Biological Futures

in a GLOBALIZED WORLD

Values 291
ETHICS IN SCIENCE

University of Washington, Seattle
Winter 2013: MWF 2:30 – 3:20, Savery 130
Course website: canvas.uw.edu

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Course Description:
In this course we will explore the ethics of science and scientific research – with an emphasis on the non-medical sciences. This course will provide a foundation for thinking about and recognizing the ethical dimensions of a variety of issues. We will become familiar with current ethical debates in a range of scientific fields. Topics will include: misconduct in research, conflicts of interest and scientific objectivity, publication and peer review, intellectual property, and ethical decision making. Students will engage these issues with the help of philosophical tools, apply these tools to case studies, and be challenged to think broadly about the role of scientists in society as well as learn how to critically assess the ethical consequences of science for humankind.

This course is sponsored by **Biological Futures in a Globalized World**, a cluster of initiatives hosted by the Simpson Center for the Humanities in partnership with the Center for Biological Futures at Fred Hutchinson Cancer Research Center. The goal of the Biological Futures program is to foster better thinking about the global impact of dramatic increases in biological knowledge that now put us in a position to manipulate and build living systems on an unprecedented scale.

Learning objectives:

- Students will learn key philosophical concepts related to responsible conduct of research.
- Students will develop familiarity with current debates in, and case studies of, ethical issues in non-medical scientific research.
- Students will acquire skills to describe and explain the rationale behind philosophical ethical positions.

- Students will practice thinking philosophically about real-world ethical issues/challenges in scientific research.

- Students will have the opportunity to reflect on the responsibilities that natural and social scientists, research subjects, and citizens jointly share for the wise direction and use of research.

- Students will demonstrate mastery of the objectives noted above orally, in written form, and in constructive debate.

Assessment

Participation:	10%
Case Study:	
Oral Presentation	15%
Paper	15%
Weekly Online Quizzes:	35%
Final Exam:	25%

Participation (10%)
Students are expected to attend and actively engage with the materials presented. We aim to establish an environment where mutual respect is accompanied by serious reflection on the material.

Case Study (Total 30%)
Student presentations of case studies will take place **every Monday beginning in Week 5**. Case studies should be based on current events – items found in such publications as the *New York Times, Discover, Science*, etc. Students should **attempt** to present a case study that is related to the topic of the lecture material discussed in the week they have chosen to present (e.g. a case study related to intellectual property during the week we discuss intellectual property, a case study related to animal subjects during the week we discuss animal subjects, etc.). Students will **sign-up** for their case study presentation date at the **end of Week 2**. The case study assignment may be thought of as containing four parts:

1) The **oral presentation** component (15**%**) of the case study will be done as a **group**. The presentation must be 10 minutes long. Parts 2 and 3 should be considered subsections of the oral presentation.
2) **By 5 p.m. on the Friday before** each presentation, groups presenting should post a **short reading** related to their case study under the appropriate case study listing in the Discussion section on the course website.
3) As part of their Monday presentation, each group should post a **handout** containing 3 – 4 **questions for discussion** under the appropriate case study listing in the Discussion section on the course website**.** This handout should be posted **by noon on the Monday** of the presentation.
4) The **written paper** component of the case study (15%) is due the Monday following the oral presentation. Papers should be **posted on-line by class time** under the Assignments section of the course website. Papers are to be written **individually**. Papers should be 500 – 1000 words in length, double-spaced, typical margins. Papers should reflect class discussion and feedback about oral presentations.

Weekly online quizzes (35%)
Quizzes must be completed before class each Monday (except for weeks when Monday is a holiday; in these cases, quizzes are due by class on Wed. following the holiday). Quizzes will be short answer, true/false, and/or multiple choice questions, and will be based on both weekly readings and material presented in lecture. Quizzes will be published by Friday at 5 p.m. under the Assignments section of the course website. There will be a total of nine quizzes. The lowest quiz will be dropped. There will be no make-up quizzes provided except in exceptional circumstances (e.g. with doctor's note, etc.).

