5. Women and URMs
3. Review: Last week we covered:
  1. Intro to Research Ethics; 2. Report falsification (Mary Allen); 3. Plagiarism; 4. My ethical method
4. Lecture: Our ethical method: Egoism and contractualism
5. What is a profession? Professional codes (20 minutes)

Exercise: Professional codes

Working with a partner, discuss this question: Of what practical use are theoretical considerations in research ethics? Find an example of a rule within your professional code and explain which considerations the theory of egoism would consider relevant in evaluating (either justifying or condemning) that rule.

OR:

1. Find 2 partners. At least one of them preferably **not** in your department.
2. Find 3 rules that each of your codes share ("common" rules).
3. Write them on the board, or, if the rule is already on the board, place the name of your profession's code next to it.
4. Find 1 rule in your code not shared with your partner's codes. Write it on the board.
5. Discussion question: What is the value of professional codes? (See Varner)

## Hour 6

### 1. Exercise: Professional codes (20 min.)

1. Find 2 partners. At least one of them preferably not in your department.
2. Find 3 rules that each of your codes share ("common" rules).
3. Write them on the board, or, if the rule is already on the board, place the name of your profession's code next to it.
4. Find 1 rule in your code not shared with your partner's codes. Write it on the board.

### 2. Critical inquiry: Research official definition; asking questions; expectation bias (Galileo and Saturn's 2 moons); Let's Make a Deal applet (20 min.)

### 3. Mentoring (last 15 minutes)

Use the *PPT at OpenSeminar Module 2.4*

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### Assignments (Hours 7 and 8):

#### 1. Read:

- 2.6 Authorship and peer review
- 2.7 Statistics and experimental design
- 2.8 Intellectual property
- 2.9 Conflicts of interests; collaborative research

#### 2. Interview your mentor (supervisor, or dept. chair)

*A hard copy is at the end of this Instructor's Guide, and here:*

<http://www.chass.ncsu.edu/langure/documents/InterviewPIworksheet.pdf>

## Hour 7

*Goals: Cover authorship, use of statistics, IP, and COI*

1. On board: Today:
  1. Review
  2. Authorship
  3. Interviews with PIs
  3. Statistics
  4. IP and COI
  
2. Review: Last week we covered:
  - 1.5 Inquire critically
  - 1.6 Strengthen the community
  - 1.7 Egoism's weaknesses
  - 2.1 Contractarianism
  - 2.2 Professional codes
  - 2.3 Mentoring
  - 2.4 Women and under-represented minorities
  
3. Authorship: *Gunsulas/Loui (and/or Ryerson) exercise. See Module 2.5 for instructions (90 minutes)*

*PPT:* G. Comstock: OpenSeminar Module 2.5, [Authorship \[PPT\]](#)
  
4. Mentor interviews (10 min)

## Hour 8

1. Statistics (25 min)

*PPT:* G. Comstock: OpenSeminar Module 2.7, [Responsible use of statistics \[PPT\]](#)

2. IP and COI (10 min)

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3. Assignment for hours 9 and 10:

2.95 Use of humans (Belmont Report)

## Hours 9 & 10

1. On board: Human subjects

*Milgram exercise. See Module 2.95 for instructions*

Complete NC State Research Administration's Online Compliance Tutorial on Human Subjects:  
<http://www.ncsu.edu/sparcs/training/>

If you are or will be using animals in your research, complete NC State Research Administration's Online Compliance Tutorial on Animal Subjects:  
<http://www.ncsu.edu/sparcs/training/>

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3. Assignment for hours 11 and 12: Read:

2.99 Contractualism's plausibility

### **3.0 All interests**

- 3.1 Utilitarianism
- 3.2 Animals
- 3.3 The environment
- 3.4 Social responsibilities of researchers
- 3.42 Social mission of universities

## Hours 11 & 12

EITHER: Dismiss class so students can attend discipline-specific seminars. Students meet with faculty in their own departments or inform me of a seminar they will attend on ethical issues specific to their discipline.

OR: Animals in research

### 1. Readings for hours 11 and 12:

- 3.3 The environment
- 3.4 Social responsibilities of researchers
- 3.42 Social mission of universities

### 2. Use of Animals in Research

Comstock, Should We Replace Animals with Humans in Research? ppt

### 3. Assignment for hours 13 and 14: Read:

- 3.5 Life-long learning

## Hour 13

1. Life-long learning

*PPT:* G. Comstock: OpenSeminar Module 2.95, [Use of animal and human subjects in research \[PPT\]](#)

## Hour 14

2. Course evaluations
3. Watch for an email from me with instructions for completing the Post-test

I've enjoyed having you in Research Ethics. The last assignment is online and will take you no more than 45 minutes. As you know, I am participating in a UNC-system educational grant to enhance education about research ethics. As part of the project, a group of professors across North Carolina is conducting educational research about the most effective ways to provide this training. Toward this end we are surveying graduate students enrolled and not enrolled in research ethics courses.

If you completed the Pre-test before starting PHI 816 you should now complete the Post-test. If you did not complete the Pre-test, do not take the Pos-test.

