

Philosophy of Science

Supplementary Subject

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Tutorials are on **Thursdays at 5pm** in **weeks 3, 4, 5, 7 and 8**. There is **no tutorial in week 6**.

Tutorials are on Teams – I will send you invitations.

PRESENTATIONS

Each of you will give one presentation (approximately 15-30 min) during this term. This is an opportunity to practice presentation skills in an informal setting. You can choose to present your essay or give a general presentation of that week's tutorial topic. You can prepare slides if you want to, but you don't have to. You can also just read your paper aloud if you prefer that. Let me know if you prefer not presenting (instead, we can read your paper beforehand and discuss it together).

ESSAYS

You should write **4 essays in total**, so you can skip the essay for one tutorial.

Please email me your essays by **noon on the day before our meeting**.

Your essays should be **1,000-1,500 words** in length. Don't tackle everything in a single essay and be selective about your readings. Most of the readings are available online via SOLO.

The reading lists below are quite extensive, so that you can follow up on the issues you find interesting. Pick one interesting aspect of the topic, pick an argument/view that you like or dislike, and try to come up with interesting arguments. Try to have a clear structure and write in a simple and concise manner.

Useful resources:

<https://philpapers.org>

<https://plato.stanford.edu>

YouTube:

<https://www.youtube.com/watch?v=Zop6eVSXUH0&list=PLXKKIUdnOESGJ2Gjea3vAlsYwNNzXJwP9> (Philosophy of Science)

<https://www.youtube.com/watch?v=a0UxFhKOiFg&list=PLXKKIUdnOESHcJwaBL2--vHSR5tWwjn-h> (Scientific Realism)

Podcasts:

<http://www.philosophybites.com>

Advice on writing philosophy essays:

<http://www.jimpryor.net/teaching/guidelines/writing.html>

<http://oyc.yale.edu/sites/default/files/philosophy-paper.pdf>

Week 3

The Riddle(s) of Induction

Suggested Essay Question: Can Induction be justified? Does that pose a problem for our empirical knowledge?

Reading (the more *s, the more important it is)

***** D. Hume, *An Enquiry Concerning Human Understanding*, sects. IV ‘Sceptical Doubts Concerning the Operations of the Understanding’ and V, Part I.**

To understand Hume's view better, it is a good idea to see how the discussion of induction fits into his general empiricist project. (Chapters I - III of *An Enquiry Concerning Human Understanding* lay this out.)

****B. Russell, *The Problems of Philosophy* (OUP 1912), Ch. 6.**

*P. F. Strawson, *Introduction to Logical Theory* (Methuen 1952), Ch. 9.

*D. H. Mellor, 'The warrant of induction', in his *Matters of Metaphysics*, Ch 15 (CUP, 1991).

*** N. Goodman, 'The New Riddle of Induction', especially part 1, in *Fact, Fiction and Forecast* (Harvester 1979), repr. in Michael Huemer (ed.) *Epistemology: Contemporary Readings* (Routledge 2002).

**Karl Popper, *Objective Knowledge*, revised edition (Oxford: Clarendon Press, 1979), Chap. 1.

*Hans Reichenbach, "The Pragmatic Justification of Induction", in Reichenbach, *Experience and Prediction* (University of Chicago Press, 1938), pp. 341–57; reprinted in Sven Bernecker and Fred Dretske (eds.) *Knowledge: Readings in Contemporary Epistemology* (Oxford UP, 2000).

**James van Cleve (1984). "Reliability, Justification, and the Problem of Induction", *Midwest Studies in Philosophy* 9 (1): pp. 555–67.

Simon Blackburn, *Reason and Prediction* (Cambridge UP, 1973), Chap. 7.

For help with Hume:

Wesley Salmon, "An Encounter with David Hume", in Joel Feinberg et al. (ed.), *Reason and Responsibility: Readings in Some Basic Problems of Philosophy*, 13th edition (Wadsworth, 2008), pp. 245–63 (also in earlier editions of this volume).

On the new problem of induction (optional, for now)

***Nelson Goodman, *Fact, Fiction and Forecast* (Ch iii, 'The new riddle of induction')

***Donald Davidson, 'Emeroses by other names' Appendix to Ch. 11 in his *Actions and Events*.

Week 4

Confirmation and Explanation

Suggested Essay Question:

1) Does the covering law model provide a plausible account of explanation in science?

OR:

2) What is the 'Old Evidence' problem, and is there a good response to it?

OR:

3) What is the paradox of the ravens, and is there a good response to it?

Reading (the more *s, the more important it is, but select according to which question you're trying to answer)

***Hempel, 'Studies in the logic of confirmation' in *Aspects of Scientific Explanation*, Free Press 1965, pp. 3- 30.

**Samir Okasha, *Philosophy of Science: A Very Short Introduction*, Oxford University Press 2002. Ch3

**Ruben, David-Hillel. (Ed.) *Explanation*. Especially the papers by David Lewis ('Causal Explanation') and Wesley Salmon.

