

Formal epistemology and philosophy of science

MA Program in Philosophy (Philosophy International Curriculum)

University of Turin, 2017-2018

NOTE: The following concerns students who have to obtain 12 credits

In order to pass the exam and obtain 12 credits, students will have to comply with (1) and (2) and (3) below.

(1) Mandatory readings (for the oral exam):

P. GODFREY-SMITH, *Theory and Reality: An Introduction to the Philosophy of Science*, The University of Chicago Press, Chicago, 2003 (**chapters 1-7, 12, and 14**).

T.S. KUHN, *The Copernican Revolution*, Harvard University Press, Cambridge (MA), 1985.

Alternatively: Midterm written test (early November) on the topics discussed in the class in the first part of the lecture series.

(2) Mandatory reading (for the oral exam):

D. BRADLEY, *A Critical Introduction to Formal Epistemology*, Bloomsbury, London, 2015 (**chapters 1-3, 8, and 11**).

Alternatively: Final written test (around December 20) on the topics discussed in the class in the second part of the lecture series.

(3) A written essay (about 4.000 words) on one of the topics below (on the basis of the readings listed):

Topic (i): **SCIENCE and PSEUDOSCIENCE**

K. POPPER, "Science: Conjectures and refutations" (1963), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, **pp. 3-10**.

T.S. KUHN, "Logic of discovery or psychology of research?" (1970), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, **pp. 11-19**.

L. LAUDAN, "The demise of the demarcation problem", in R.S. Cohen and L. Laudan (eds.), *Physics, Philosophy, and Psychoanalysis*, Reidel, Dordrecht, 1983, **pp. 111-127**.

J. LADYMAN, "Toward a demarcation of science from pseudoscience", in M. Pigliucci and M. Boudry (eds.), *Philosophy of Pseudoscience: Reconsidering the Demarcation Problem*, University of Chicago Press, Chicago, 2013, **pp. 45-59**.

Suggested issues for the essay:

- *Is it possible to draw a clear distinction between science and pseudoscience?*
- *What is it that makes science a special activity in methodological or epistemic terms?*

Topic (ii): **EVIDENCE and UNDERDETERMINATION**

- P. DUHEM, "Physical theory and experiment" (1906), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 247-279.
- L. LAUDAN, "Demystifying underdetermination" (1990), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 320-346.
- J. WORRALL, "Normal science and dogmatism, paradigms, and progress: Kuhn 'versus' Popper and Lakatos", in T. Nickles (ed.), *Thomas Kuhn*, Cambridge University Press, New York, 2003, pp. 65-100.

Suggested issues for the essay:

- What does it mean that scientific theories are underdetermined by the evidence?
- What are the philosophical / epistemological consequences of underdetermination?

Topic (iii): **OBSERVATION and EXPERIENCE**

- N.R. HANSON, *Patterns of Discovery*, Cambridge University Press, 1958, chapter 1: pp. 4-30.
- J. FODOR, "Observation reconsidered", *Philosophy of Science*, 51 (1984): pp. 23-43.
- E. ZAHAR, "The problem of the empirical basis", in A. O'Hear (ed.), *Karl Popper: Philosophy and Problems*, Cambridge University Press, 1995: pp. 45-74.

Suggested issues for the essay:

- Can observation be independent from theory?
- What can be the role of observation in testing and comparing hypotheses?

Topic (iv): **THEORY-CHANGE and PROGRESS**

- T.S. KUHN, "Objectivity, value judgment, and theory choice" (1977), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 102-118.
- I. LAKATOS, "Science and pseudoscience" (1977), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 20-26.
- I. LAKATOS and E. ZAHAR, "Why did Copernicus's research programme supersede Ptolemy's" (1976), in I. Lakatos, *The Methodology of Scientific Research Programmes. Philosophical Papers I*, Cambridge University Press, Cambridge, 1978, pp. 168-192.
- J. WORRALL, "Scientific discovery and theory-confirmation", in J.C. Pitt (ed.), *Change and Progress in Modern Science*, Reidel, Dordrecht, 1985, pp. 301-331.

Suggested issues for the essay:

- How does theory-choice work in science?
- Does science provide an objective growth (progress) of knowledge?

Topic (v): **BAYESIAN PHILOSOPHY OF SCIENCE**

- M. CURD and J.A. COVER, "Bayes for beginners", in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 627-638.
- W.C. SALMON, "Bayes's theorem and the history of science" (1970), in Y. Balashov and A. Rosenberg (eds.), *Philosophy of Science: Contemporary Readings*, Routledge, London, 2002, pp. 385-402.
- W.C. SALMON, "Rationality and objectivity in science, or Tom Kuhn meets Tom Bayes" (1990), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 551-583.
- C. GLYMOUR, "Why I am not a Bayesian" (1980), in M. Curd and J.A. Cover (eds.), *Philosophy of Science: The Central Issues*, Norton & Co., New York, 1998, pp. 584-606.

Suggested issues for the essay:

- *How does scientific reasoning work according to Bayesians?*
- *Illustrate and discuss some major strengths or limitations of the Bayesian approach to science.*

Topic (vi): **FOR and AGAINST SCIENTIFIC REALISM**

K. POPPER, "Three views concerning human knowledge", in K. Popper, *Conjectures and Refutations*, Routledge and Kegan, London, 1963, **pp. 97-199**.

J. WORRALL, "Scientific realism and scientific change", *Philosophical Quarterly*, 32 (1982), **pp. 201-231**.

G. GUTTING, "Realism versus constructive empiricism: A dialogue" (1982), in Y. Balashov and A. Rosenberg (eds.), *Philosophy of Science: Contemporary Readings*, Routledge, London, 2002, **pp. 234-247**.

J. WORRALL, "Structural realism: The best of both worlds?", *Dialectica*, 43, 1/2 (1989), **pp. 99-124**.

Suggested issues for the essay:

- *What does it mean to be a scientific realist?*
- *Illustrate and discuss some major argument for or against scientific realism.*

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I. LAKATOS and E. ZAHAR, "Why did Copernicus's research programme supersede Ptolemy's" (1976), in I. Lakatos, *The Methodology of Scientific Research Programmes. Philosophical Papers I*, Cambridge University Press, Cambridge, 1978, **pp. 168-192**.

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