STP 과학기술정책대학원
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STP514: Philosophy of Science Policy.

Syllabus

Fall 2022.

Wednesdays 16:00 – 19:00 N4 Room 1316

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Course description.
This seminar-based course explores central contemporary philosophical issues concerning science and technology policy. It tackles the role of policy in guiding scientific research, the role of science in policy-making, and the difficulties that arise in utilizing knowledge, determining the status of expertise, and establishing consensus over policies in democratic societies. The course draws on texts by philosophers of the natural and social sciences, political philosophy, and ethics. It assumes no prior knowledge of philosophy. But it does require the willingness to learn about, and to critically engage with, the philosophical problems relevant to the course.

The course is aimed at introducing students to a selection of philosophical problems that have important social and political implications. For example:

- Traditional ideas about the relationship between basic science and policy include the view that science ought to be “value-free”. But how do we reconcile that idea with an alternative view that science ought to be directed towards specific social problems or goals, or the thought that when science is used to provide policy advice, it cannot be immune from consideration of social, legal, and ethical consequences of that advice?
- How do we decide what are the most pressing social goals in science and technology policy? Does the pursuit of profit in industry funded science undermine scientific research? What impacts do the sources of funding – public and private – have on the choice of scientific research projects and the quality of that research?
- What are the benefits of dissent in science? Can it make scientific knowledge more sound? What are the negative epistemological and ethical implications of skepticism?
- Why is it that certain methods are used for policy development and assessment? What is “evidence-based policy”? When decisions are made

regarding the potential environmental impacts of toxic waste we tend to aim at the most economically efficient choice. But are policy problems simply problems of economic management?
- Often the problems confronting policy-makers are controversial and divisive for the public. How can we address dissent over fundamental moral and political issues in order to make decisions about potentially disruptive technologies?

Readings will be drawn from research articles, edited volumes and monographs.

I suggest you obtain a copy of Kevin Elliot's *A Tapestry of Values: An Introduction to Values in Science* (Oxford University Press 2017). We'll use this text in the early part of the course.

Further readings are there as a guide to pursuing the class topics further but they are by no means exhaustive. I do not expect you to read these for class but use them as and when necessary, especially in preparation for your project where relevant. Of course, bibliographies in the main readings should also be consulted.

Please see below for details of syllabus and readings. I will advise you of any changes to the reading list as the syllabus is finalized.

Assessment
Course project (60%), presentation (20%), class discussion participation (20%).

Your writing assignments for this course will be a **project** of at least 16 double-spaced pages or equivalent to 4000 words (but no more than 5000 words). The project should engage with one (or more) of the central topics of the course. In preparation for this project, you should submit a **project proposal** of not more than 3 pages (single spaced) in which you: -

- Identify the topic/technology you want to write about.
- Identify the philosophical issues you want to explore
- Identify case(s) that will help to illustrate your claims
- Offer you main objective in this essay, in other words, what you want to argue (although of course this might be tentative at this stage).
- Provide an outline structure (tentative thematic headings with a brief description of the theme you expect to address in each section).
- Provide a bibliography of relevant sources so far (which can of course draw from the syllabus and other relevant sources)

The proposal will allow me to guide you on your choice of research project. I will schedule individual meetings with you to discuss your project proposal at the appropriate times.

Deadlines for the submission of proposal and projects will be confirmed soon, but as a guide I will expect the project proposal to be submitted soon after the midterm. I will expect a draft of your final project to be submitted at least two days before the final class in week 16. In this final class you will give a short (10 minute)

presentation on your project, which will be assessed. The final version of your project should be submitted at the end of week 16. This will allow you the opportunity to make some changes based on feedback on your presentation from the class participants. Further details on all of the above to follow.

