

PHIL 291 | VAL 291: ETHICS IN SCIENCE

Department of Philosophy
University of Washington, Seattle

Winter 2016

Lectures: T/Th 1:30-2:50, Smith 211

Sections: W/F 12:30-1:20 & 1:30-2:20, Savery 130

Course website: <https://canvas.uw.edu/courses/1142392>

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Course Description

Scientific research has an impact on all of us, and on every aspect of our lives. Most of us will be research subjects at one time or another; all of us are affected by science-based policies; our everyday-lives have been transformed by the results of scientific research – in good and bad ways. Scientific research raises ethics issues that have never been more pressing or more consequential than now. This course is designed to explore these issues, primarily with reference to the non-medical sciences. It is intended for students from across the social and natural sciences, as well as for philosophers.

We will focus not only on the ethics issues addressed by guidelines for 'responsible conduct of research' (RCR) – research integrity; professional conduct in training and collaboration; appropriate credit and authorship; safety and confidentiality – but also on issues of accountability for the social and environmental impacts of research, and broader questions about values embedded in scientific practice that are often not recognized as ethical. These include the following questions:

- What counts as research misconduct? Outright fraud is clearly unacceptable, but what about more subtle forms of error and misrepresentation?
- Is it justified to put human or animal subjects at risk in the name of science?
- What responsibility do scientists have for the consequences of their research, both good and bad, and including unintended and unforeseen consequences??
- Are there lines of inquiry scientists should not pursue?
- Should scientists play an active role in policy debates about science and on issues informed by their science?

To set the framework for case-based analyses of these issues our point of departure will be a close reading of philosophical analyses of the role of values in science and of ethical obligations specific to the sciences. We then turn to a selection of case studies that illustrate questions about research integrity and accountability as they arise in practice, and consider how they have been addressed. These include high profile examples of the kinds of fraud and error that have resulted in the retraction of a growing number of published results; the recent controversy about 'gain of function' influenza research; the longstanding debate about deception research in experimental psychology; the challenges of meeting 'stewardship' obligations to diverse stakeholders in archaeological and historical research; and questions about the role of scientists in public debate about global climate change. Our aim is to challenge you to think broadly about the role of scientists in society and to critically assess the ethical consequences of science for humankind and the social, natural environments in which we live.

Texts

All assigned readings are available as PDFs and web links on 'weekly readings' page

Learning objectives

Our goals for this course are that you will:

- learn key philosophical concepts related to the responsible conduct of research;
- develop familiarity with current debates in, and case studies of, ethical issues in non-medical scientific research;
- acquire skills of analysis that put you in a position to describe and explain the rationale for divergent ethical positions;
- apply philosophical analysis to real-world ethical issues and challenges in scientific research;
- demonstrate these skills and the relevant content knowledge in oral and written form, and in constructive debate.

Course requirements

Participation:	10%
Concept work essay:	10%
Case study essay (15%) & group presentation (10%):	25%
Weekly quizzes (15%) & reading responses (15%):	30%
Final Exam – June 9, 2:30-4:20:	25%

Participation (10%)

It is crucial that you come to the lectures and to your quiz section meetings prepared to actively engage the issues we will be discussing; be sure to do the assigned reading and any special assignments in advance of class meetings! We ask, too, that you help us establish an environment in which mutual respect makes it possible for everyone in the class to bring their distinctive experience and perspectives to bear on the issues we will be discussing.

Concept work essay (10%)

In the first section of the course we explore ethics concepts and accounts of the role of values in science that will provide a framework for thinking about the case studies we discuss later in the quarter. Your first assignment is to write a short **descriptive/analytic essay of 2-3 pages (500-750 words)** on one of these key concepts or principles. More detailed guidelines for this and other assignments are available on Canvas. This essay is due at the end of the 4th week: **Friday, April 21, 5:00 pm**.

Case study project (total 25%)

This assignment has two components: a group presentation and an individual essay. Group presentations will be scheduled for class meetings in Week 5 through Week 9. You must **sign up for one of these presentations by the end of Week 2 (Friday, April 7)**; to do this, follow the link to 'presentation groups' on the Canvas "people" page and add yourself to the week that looks best for you. The case you choose should complement the readings assigned in the week when your presentation is scheduled and should be based news stories and commentary published in contexts like the *New York Times*, *Science*, *Nature*.

In-class group component (10%)

- Oral in-class presentation: this should be **15-20 minutes long** and given as group. You choose the format: you can give a panel-style overview of the case and the ethics issues it raises or, for example, you could present this content in the form of a debate, an enactment of a conflict mediation, a challenge for working groups to deliberate on in class.
- Presentation handout: by **5:00 pm on the evening before your presentation**, post on Canvas a brief description of the case you will discuss and a set of focal questions for discussion.