Final Exam (25%)
The final exam will consist of multiple choice, short answer, and true/false questions. The content of these questions will come from both required reading assignments and material covered in lecture. Questions may also be related to the student case studies presented. **The Final Exam will take place on Tuesday, March 19, from 2:30 – 4:20 in Savery 130.**

Course Policies:

Grade Conversions:

Grade Point	Percentage
4	95-100
3.9	94
3.8	93
3.7	92
3.6	91
3.5	90
3.4	89
3.3	88
3.2	87
3.1	86
3	85
2.9	84
2.8	83
2.7	82
2.6	81
2.5	80
…	…

Getting help from the instructor(s):
Students are encouraged to meet with the instructor during office hours (or by scheduling an appointment). To get the most out of their time with the instructor, students are encouraged to come prepared with specific questions. Short questions are also welcome via email, but the instructor will *not* read outlines or drafts of papers sent via email.

A Note about Plagiarism:
Plagiarism and other forms of dishonest practice are unacceptable. Plagiarism is defined as the use of creations, ideas or words of publicly available work without formally acknowledging the author or source through appropriate use of quotation marks, references, and the like. Plagiarizing is presenting someone else's work as one's own original work or thought. This constitutes plagiarism whether it is intentional or unintentional. Plagiarism may lead to

disciplinary action by the University against the student who submitted the work. Any student who is uncertain whether his or her use of the work of others constitutes plagiarism should consult the course instructor for guidance before formally submitting the course work involved. *(Sources: UW Graduate School Style Manual; UW Bothell Catalog; UW Student Conduct Code)*

Be sure to check the course website regularly in case of any announcements.

Texts:
There is one required text: Shamoo, Adil E. and Resnik, David B. *Responsible Conduct of Research,* 2nd ed. New York: Oxford University Press, 2009.

Two copies of the text are available on reserve in Odegaard Library. (Note: one of these copies is an earlier edition. Please be aware that page numbering, etc. may be slightly different.)

There will also be several readings available under the Files section on our Course Website (see Reading List below).

Website Reading List (available under Files section):

Advisory Committee on Human Radiation Experimentation, *The Human Radiation Experiments: Final Report of the President's Advisory Committee*. http://www.hss.energy.gov/HealthSafety/ohre/roadmap/achre/chap12_3.html.

Adam, David and Jonathan Knight, "Publish, and be damned…," *Nature* 419 (2002 Oct. 24): 772-776.

Beckwith, Jon and Franklin Huang, "Should we make a fuss? A case for social responsibility in science," *Nature Biotechnology* 23 (2005): 1479 – 1480.

Barrow, Craig S. and James W. Conrad, Jr., "Assessing the Reliability and Credibility of Industry Science and Scientists," *Environmental Health Perspectives* 114(2) (2006): 153-155

Kunzig, Robert, "Geoengineering: How to Cool Earth – At a Price," *Scientific American Magazine* (2008 October 20). http//www.scientificamerican.com/article.cfm?id=geoengineering-how-to-cool-earth&pri…

McArthur, Dan, "Good Ethics Can Sometimes Mean Better Science: Research Ethics and the Milgram Experiments,"*Science and Engineering Ethics* 15 (2009): 69-79.

Moore, Adam and Kristene Unsworth, "Information Ethics: An Introduction. In *Information Ethics: Privacy, Property, and Power,* ed. Adam Moore (Seattle: University of Washington Press, 2005), 11-28.

Nature Editorial, "Three cheers for peers." *Nature* 439 (2006 January 12): 118.

Resnik, David B. "The Scientist in Society." In Resnik, *The Ethics of Science: An Introduction*. (New York: Routledge, 1998), 147 – 172.

Rotblat, Joseph, "A Hippocratic Oath for Scientists." *Science* 286 (1999): 1475

Sarewitz, Daniel, *How science makes environmental controversies worse.* Environmental Science & Policy 7 (2004): 385-403.

Weekly Lecture and Reading Schedule
Reading assignments (bullet points) or other Homework (HW) should be completed by class time **on the day it is listed**. Readings that are not from our text book are available on our course website, and are noted below with a (**W).**

Week #1: Course Introduction
1/7 – Introduction of syllabus. Introduction to Ethics/Normative language.
- No reading.

1/9 – Case Study: Video "The Lab"
- Reading – Shamoo & Resnik, Chapter 1

1/11 – Discuss At-home adventure.
- Reading Rothblat (**W)**
- HW – "At-home adventure" – view video again and take a different path (make a different decision) from that discussed in class. Video available at: http://ori.hhs.gov/thelab

Week #2: Ethical Theory & Moral Reasoning
1/14 – Ethics and Ethical Theory
- Reading – Shamoo & Resnik, Chapter 2, pp. 14 – 24.
- HW - Quiz #1 due online.

1/16 – Moral Reasoning
- Reading – Shamoo & Resnik, Chapter 2, pp. 24 – 38.