Discussion participation. You will be assessed on your ability to engage with the issues raised by the readings and to discuss them in class. You will also be asked to give a short presentation on a class topic of your choice. The aim of this exercise is to allow you to begin the class discussion. It will help you to focus the direction of the discussion on issue(s) or problem(s) you believe are important. You should not simply summarize the readings for that week in your presentation. Instead, you should try to distill from the readings the *central* issues you want to bring to the attention of the class so that we can discuss it further.

Getting help.
If you need help, advice or guidance about any aspect of this course you can talk to me after class, or email me and we can arrange a meeting.

Course schedule.

Week 1.
Wed 08/31. **Course introduction**

Week 2.
09/07. **Science, policy and values: An introduction #1**

Reading:
Reading: Kevin Elliot. *A Tapestry of Values: An Introduction to Values in Science* (Oxford University Press 2017), chapters 1-4.

Further reading:
There is a large literature on values in science. The bibliographies in the readings for weeks 2 – 4 will be useful. The following to be foundational: -

Helen Longino *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton University Press, 1990).
Thomas Kuhn “Objectivity, value judgment, and theory choice”, in *The Essential Tension* (University of Chicago Press, 1977), pp. 320—39.
Ernan McMullin “Values in Science”, *PSA: Proceedings of the Biennial Meeting of the Philosophy of Science Association*, Vol. 1982, Volume Two: Symposia and Invited Papers (1982), pp. 3-28.

Week 3.
09/14. **Science, policy, and the values: An introduction #2**

Reading:
Reading: Kevin Elliot. *A Tapestry of Values: An Introduction to Values in Science* (Oxford University Press 2017), chapters 5-8.

Week 4.
09/21. **Inductive risk and the value-free ideal #1**

Reading:
1. Heather Douglas “Inductive risk and values in science”, *Philosophy of Science* 67 (2000): 559-579.

2. Gregor Betz “In defence of the value free ideal”, *European Journal for the Philosophy of Science* 3 (2013): 207-220.

3. Kevin C. Elliott “Douglas on values: From indirect roles to multiple goals”. *Studies in History and Philosophy of Science* 44 (2013): 375–383.

Further reading:
Hempel, Carl G. (1965), "Science and Human Values", in *Aspects of Scientific Explanation and other Essays in the Philosophy of Science*. New York: The Free Press, 81-96.
Heather Douglas *Science, Policy, and the Value-free Ideal* (University of Pittsburgh Press, 2009).
Heather Douglas. “Why Inductive Risk Requires Values in Science”, In K. C. Elliott, & D. Steel (Eds.), *In Current Controversies in Values and Science* (pp. 81-93). New York: Routledge.
Gregor Betz. “Why the Argument from Inductive Risk Doesn’t Justify Incorporating Non-epistemic Values in Scientific Reasoning”, In K. C. Elliott, & D. Steel (Eds.), *In Current Controversies in Values and Science* (pp. 94-110). New York: Routledge.
Elliott, K. (2011). “Direct and indirect roles for values in science”. *Philosophy of Science*, 78, 303–324.
Daniel Steel “Acceptance, Values, and Inductive Risk”, *Philosophy of Science* 80 (2013): 818-828.

Week 5.
09/28. **The new problem of demarcation**

1. Bennett Holman & Torsten Wilholt. “The new demarcation problem”, *Studies in History and Philosophy of Science* 91 (2022) pp. 211–220.

2. Inkeri Koskinen & Kristina Rolin. “Distinguishing between legitimate and illegitimate roles for values in transdisciplinary research”, *Studies in History and Philosophy of Science* 91 (2022) pp. 191–198.

3. Wendy E. Wagner. “No one solution to the problem of demarcation”. *Studies in History and Philosophy of Science* 92 (2022) pp. 177–185.

Week 6.
10/05. **The industrialization of science**

Reading:
1. Bennett Holman and Kevin Elliot. “The Promise and Perils of Industry-funded Science”. *Philosophy Compass* 2018; e12544.

2. Bennett Holman. “Philosophers on Drugs”, *Synthese* (Nov. 2017).

3. Julian Reiss and Philip Kitcher. “Biomedical Research, Neglected Diseases, and Well-Ordered Science”. *Theoria*, Vol. 24, No. 3(66) (September 2009), pp. 263-282.