Individual written component (15%)

- Each member of a presentation group is required to write an individual short paper informed by class discussion and feedback on your oral presentation. This essay should be **3-5 pages long (750-1250 words)**, and is due by **5:00 pm on the Friday following your presentation**.

Weekly quizzes and reading responses (total 30%)

We will base this component of the grade on your five best reading responses and five best quizzes.

Reading responses (15%):

- You are required to **post short reading responses to assigned readings at least five times during the quarter**. These should be a paragraph or two long. Focus on a single reading; identify a key concept, issue, or argument presented by the author and raise one or two questions for class discussion.
- Reading responses must be posted on the Canvas discussion board by **5:00 pm the evening before the class meeting** in which the reading you comment on will be discussed.
- **Everyone is required to post one reading response in the first week and one in the final week of the quarter**. Post your additional reading responses (at least three of them) in any other week of the quarter **except in the week when your case study presentation is scheduled**. Everyone is urged to read these posts and come to class prepared to discuss them; **online comments are welcome!**

Quizzes (15%):

Periodic short-answer quizzes will be assigned on the weekly readings and lecture material in the discussion sections.

Final Exam (25%)

The final exam will consist of short answer, concept-definition questions and two longer essay questions chosen from a pre-circulated list of study questions. The final exam will take place on **Friday, June 9, 2:30-4:20 in Smith 211**.

Writing credit option:

If you would like to take this course for writing credit you must confirm this by the end of the third week: **Friday, April 14**. If you choose this option the course requirements are the same for participation, the concept work essay, the case study presentation and the final exam, but the **reading response requirements** are scaled back and, instead, you are required to revise and expand your individual case study essay. Here are the details:

- **Reading responses:** you are required to post **only the first and last week reading responses** that required of everyone; additional reading responses are welcome and we will count your best two toward your final grade.
- **Case study essay:** in place of the three additional reading responses others are required to post, you will revise and expand your case study essay into a **term paper of 10-12 pages** (2500-3000 words), in light of feedback from the instructors. This essay is due at the beginning of the exam week: **Monday, June 5 at 5:00**.

Writing credit grade distribution: as outlined above for participation, the concept work essay, presentation, and final exam, but reading responses will count for 5%, and the extended case study essay will count for 25% of the final grade.

Course Policies

What follows are policies specific to this course; for departmental and university policies please see "Information for Students."

Advising:

Consult with us early and often! Come to our office hours or schedule an appointment whenever you have questions about the readings, in-class discussions, or assignments. We're happy to discuss paper topics and to address short questions by email, but we will not be able to read outlines or drafts of papers sent by email.

Extensions, late policy, and incompletes:

Extensions of deadlines and/or arrangements to make up in-class work will be approved only in cases of genuine emergency. Contact the instructors immediately; specify the accommodation you are requesting and document the reasons for your request. Depending on the circumstances, late work will be penalized. We will follow the university policy on incompletes (see attached).

Plagiarism:

Plagiarism and other forms of dishonest practice are unacceptable. Plagiarism is a matter of presenting someone else's work or thought as your own; it includes the use of publicly available ideas and words, argument structure and sources without acknowledgement, as well as submitting another student's work as your own. For the details, please see the summary of the University policy on plagiarism (attached); if you are unsure whether your use of work of others constitutes plagiarism, consult the course instructors and check the UW guidelines: <https://depts.washington.edu/pswrite/plag.html>

Grade to mark conversion:

All assignments will be marked out of 100 points, then weighted as specified and converted to a final grade on the 4.0 scale.

Grade Point	%	Grade Point	%	Grade Point	%
4.0	97-100	3.0	85	2.0	75
3.9	94-96	2.9	84	1.9	74
3.8	93	2.8	83	1.8	73
3.7	92	2.7	82	1.7	72
3.6	91	2.6	81	1.6	71
3.5	90	2.5	80	1.5	70
3.4	89	2.4	79	1.5	69
3.3	88	2.3	78	1.3	68
3.2	87	2.2	77	1.2	67
3.1	86	2.1	76	1.1	66

Reading responses and presentations will be graded on a 'check/check-plus/check-minus' scale as follows.

✓++	4.0	A	97-100
✓+	3.7	A-	92
✓	3.0	B+	85
✓-	2.3	B	78
✓--	1.0	B-	66
NG	0.0	F	-

Weekly Lecture and Reading Schedule

- *Reading assignments (Readings)* and special assignments (**SA**) should be completed by class **on the day they are listed**. *Supplementary reading* is optional: additional background reading if you're interested.
- *Reading responses (RR)* must be posted by **5:00 pm** the evening before the class in which we will discuss the reading they address. Reading responses to set questions are required of everyone in the first and last weeks. You are welcome to address the reading questions (**RQ**) listed below in your reading responses, but do raise questions and issues of your own.