1/18 – Ethics and Moral Reasoning, continued
- No reading.
- **Sign-up for Student Case Study presentations**

Week #3: Case Studies - Medical Research in the Marshall Islands and Geoengineering
1/21 – Martin Luther King Day – **No Class**!

1/23 – Medical research in the Marshall Islands
- Reading – Advisory Committee on Human Radiation Experiments, Chapter 12 – The Marshallese (**W)**
- HW - Quiz #2 due online

1/25 – Geoengineering
- Reading – Kunzig (**W)**

Week #4: Data Acquisition & Management, Publication & Peer Review
1/28 – Case Study of both topics - H5N1
- Reading – Shamoo & Resnik, Chapter 3
- HW - Quiz #3 due online.

1/30 – Publication and Peer Review
- Reading – Shamoo & Resnik, Chapter 7
- HW (for groups presenting on 2/4) – be sure to have readings ready for posting on Friday by 5 p.m.

2/1 – Publication and Peer Review continued
- Readings – *Nature* editorial, Adam & Knight (**W)**
- Readings for Monday's Student Case Studies posted by 5 p.m. by student presenters

Week #5: Intellectual Property
2/4 – Student Case Studies #1 & #2 with discussion
- Readings – Students' Assigned Readings
- HW - Quiz #4 due online

2/6 – Intellectual Property
- Reading – Shamoo & Resnik, Chapter 9
- HW - (for groups presenting on 2/11) – be sure to have readings ready for posting on Friday by 5 p.m.

2/8 – **Guest Lecture** by Adam Moore, UW Department of Philosophy
- Reading – Moore & Unsworth (**W**)
- HW - Readings for Monday's Student Case Studies posted by student presenters by 5 p.m.

Week # 6: Science, Society, and Social Responsibility
2/11 – Student Case Studies #3 & #4 with discussion
- Readings – Students' Assigned Readings
- HW - Quiz # 5 due online
- HW – Case study papers due groups #1 & #2

2/13 –The Scientist in Society
- Reading – Resnik, Chapter 8 (**W**)
- HW - (for groups presenting on 2/20) – be sure to have readings ready for posting on Friday by 5 p.m.

2/15 – Science & Social Responsibility
- Readings – Beckwith & Huan (**W**), Barrow & Conrad (**W**)
- HW - Readings for Wednesday's Student Case Studies posted by student presenters by 5 p.m.

Week #7: Animal Subjects in Research
2/18 – President's Day – **No class!**

2/20 – Student Case Studies #5 & #6 with discussion
- Readings – Students' Assigned Readings
- HW - Quiz #6 due online
- HW - (for groups presenting on 2/25) – be sure to have readings ready for posting on Friday by 5 p.m.
- HW - Case study papers due groups #3 & #4

2/22 – Animal Subjects

- Readings – Shamoo & Resnik, Ch. 12
- HW - Readings for Monday's Student Case Studies posted by student presenters by 5 p.m.

Week # 8: Human Subjects in Research

2/25 – Student Case Studies #7 & #8 with discussion

- Readings – Students' Assigned Readings
- HW - Quiz #7 due online
- HW – Case study papers due groups #5 & #6

2/27 – The Milgram Experiments

- Reading – McArthur (**W**)
- HW - (for groups presenting on 3/4) – be sure to have readings ready for posting on Friday by 5 p.m.

2/29 – Human Subjects in Research

- Reading – Shamoo & Resnik, Chapter 12
- HW - Readings for Monday's Student Case Studies posted by student presenters by 5 p.m.

Week #9: Vulnerable Human Subjects & International Research

3/4 – Student Case Studies #9 & #10 with discussion

- Readings – Students' Assigned Readings
- HW - Quiz #8 due online
- HW – Case study papers due groups #7 & #8

3/6 – Vulnerable Human Subjects

- Reading – Shamoo & Resnik, Chapter 13

3/8 – International Research

- Reading – Shamoo & Resnik, Chapter 15

Week #10: Environmental Ethics and Course Wrap-up

3/11 – Science and Environmental Controversies

- Reading – Sarewitz (**W**)
- HW – Quiz #9 due online
- HW – Case study papers due groups #9 & #10

3/13 – What now?

- Reading – Shamoo & Resnik, Chapter 16

3/15 – Course wrap-up and final Review

FINAL EXAM - Tuesday, March 19, from 2:30 – 4:20 in Savery 130.