4. James R. Brown, J. R. (2017). “Socializing Medical Research”. In K. C. Elliott, & D. Steel (Eds.), In *Current Controversies in Values and Science* (pp. 147–160). New York: Routledge.

5. Julian Reiss. (2017). Meanwhile, Why Not Biomedical Capitalism? In K. C. Elliott, & D. Steel (Eds.), In *Current Controversies in Values and Science* (pp. 161–160). New York: Routledge.

Further reading:
Please refer to the bibliography in Holman and Elliot (2018) above.

Week 7:
10/12. **Skepticism, risk, and the epistemic costs and benefits of dissent in science**

Reading:
1. Justin B. Biddle & Anna Leuschner. “Climate Skepticism and the Manufacture of Doubt: Can Dissent in Science be Epistemically Detrimental?” *European Journal for the Philosophy of Science* 5 (2015): 261–278.

2. Axel Gelfert. “Climate Scepticism, Epistemic Dissonance, and the Ethics of Uncertainty”, *Philosophy and Public Issues* (New Series) Vol. 3, No. 1 (2013): 167-208

3. Justin B. Biddle “Antiscience Zealotry”? Values, Epistemic Risk, and the GMO Debate”, *Philosophy of Science*, 85 (2018): 360–379.

Further reading:
Justin B. Biddle, Anna Leuschner & Ian James Kidd. “Epistemic Corruption and Manufactured Doubt: The Case of Climate Science” *Public Affairs Quarterly* 31 (3) (2017):165-187.
Justin Biddle. “Institutionalizing Dissent: A Proposal for an Adversarial System of Pharmaceutical Research”, *Kennedy Institute of Ethics Journal* Vol. 23, No. 4, 325–353.
Helen De Cruz & Johan DeSmedt. “The Value of Epistemic Disagreement in Scientific Practice. The case of *Homo floresiensis*”, *Studies in History and Philosophy of Science*, 44 (2014): 169-177.

Week 8: Midterm week – no class.

Week 9.
10/26. **Interlude: Philosophers and historians of science engaging society and policy – some foundational issues**

Reading:
1. Dan Brock. “Truth or Consequences: The Role of Philosophers in Policy-Making”, *Ethics* 97 (4) (1987): 786-791.

2. Jane Maienschein. “Understanding Embryos in a Changing and Complex World: A Case of Philosophers and Historians Engaging Society”, *Erkenntnis* 79 (2014):999–1017.

4. Bernice Bovenkirk. “Biotechnology: An Anatomy of the Debate”, *The Biotechnology Debate: Democracy in the Face of Intractable Disagreement* (Springer 2012), Chapter 2, pp. 19-61.

Week 10.
11/02. **Complicity and compromise in stem cell research policy**

Reading:
1. Jane Maienschein. “Why Do Stem Cells Create Such Public Controversy?” *Spontaneous Generations: A Journal for the History and Philosophy of Science*, 5 (1) (2011): 27-35.

2. Zubin Master and G. K. D. Crozier. “The Ethics of Moral Compromise for Stem Cell Research Policy”, *Health Care Analysis* 20 (2012): 50-65.

3. Katrien Devolder. “Complicity in Stem Cell Research: The Case of Induced Pluripotent Stem Cells”, *Human Reproduction* 25 (9): 2175-2180.

4. Katrien Devolder & Thomas Douglas. “The Epistemic Costs of Compromise in Bioethics”, *Bioethics*, 32 (2018): 111-118.

Further reading:
Katrien Devolder. *The Ethics of Embryonic Stem Cell Research* (Oxford University Press, 2015).
Benjamin, M. *Splitting the difference: Compromise and integrity in ethics and politics* (Lawrence, KA: University Press of Kansas, 1990).