1. Go to the "EAREE" Pre-test: <https://survey.ecu.edu/perseus/se.ashx?s=0B87A656764CA244>
2. Follow instructions.
3. When you come to note #8 you will be asked whether you consent to let your answers be used in our research study, the Extend and Assess Research Ethics Education initiative (EAREE) funded by the National Science Foundation. If you give permission, EAREE will use your responses for research purposes only. All responses will be summarized, reported and/or published only in the aggregate. You will not be identified. All educational research data are kept strictly confidential and protected to the maximum extent allowable by law. Your answers will not be available to me and will not be considered as part of your grade for this class. Therefore, I hope you WILL give permission because doing so will help improve the class.
4. Are you a "control" student? = No
5. Create an identifying number as instructed
6. Student School = NCSU
7. Student Major = [fill in the designator you created when you took the Pre-test, e.g., PY for Physics, BME for Biomedical Engineering]
8. Gender =
9. Age =
10. Click "Continue"

Complete the survey. DO NOT LOOK UP THE ANSWERS. The results of this survey will NOT be a part of your grade.

Thanks.  
Gary Comstock

Rob Streiffer exercises:

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### Exercise – Relating Codes to Theories

Of what practical use are theoretical considerations in research ethics? Find an example of a rule within your professional code and explain how different theories of ethics would direct us to different considerations in evaluating (either justifying or condemning) that rule.

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Students identify Ethical issues in labs and work environments

1. Divide into small groups of three people. One person should be designated as the note-taker and reporter.
2. From the list, select the one issue that you think is the most *common* and the one issue that you think is the most *serious*. Drawing on the readings and class discussions so far, specify precisely what you think those issues are.
3. For one of the two issues, describe two alternative strategies that a lab might adopt to minimize the occurrence of the issue and to respond to it when it occurs. Evaluate those strategies.

Ethical issues facing the professions

1. Divide into small groups of three people. One person should be designated as the note-taker and reporter.
2. From the list, select the one issue that you think is the most *common* and the one issue that you think is the most *serious*. Drawing on the readings and class discussions so far, specify precisely what you think those issues are.
3. For one of the two issues, describe two alternative strategies that the profession might adopt to minimize the occurrence of the issue and to deal with it when it occurs. Evaluate those strategies.

# Mentor Interview

Working with your departmental partner, pick a research group in your department and interview the leader (or the leader's designee) about authorship practices and record-keeping. Record your findings and be prepared to discuss them in class.

## 1. Authorship Practices

1. What criteria does the group use for determining **who is an author on a paper**? You might want to consider such possible contributions as: overall project design, project funding, design of individual experiments, data collection, data analysis, data interpretation, literature searches and review, writing, editing, and preparation of figures.
2. What criteria does the group use for determining who is **FIRST author**?
3. What criteria does the group use for determining who is **LAST author**?
4. What criteria does the group use for determining who receives an acknowledgement?
5. What practices does the group consider "**courtesy authorship**" and what is the group policy on courtesy authorship?
6. Who in the group has the right to decide authorship?
7. Have relationships ever been strained due to differing views on authorship? If so, without naming the persons involved, what happened?

## 2. Record-keeping

1. What classes of research records are maintained by the group (research notebooks, computer files, films, culture collection lists, etc.)?
2. What are the policies (explicit or assumed) of the group on how research notebooks are to be created and maintained? Include the following information:
  - Any specific type of notebook (bound, loose-leaf, electronic)? If the notebook is bound, is there any particular style that the lab prefers? (If possible, bring an example to class.)
  - Any particular type of writing instrument (ballpoint pen, India ink pen, pencil)?
  - What type of information is to be kept in the notebook (dates, experiment number, title, purpose, approach, methods, protocols, results, data sheets, graphs, computer files, conclusions, suggestions for future experiments, signatures, etc.)?
  - Any policies on how the above information is organized in the notebooks?
  - Any policies on re-writing notes before putting them into a notebook?
  - Who owns the notebooks?
  - Who has access to the notebooks?
  - How long must the notebooks be kept? Who must keep them? Any policies on removal of notebooks from the premises? Any policies on copying the notebooks?
3. Has the group ever suffered because of improperly or inadequately kept notes?

[Based on worksheet by Charlotte Bronson, Iowa State University]

### 3. Education in Research Ethics

Read this statement to your supervisor:

The National Institutes of Health now requires education in responsible conduct of research (RCR) for all graduate students receiving support from NIH training grants. RCR includes the following topics:

1. Data acquisition, management, sharing, and ownership
2. Mentor/trainee responsibilities
3. Publication practices and responsible authorship
4. Peer review
5. Collaborative science
6. Human subjects
7. Research involving animals
8. Research misconduct
9. Conflict of interest and commitment
10. Social responsibilities of researchers

1. How is knowledge of these issues passed on in the lab? Is it mostly informal mentoring relationships? Or are there structured occasions, such as seminars or courses?
2. Is the PI satisfied that colleagues in the department are sufficiently communicating RCR to their graduate students?
3. If the answer to #2 is negative, what more does the PI think the department should be doing?
4. Is the PI aware of PHI 816, "Introduction to Research Ethics?" taught for 1.0 credit, typically on the first seven Monday or Tuesday afternoons of each term?

<http://www.chass.ncsu.edu/langure/documents/InterviewPIworksheet.pdf>

### **Troubleshooting OpenSeminar problems:**

1. If you cannot access the server, send an email to John Jernigan at NC State University:  
[jajerni2@unity.ncsu.edu](mailto:jajerni2@unity.ncsu.edu)