

UTK EEB 409/504
Scientific Research Ethics for Biologists
Spring 2017 Syllabus

Instructor

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Office hours: Tuesday 1-2pm

Meeting Information

TTh 9:40-10:55am
Location: Dabney 488

Teaching Assistant

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Office location: 437a Hesler
Office hours: Thursday 11:30-12:30
(and by appointment)

Course Description

What constitutes ethically responsible scientific research? This course will introduce the ethics of scientific research with emphasis on the biological sciences, from genetic to ecological research. We will examine historical and contemporary case studies, ethical principles and legal regulations for responsible research, and current controversies. Topics will include integrity in citation and management of data, mentoring, collaboration, authorship, and publication, ethics and intellectual property, the allocation of resources for research, the ethics and politics of genetic research, protection of human subjects, the ethics of research on marginalized and vulnerable populations, the ethics of research using non-human animals, and ethical issues in conservation biology and ecological fieldwork. Students will write weekly commentaries, complete a term paper, and present on a case study of their choice.

Goals and Learning Objectives

Students will develop their skills in normative reasoning, creative critical thinking, argumentative writing, and oral presentation. Students will leave the course with a thorough understanding of research ethics in theory and practice, and an ability to analyze ethical problems that arise for scientific researchers in the life sciences and elsewhere. Students will also engage in team-based learning, developing skills in creative and effective collaboration. *Fulfills General Education Writing Requirement.*

Course Requirements and Grading

Individual Participation Grade (25%): At a minimum, participation means *attendance*: being physically present and alert, actively listening to lecture and student comments

and questions, speaking up when you have a question or comment, and participating in all activities. The individual participation grade includes: (1) attendance at every class period with one unexcused absence allowed (10%); and (2) grades on commentaries, *submitted before class*, which will test your preparation and comprehension of the readings as well as your ability to clearly pose a question or present an informed opinion or argument (15%). One free pass: the lowest commentary grade (or '0') will be dropped.

Team Participation Grade (20%): 5-person teams will be created in the first week of class that will carry through the whole semester. They will be constructed by the instructor with an eye toward diversity. Early team activities will involve group discussions with open-ended questions to answer as a group and report to class on an online discussion forum, while later in the semester, teams will develop more detailed presentations.

Final research paper (30%): Final research paper will discuss an ethical issue relating to research in the biological sciences in depth (~8-10 pages), discussing at least two different points of view.

- 5% Outline/draft, bibliography, and preparation, due April 6.
- 25% Final paper, due Monday, May 1.

Individual presentation (25%): Each student will make a ~10 minute presentation on the ethics of a particular study or methodology in the life sciences.

- 10% Preparation and slides.
- 15% Final product.

Grading scale:

<i>Exemplary</i>	<i>Good</i>	<i>Satisfactory</i>	<i>Unsatisfactory Failure</i>	
93-100 A	88-89 B+	78-79 C+	68-69 D+	0-59 F
90-92 A-	83-87 B	73-77 C	63-67 D	
	80-82 B-	70-72 C-	60-62 D-	

Course Policies

Absences: Absences may be excused for medical and family emergencies only, not for other activities. In documented excused absences, make-up work may be assigned. Email the instructor documentation or details to get make-up work. Otherwise, one unexcused absence allowed (or, drop the lowest individual/group participation grade). Other unexcused absences will result in a '0' for the individual/group participation assignments for that day.

Late assignments: Assignments are due by email before midnight on the dates given on the syllabus. Late papers or missed exams will not be accepted, except in cases of

medical and family emergencies. In these cases, documentation of emergency situation will be required.

Office hours: Feel free to stop by my regular office hours without an appointment, even if you don't have any particular questions or would just like to chat in general about the course. I'm also happy to make appointments outside of my regularly scheduled office hours.

Discussion during class: *Discussion and debate during lecture is encouraged.* Discussion and disagreement should be respectful. Raise a hand for comments, questions, and follow-ups.

Technology: *No using phones in class.* All phones should be put away and silenced during class. *Laptops may only be used for specific class activities, otherwise they should be closed.* All lecture notes and slides will be made available online.

Academic Integrity: Academic dishonesty of any kind will not be tolerated and **will result in a failing grade for the course.** Academic dishonesty includes:

- *Plagiarism*, i.e. using someone else's words or ideas without quotation and/or citation where appropriate.
 - *Use your own words. If you paraphrase someone else, you need to cite them. If you use someone else's words, you need to quote and cite them. (General rule: If you look it up, cite it.)*
 - Using a paper you (or someone else) wrote for another class for this class;
- Collaborating with other students on a non-collaborative assignment, e.g. sharing pre-written answers for a test or using someone else's paper from a previous course. However, collaboration in the form of *conversation* and group studying is encouraged for most assignments.

If you are not sure what counts as academic dishonesty or plagiarism in a particular case, *please talk to me.*

Students with Disabilities: All students with disabilities will be accommodated. These students should see the instructor *at the beginning of the course* to discuss appropriate accommodations.

Required Texts and Recommended Resources

Required: Shamoo, Adil E. and David B. Resnik. 2015. *Responsible Conduct of Research*, 3rd edition. Oxford University Press.