Week 1: Course Introduction

March 28 – Introduction to the course

*Friday quiz sections only this week

March 30 – Science and ethics: what are the issues?

Reading: Merton, "The Ethos of Science." In *On Social Structure and Science* (Chicago, 1996/1942).

SA: View the introduction and follow one story line in the video, *The Lab*: <http://ori.hhs.gov/thelab>

RQ: Does Merton's account of the "moral compulsives" typical of scientific communities ring true for contemporary science?

RR: Everyone post on this question: What is the most significant ethical issue raised by the science with which you are most familiar, and why is it an *ethical* issue? If you can, illustrate this issue with a concrete example.

Week 2: Ethical Theory and Moral Reasoning

April 4 – Moral and ethical theory

Reading: Beauchamp, Walters, Kahn, Mastroiani, "Ethical Theory and Bioethics." In *Contemporary Issues in Bioethics* (Wordsworth, 2008), pp. 1-33; focus on "Basic Concepts" (pp. 1-2), and "Moral Justification" (pp. 11-20).

Supplementary reading: Wylie, "On Ethics." In *Ethical Issues in Archaeology* (Altimira, 2003), pp. 3-15.

SA: Search out a definition of one of the moral theories described in these readings for discussion in class.

April 6 – Reasoning about ethics issues

Readings: Beauchamp et. al; focus on "Moral Dilemmas" (pp. 4-7), and "Casuistry" (pp. 20-22).

"Logic Concepts: A Brief Introduction" (handout)

SA: How do you address moral issues when you face a hard decision? How does your process compare to those described in the *The Lab*, and/or in the Beauchamp et. al reading?

Sign-up for Case Study presentation groups under the groups tab on the Canvas "People" page by **Friday, April 7**.

Week 3: Science and Social Values

April 11 – The 'value free ideal'

*Wednesday quiz sections only this week

Readings: Elliott, "Introduction to Values in Science." In *A Tapestry of Values* (Oxford, 2017), pp. 1-18.

Douglas, "Inductive Risk/Values in Science." *Philosophy of Science* 67 (2000): 559-579.

RQ: What kinds of values concern Douglas, and what role(s) do they play in scientific research?

April 13 – Working with values

Reading: Elliott, "How Should we Study?." In *A Tapestry of Values* (Oxford, 2017), pp. 41-60.

Writing Credit option: confirm your intent to take the writing credit option by **Friday, April 14**.

Week 4: Ethics Standards, Guidelines and Frameworks for Science

April 18 – Guidelines for responsible conduct

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

Resnik, "Standards of Ethical Conduct in Science." In *The Ethics of Science* (Routledge, 1998), pp. 53-73.

SA/RQ: Search out one set of ethics guidelines for a professional science association of your choice. What range of issues and which standards of ethical conduct are a priority for this association? What do you find missing?

April 20 – The ethical bases for guidelines

Reading: Douglas, "The Moral Terrain of Science." *Erkenntnis* 79 (2014): 961-979.

RQ: How does the code you reviewed compare with Resnik's and/or Douglas' guidelines?

CONCEPT WORK ESSAY DUE: Friday, April 21, 5:00 pm (online submission through Canvas)

Week 5: Research Integrity I: Fraud and Error

April 25 – Varieties of misconduct in research

Readings: Macrina, "The Responsible Conduct of Research." In *Scientific Integrity* (ASM Press, 2014), pp. 1-21.

SA: Review the U.S. Office of Research Integrity definition of 'research misconduct': <http://ori.hhs.gov/definition-misconduct>

April 27 – Diederich Stapel's audacious fraud

Reading: Bhattacharjee, "The Mind of a Con Man." *New York Times*, 28 April 2013.

RQ: Who's responsible? Who's affected? What needs to change to prevent this kind of fraud?

Week 6: Research Integrity II: Publication

May 2 – Credit, Authority, and Impact

Readings: Adam and Knight, "Publish, and be damned..." *Nature* 419 (2002): 772-77.

Lewontin, "Dishonesty In Science." *New York Review of Books*, 18 November 2004).

Supplementary Reading: Biagioli, "Recycling Texts: Plagiarism, Authorship, Credit in Science." *IJCP* 19 (2012): 453-476.

May 4 – H5N1 Gain of Function Research: To publish or not to publish?

Readings: Lipsitch & Galvani, "Ethical Alternatives to Experiments with Novel Potential Pandemic Pathogens." *PLOS Medicine*. 11.5 (2014): <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC4028196/>

Osterholme, M. T. (2012) 'Letter to NIH Associate Director for Science Policy' on Canvas.

