

PHIL2126: Science in Society: Ethics, Public Policy and Scientific Practice

Perhaps now more so than in any other time in human history, science and technology play a central role in our lives. With this comes the potential for both great benefit to society, and great harm. This unit critically examines the nature of science and its role in society via a mixture of discussion and written activities. Using various real-world examples, such as climate change, cloning, genetic engineering, space exploration and animal testing, the following ethical and philosophical questions will be considered: (1) What is science?; (2) What sort of research should we be doing in science?; (3) Who should decide what research we undertake?; (4) What role should science and scientists play in society?; and (5) What ethical responsibility do scientists have to society?

Learning Outcomes

Upon successful completion of this course, students will have the knowledge and skills to:

1. Understand and articulate the key philosophical issues relating to the role of the sciences in contemporary society.
2. Engage in philosophical discussion and debate on the various issues relating to the appropriate place of science in society.
3. Critically assess arguments about the appropriate place of science in society.
4. Clearly articulate their own position with respect to contemporary real-world debates about science in society.

Assessments

ASSESSMENT TASK	VALUE	LEARNING OUTCOMES
Short Writing Assignment	15 %	1, 2, 3, 4
Journal Part 1	15 %	1, 2, 3, 4
Essay Planning Exercise	5 %	1, 2, 3, 4
Essay	30 %	1, 2, 3, 4
Journal Part 2	15 %	1, 2, 3, 4
Class Participation	20 %	1, 2, 3, 4

Schedule:

Wk	Date of Lecture	Seminar Topic	Tutorial	Key Tasks
1	28-Feb	Introduction to Course	No tutorials this week	
2	7-Mar	Animals as Research Subjects	Journal Assessment Workshop	
3	14-Mar	Humans as Research Subjects	Short Writing Assignment (Journal Entry 1) Workshop	Short writing assignment (journal entry 1) must be brought to tutorial
4	21-Mar	Dual-Use Dilemmas	Journal Entry 2 Peer Review	Short writing assignment due (21/3) Journal Entry 2 must be brought to tutorial
5	28-Mar	Socially Dangerous Science	Journal Entry 3 Peer Review	Journal Entry 3 must be brought to tutorial
6	4-Apr	Existential Risks	Journal Entry 4 Peer Review	Journal Entry 4 must be brought to tutorial
7	25-Apr	Public Holiday (ANZAC Day)	Journal Entry 5 Peer Review	Journal Entry 5 must be brought to tutorial
8	2-May	Good Science, Bad Science and Misconduct	Journal Entry 6 Peer Review Essay Planning Workshop	Essay plan due at tutorial (02/05) Journal Entry 6 must be brought to tutorial
9	9-May	Is Science "Value Free"?	Journal Entry 7 Peer Review	Journal Part 1 due (09/05) Journal Entry 7 must be brought to tutorial
10	16-May	Inductive Risk	Journal Entry 8 Peer Review	Journal Entry 8 must be brought to tutorial
11	23-May	Who Owns Science? Is Open Access the Future?	Journal Entry 9 Peer Review	Essay due (20/05) Journal Entry 9 must be brought to tutorial
12	30-May	The Science Wars: The Public Role of Scientists in Contemporary Political Debate	Journal Entry 10 Peer Review	Journal Entry 10 must be brought to tutorial
EXAM PERIOD				Journal Part 2 due (06/06)

Required Readings:

Week 1: Introduction

- Briggie & Mitcham (2012) "Introduction to Science in Society" from *Ethics and Science: An Introduction*, CUP.
- Cohen (2004) "What is Ethics?" from *The Nature of Moral Reasoning*, OUP.
- Thomson (1999) "Moral Principles and moral theories" from *Critical Reasoning in Ethics: A Practical Introduction*, Routledge.

Week 2: Animals as Research Subjects

- Concepcion "How to read philosophy"
- Singer (1974) "All Animals are Equal", *Philosophic Exchange*, 1(5).
- PODCAST: ABC Life Matters "The beast within - the ethics of animal experimentation." Available here:
<https://www.abc.net.au/radionational/programs/lifematters/beast-within/4218176>

Week 3: Humans as research subjects

- Luna & Macklin "Research Involving human beings" from *A Companion to Bioethics*, 2nd Ed. Wiley-Blackwell.
- Chapter 3 of "Office of Research Integrity Introduction to the Responsible Conduct of Research", updated edition, by Nicholas H. Steneck (Department of Health and Human Services, USA, 2007) . Available here: <https://ori.hhs.gov/sites/default/files/rcrintro.pdf>

Week 4: Dual-use dilemmas

- Selgelid (2008) "Governance of dual-use research: an ethical dilemma" *Bulletin of the World Health Organisation* 87:720–723. doi:10.2471/BLT.08.051383.
- Miller & Selgelid (2007) "Ethical and Philosophical Consideration of the Dual-use Dilemma in the Biological Sciences" *Sci Eng Ethics*, 13:523–580