Be sure to purchase the third edition. Copies of this textbook will be available at the UTK bookstore. It is also available through online retailers like Amazon and through the Oxford University Press website.

Recommended: Other resources I will be drawing from, but will not require, are available to read for free on either the UTK library's website (Stewart), the UTK Office of Research & Engagement website (Steneck) or on [Canvas](#), in the "Readings" folder (both):

- Stewart, C. Neal. 2011. *Research Ethics for Scientists: A Companion for Students*. Wiley.
- Steneck, Nicholas H. 2007. *ORI Introduction to the Responsible Conduct of Research*. US Department of Health and Human Services.

Other readings will be made available on the course website.

Course Schedule and Readings

Date	Unit	Topics	Readings, activities, and assignments
Th Jan 12	Welcome! Introductions	Syllabus and expectations for the course.	Syllabus. Case studies for discussion.
T Jan 17	What is research ethics? What is research misconduct?	Ethical reasoning. Ethics and scientific research.	Shamoo and Resnik, chapter 1, "Scientific Research and Ethics." <i>Commentary on chapter 1 due before class.</i>
Th Jan 19		Research misconduct.	Shamoo and Resnik, chapter 2, "Misconduct in Research." <i>Team discussion assignment.</i>
T Jan 24		Review, case studies, and discussion of codes of conduct.	<i>Codes of conduct commentary due before class.</i> <i>Team discussion on codes of conduct.</i>
Th Jan 26	Integrity and the scientific process from data to publication	Data acquisition and management ethics.	Shamoo and Resnik, chapter 3, "Data acquisition and management." <i>Commentary on chapter 3 due before class.</i>
T Jan 31		Mentoring ethics.	Shamoo and Resnik, chapter 4, "Mentoring." <i>Commentary on chapter 4 due before class.</i>
Th Feb 2		Collaboration ethics.	Shamoo and Resnik, chapter 5, "Collaboration within academia and with industry." <i>Team discussion</i>

			<i>assignment.</i>
T Feb 7		Review, case studies, and discussion.	<i>Team discussion assignment.</i>
Th Feb 9		Authorship ethics.	Shamoo and Resnik, chapter 6, "Authorship." <i>Team discussion assignment.</i>
T Feb 14		Publication and peer review ethics.	Shamoo and Resnik, chapter 7, "Publication and peer review." <i>Commentary on chapter 6-7 due before class.</i>
Th Feb 16	Intellectual property	Intellectual property ethics.	Shamoo and Resnik, chapter 8, "Intellectual property." <i>Team discussion assignment.</i>
T Feb 21	Conflicts of interest and objectivity	COI and objectivity.	Shamoo and Resnik, chapter 9, "Conflicts of Interest and Scientific Objectivity." <i>Commentary on chapter 8 or 9 due before class.</i>
Th Feb 23			<i>Team presentations on conflicts of interest and objectivity and/or IP.</i>
T Feb 28	Non-human animals in research	Non-human animals.	Shamoo and Resnik, chapter 10, "The Use of Animals in Research." <i>Commentary on chapter 10 due before class.</i>
Th Mar 2			Animal use case studies. <i>Team presentations.</i>
T Mar 7	Human subjects protection	Human subjects research ethics scandals, human subjects protection regulation and IRBs	Shamoo and Resnik, chapter 11, "The Protection of Human Subjects in Research." <i>Commentary on chapter 11 due before class.</i>

Th Mar 9		Human subjects case studies.	<i>Team presentations on human subjects case studies.</i>
SPRING BREAK			
T Mar 21		Human subjects case studies. Study design and IRB oversight.	Reading: Shweder and Nisbett, "Long-sought research deregulation is upon us. Don't squander the moment." Case studies for discussion.
Th Mar 23	Science and social responsibility	Science and social responsibility.	Reading: Shamoo and Resnik, chapter 12, "Science and Social Responsibility," and 13, "Conclusion." <i>Discussion of paper and presentation topics.</i> <i>Schedule presentations.</i>
T Mar 28		Science and social responsibility case studies	Readings: Jonathan Marks, "A Human Gene Museum?" Yudell et al., "Taking Race out of Human Genetics." Golden, "Why the Professor Went to Prison: Is John Reece Roth a martyr to academic freedom or a traitor?" <i>Final long commentary on chapter 12-13 and one of the March 28 readings due before class.</i>
Th Mar 30			<i>Guest lecture/discussion led by Robert Nobles.</i>
T Apr 4	Ethics and genetic engineering		Readings: Michael Specter, "Rewriting the Code of Life." Visiting discussant: Neal Stewart.
Th Apr 6			DRAFT REVIEW DAY

T Apr 11	Ethics and ecology	Fieldwork and ethics and ecology case studies.	Costello, M.J. et al. "Field work ethics in biological research." Dudycha, J.L., and Geedey, C.K., "Ethical Issues in Ecology: Case Studies."
Th Apr 13	Ethics and conservation biology		Readings: TBA.
T Apr 18			Presentations scheduled: Quandry and the Ethics
Th Apr 20			Presentations scheduled: UTDM
T Apr 25			Presentations scheduled: Undecided.
Th Apr 27			Presentations scheduled: Team Rocket