*Ruben, David-Hillel. *Explaining Explanation*.

On Bayesianism

**Colin Howson and Peter Urbach, *Scientific Reasoning: The Bayesian Approach*, Open Court 1993.

***Colin Howson. 1991. The 'Old Evidence' Problem. *British Journal for the Philosophy of Science* 42: 547-555.

On the Raven Paradox

**Nelson Goodman. *Fact, Fiction and Forecast*. Ch III, especially section 3.

**The Problem of Induction

<http://plato.stanford.edu/entries/induction-problem/#ParRav>

Week 5

Verification and Falsification: Empiricism and its Limitations

Suggested Essay Questions (choose one):

- 1) Is Popper's falsifiability criterion any better than the logical positivists' verifiability criterion?
- 2) How successful is falsificationism as an account of science?
- 3) How well does Popper's distinction between science and pseudo-science work?

Reading: (The more *'s, the more important it is)

**J. Ladyman, *Understanding Philosophy of Science* (Routledge, 2002). Chapter 3 (pp. 62-92).

***Karl Popper, *The Logic of Scientific Discovery*, Hutchinson & Co, 1959. Chps 1, 4 & 10 (Section 85). Available online at <http://strangebeautiful.com/other-texts/popper-logic-scientific-discovery.pdf>

Alan F. Chalmers, *What is This Thing Called Science?* 3rd Ed., Open University Press 1999.
Chapters 5 -7.

Imre Lakatos, 'The Methodology of Scientific Research Programmes', in Lakatos and Musgrave
(Eds) *Criticism and the Growth of Knowledge*, Cambridge University Press 1970.

C. Ray. Logical Positivism. In W. Newton-Smith (ed.), *A Companion to the Philosophy of
Science*.

Lecture by Imre Lakatos on science vs pseudoscience at -
www.lse.ac.uk/collections/lakatos/scienceAndPseudoscience.htm

*W.V.O. Quine, "Two Dogmas of Empiricism" (1951) in *From a Logical Point of View*,
Harvard University Press 1980. Available online at -
<http://faculty.unlv.edu/jwood/wm/Quine.pdf>

(This will be covered in the week 5 lecture, so I don't expect you to read this for your essay.
Although please do so if you want to! But it's quite hard.)

Week 7

Incommensurability and Scientific Revolutions

Suggested Essay Questions: What is Kuhn's account of science and how does it affect the
notion of science as a rational, truth-seeking enterprise?

Reading:

*****Thomas Kuhn. *The Structure of Scientific Revolutions*.** (As much as you can manage.)

** _____ Commensurability, Comparability, Communicability. In *The Road Since
Structure* (2000).

*****Hilary Putnam. The 'Corroboration' of Theories.** In Honderich and Burnyeat (eds.),
Philosophy as it is.

**J. Ladyman, *Understanding Philosophy of Science* (Routledge, 2002). Chapter 4.

**H. Sankey, "Kuhn's changing concept of incommensurability", *British Journal for the Philosophy of Science* 44 (1993), pp. 759-774.

M. Malone, "Kuhn reconstructed: Incommensurability without Relativism", *Studies in the History and Philosophy of Science* 24 (1993).

Michela Massimi. 2018. Four Kinds of Perspectival Truth. *Philosophy and Phenomenological Research* 96 (2): 342-359.

***There is a collection, Ian Hacking's *Scientific Revolutions*, which might help with this, especially the article by Shapere (it also contains the Putnam article.)

Week 8

Scientific Realism: Structural Realism

Suggested Essay Question: Is a version structural realism the most plausible defence of scientific realism?

Reading:

*J. Ladyman, "Structural Realism", *Stanford Encyclopedia of Philosophy*, Sections 1-3.

*****Ladyman, James and Don Ross** (with John Collier and David Spurrett). 2007. *Every Thing Must Go*. Oxford: Oxford University Press. Chapter 2.

*****J. Worrall**, "Structural Realism: the Best of Both Worlds?", *Dialectica* 43 (1989) pp. 99-124. Reprinted in D. Papineau, *The Philosophy of Science* (Oxford, 1996) pp. 139-165.

*S. Psillos, "Is Structural Realism the Best of Both Worlds?", *Dialectica* 49 (1995), pp. 15-46.

_____ Is Structural Realism Possible? *Philosophy of Science*, Vol. 68, No. 3, Supplement:
*Proceedings of the 2000 Biennial Meeting of the Philosophy of Science Association. Part I:
Contributed Papers (Sep., 2001)*, pp. S13-S24 (Available on JSTOR)