SA: Review the H5N1 Controversy Timeline: <http://labs.fhcrc.org/cbf/Papers/index.html>

RQ: Should this research should have been published? Revisit Douglas' answer to this question. Should it have been undertaken at all? How should these questions be adjudicated in cases like this?

Week 7: Human Subjects

May 9 – The background

*Friday quiz sections only this week

Readings: Pence, "The Tuskegee Study." In *Classic Cases in Medical Ethics* (McGraw-Hill, 1995), pp. 394-401.

Skloot, "The Immortal Life of Henrietta Lacks, the Sequel." *New York Times*, 23 March 2013.

The Belmont Report: <http://www.hhs.gov/ohrp/humansubjects/guidance/belmont.html>

The Nuremberg Code (1947) and Declaration of Helsinki (1964): <http://www.wma.net/en/30publications/10policies/b3/>

SA/RQ: Explore and compare with the UW human subjects guidelines: <http://www.washington.edu/research/hsd/policy/>

May 11 – Deception research: The Milgram experiments

Readings: Bok, "Deceptive Social Science Research." In *Lying* (Vintage, 1979), pp. 1982-202.

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

Supplementary reading: Baier, "Trust and Antitrust." *Ethics* 96 (1986): 231-60.

SA: Review one of the "Milgram Experiments" videos online, for example:

http://www.dailymotion.com/video/x24guhr_the-milgram-experiment_shortfilms

RQ: Under what conditions is deception acceptable in research with human subjects? If you were on an ethics review board would you approve a Milgram-type experiment when they were first undertaken? Would you approve them now?

Week 8: Animal Subjects and the Environment

May 16 – Animal experimentation

Readings: Singer, "All Animals Are Equal." In *Animal Rights and Human Obligations* (Prentice Hall, 1989).

Gluck, "Regretting My Animal Research." *New York Times*, 24 September 2016.

UAR, "Animal Welfare and the Three Rs: Replacement, Refinement and Reduction" (2011):

<http://www.understandinganimalresearch.org.uk/files/7914/1041/1800/05-The-Three-Rs-for-web.pdf>

SA: Compare these guidelines with the UW training requirements for animal research: <http://depts.washington.edu/auts/>

May 18 – Environmental experimentation

Readings: Rayner *et. al.*, "The Oxford Principles", and Carr *et. al.*, "Public Engagement on Solar Radiation Management."

Climatic Change (2013): 499-512, 567-577.

Whyte, "The Ethics of Traditional Knowledge Exchange in Climate Change Initiatives." *Earthzine.org* July 2015.

Supplementary reading: Barben, Fisher, Selin, and Guston, "Anticipatory Governance of Nanotechnology: Foresight, Engagement, and Integration." In Hackett, Amsterdamska, Lynch & Wajcman (eds.) *The Handbook of Science and Technology Studies*, 3rd Edition (MIT Press 2008), pp. 980-1000.

RQ: Who should determine what risks are acceptable? Do the Oxford Principles address the concerns raised by Whyte?

Week 9: Science, Society and Social Responsibility

May 23 – Scientists in society

Readings: Elliott, "How Can We Engage Values?" In *A Tapestry of Values* (Oxford, 2017), pp. 137-162.

Ottinger, "Changing Knowledge, Local Knowledge, and Knowledge Gaps." *STHM* 38 (2012): 250-270.

May 25 – Citizen science: collaborative practice in cultural heritage research

Reading: Wylie, "Community-based Collaborative Archaeology." In *Philosophy of Social Science*, eds. Cartwright & Montuschi (Oxford, 2014), pp. 68-82.

RQ: Is there scope for citizen or stakeholder involvement in the case study you presented this quarter?

Week 10: Course Wrap-up

May 30 – Scientists and the public good

Readings: Beckwith and Huang, "Should We Make a Fuss?" *Nature Biotechnology* 23 (2005): 1479-1480.

Physics & Astronomy Equity and Inclusion Group, "Open Letter to SCOTUS": <http://eblur.github.io/scotus/>

SA: Preview online Oreskes, "The Scientist as Sentinel." AAAS Plenary Address (2017). Available online:

<https://www.aaas.org/news/naomi-oreskes-should-scientists-serve-sentinels>

RQ: Should scientists play a role in debate about issues of public interest and policy? When should they do this, and how can they be most effective?

June 1 –The 'Moral Terrain' revisited: what now?

RR: Everyone post a response to this question: Revisit your answer to the first assigned reading response; what ethics issues do you now see as especially significant for science? Identify one that you consider a top priority: in view, how is it best addressed?

WRITING CREDIT term paper: due Monday, June 5, 5:00 pm

FINAL EXAM: Friday, June 9, 2:30-4:20 in Smith 211