Week 5 Existential risks

- Bostrom (2002) "Existential Risks: Analyzing Human Extinction Scenarios and Related Hazards" *Journal of Evolution and Technology*, 9.
- VIDEO: TEDEx Talk, Bostrom on The End of Humanity. Available here:
<https://www.youtube.com/watch?v=P0Nf3TcMiHo&feature=youtu.be>
- Kupferschmidt (2018) "Taming the Science of Tomorrow" *Science*. Available here:
<https://www.sciencemag.org/news/2018/01/could-science-destroy-world-these-scholars-want-save-us-modern-day-frankenstein>

Week 6: Ethics of personal genomics

- Online genetic testing community resources. Genioz. Available here:
<https://www.genioz.net.au/page/community-resources/>
- Tiller & Lacaze (2017) "Australians can be denied life insurance based on genetic test results, and there is little protection" *The Conversation*, Available here:

<https://theconversation.com/australians-can-be-denied-life-insurance-based-on-genetic-test-results-and-there-is-little-protection-81335>.

- Arnold, "We are all mutants now: the trouble with genetic testing" *The Guardian*, 18th July 2017. Available here: <https://www.theguardian.com/science/2017/jul/18/we-are-all-mutants-now-the-trouble-with-genetic-testing>
- PODCAST: Base Pairs "Genomes, Justice and the Journey Here". Available here: <https://www.cshl.edu/genomes-justice-and-the-journey-here/>

Week 7: Ethics of Robots and AI in Society

- Simon "Companion Robots are here, just don't fall in love with them" WIRED. Available here: <https://www.wired.com/story/companion-robots-are-here/>
- VIDEO: TEDTalk, Cynthia Breazeal on "The Rise of Personal Robotics". Available here: https://www.ted.com/talks/cynthia_breazeal_the_rise_of_personal_robots?utm_campaign=tedspread&utm_medium=referral&utm_source=tedcomshare
- Sharkey & Sharkey (2012) "Granny and the Robots: Ethical issues in robotic care for the elderly" *Ethics Inf Technol* 14:27–40.
- Parks (2010) "Lifting the Burden of Women's Care Work: Should robots replace the "human touch"?" *Hypatia* 25(1).

Week 8: Good Science, bad science and misconduct

- PODCAST: Hidden Brain "When Great Minds Think Unalike: Inside Science's Replication Crisis". Available here: <https://www.npr.org/2016/05/24/477921050/when-great-minds-think-unlike-inside-sciences-replication-crisis>
- Montgomerie & Birkhead (2005) "A beginner's guide to scientific misconduct" ISBE Newsletter, Vol. 17(1).

Week 9: Is Science Value-Free?

- Longino (1983) "Beyond "Bad Science": Skeptical Reflections on the Value-Freedom of Scientific Inquiry" *Science, Technology & Human Values*, 18(1): 7-17.
- Lloyd (1992) "Pre-Theoretical Assumptions in Evolutionary Explanations of Female Sexuality" *Philosophical Studies*, 69: 139-153.

Week 10: Inductive Risk

- VIDEO: Interview with Dr Heather Douglas (Waterloo) by Canadian Science Policy Centre. Available here: <https://www.youtube.com/watch?v=VPnMLQcn4QE&feature=youtu.be>
- Douglas (2000) "Inductive Risk and Values in Science" *Philosophy of science*, 67: 559-579.

Week 11: Who owns science? Is Open Access the future?

- Eveleth, “Free Access to Science Research Doesn't Benefit Everyone” *The Atlantic*, December 22, 2014. Available here: <https://www.theatlantic.com/technology/archive/2014/12/free-access-to-science-research-doesnt-benefit-everyone/383875/>
- PODCAST: ABC RN Health Report “Open Access Publishing”. Available here: <https://www.abc.net.au/radionational/programs/healthreport/open-access-publishing/3376222>
- VIDEO: “Open access explained” by PhD Comics. Available here: <https://www.youtube.com/watch?v=L5rVH1KGBCY&feature=youtu.be>

Week 12: The science wars: The public role of scientists in contemporary political debates

- Transcript of speech by Ian Chubb (then national chief scientist) “Science and its role in public policy”, Nov 11 2019. Available here: <https://www.chiefscientist.gov.au/2011/11/science-and-its-role-in-public-policy>
- Greenwood & Riordan (2001) “Civic Scientist/Civic Duty” *Science Communication*, 23(1): 28-40.
- Vucetich & Nelson (August 1st, 2010) “The Moral Obligations of Scientists” *The Chronicle of Higher Education*.