Week 11.
11/09. **Deliberation, democracy, and the epistemic benefits of diversity**

Reading:
1. Stier, M. & Schoene-Seifert, B. “The Argument from Potentiality in the Embryo Protection Debate: Finally ‘Depotentialized’?”, *The American Journal of Bioethics*, 13 (2013): 19-27.

2. Blasimme, A., Schmietow, B., & Testa, G. “Reprogramming Potentiality: The Co-production of Stem Cell Policy and Democracy”. *The American Journal of Bioethics*, 13 (2013): 30-32.

3. James Bohman “Deliberative Democracy and the Epistemic Benefits of Diversity”,

Episteme 2006: 175-190.

Further reading:
Guiseppe Testa “Stem Cells through Stem Beliefs: The Co-production of Biotechnological Pluralism”, *Science as Culture* 17(4) (2008): 435-448.

Sheila Jasanoff *Designs on Nature* (Princeton University Press, 2005).

Week 12.
11/16. **Are all political problems economic? A critique of environmental economics in policy-making #1**

Reading:
Mark Sagoff. *The Economy of the Earth: Philosophy, Law, and the Environment*, 2nd Edition, (Cambridge UK: Cambridge University Press, 2008), Chapters 1-4 (pp. 1-86).

Week 13.
11/23. **Are all political problems economic? A critique of environmental economics in policy-making #2**

Reading:
1. Mark Sagoff. *The Economy of the Earth: Philosophy, Law, and the Environment*, 2nd Edition, (Cambridge UK: Cambridge University Press, 2008), Chapters 5-6 (pp. 87-137).

2. Bryan Norton “Economists’ Preferences and the Preferences of Economists”, *Environmental Values* 3 (1994): 311-32.

3. Russell Keat. “Citizens, Consumers and the Environment: Reflections on *The Economy of the Earth*”. *Environmental Values* 3 (1994): 333-49.

Further reading:
Mark Sagoff. “Four Dogmas of Environmental Economics”, *Environmental Values* 3 (1994): 285-310.
Richard Cookson. “Welfare Economic Dogmas: A Reply to Sagoff”, *Environmental Values* 5 (1996): 59-74.

Week 14.
11/30. **Evidence, policy, and evidence-based policy**

Reading:
1. Laura Haynes, Owain Service, Ben Goldacre, and David Torgerson. *Test, Learn, Adapt: Developing Public Policy with Randomized Control Trials* (London: The Cabinet Office)
https://www.gov.uk/government/publications/test-learn-adapt-developing-public-policy-with-randomised-controlled-trials

2. Nancy Cartwright. “Are RCTs the Gold Standard?”, *BioSocieties* 2 (2007): 11-20.

3. Nancy Cartwright and Eileen Munro. “The Limitations of Randomized Controlled Trials in Predicting Effectiveness”, *Journal of Evaluation in Clinical Practice* 16 (2010): 260–266.

4. Marius Backman. “What’s in a Gold Standard? In Defence of Randomised Controlled Trials”, *Medical Health Care and Philosophy* (2017) 20:513–523.

Further reading:
Nancy Cartwright & Jeremy Hardie. *Evidence-based Policy: A Practical Guide to Doing it Better* (Oxford University Press 2012).
Paul Cairney. *The Politics of Evidence-based Policymaking* (London: Palgrave Macmillan 2016).
Nancy Cartwright, Andrew Goldfinch, and Jeremy Howick. “Evidence-based Policy: Where is Our Theory of Evidence?”, *Journal of Children’s Services* 4 (4): 6-14.
Nancy Cartwright. “What are Randomised Controlled Trials Good For?” *Philosophical Studies* 147 (2010): 59–70.
Justin Parkhurst *The Politics of Evidence: From Evidence-based Policy to the Good Governance of Evidence* (Abingdon: Routledge 2017). Chapters 1 & 2.
http://eprints.lse.ac.uk/68604/

Week 15.
12/07. **TBC**

Week 16.
12/16. **Conclusion and project presentations**