



Philosophy of science ***Vetenskapsteori***

Credit points: 2 ECTS

Course code: 5DN002

Established: 2015-03-10:rev 2019-02-26

Established by: Committee for doctoral studies

Syllabus valid from: 2015-03-15, 2019-02-26

Responsible Department: Department of Historical, Philosophical and Religious studies

Main field of study: General science

Grading system: G pass, U Fail

Level of Education: Doctoral course

1. Required Knowledge

Admitted to studies at third cycle-level.

2. Expected learning outcomes

After completing the course, students shall be able to:

Knowledge and understanding

- understand the concepts *hypothesis, evidence, confirmation* and *refutation*
- have knowledge about views of the nature of science and scientific change

Competence and skills

- be able to explain and discuss the philosophical presuppositions of some common methods in formal and empirical sciences
- be able to apply philosophical concepts and arguments to the research process and scientific results
- be able to analyze and discuss the significance of gender in science

Judgement and approach

- be able to evaluate and critically assess problems, concepts, views, and arguments concerning scientific method and the demarcation between science and non-science

3. Contents

Philosophy of Science (in Swedish *vetenskapsteori*) is the part of philosophy which deals with philosophical problems that arise in science. The course treats of philosophical problems, concepts, views, and arguments concerning: hypotheses, evidence, confirmation, and refutation; scientific method in formal and empirical sciences; views of the nature of science and scientific change; the demarcation between science and pseudo-science and other deviations from good science; the significance of gender in science.



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4. Form of instruction

The instruction consists of lectures and seminars.

5. Examination modes

The examination consists of a take-home exam, in which the student is expected to apply the contents of the course to his or her field or research project, and a seminar on the significance of gender in science, in which the student is expected to give a short presentation, of which a written version shall be handed in.

6. Other regulations

Academic credit transfers are always reviewed individually according to the University's set of rules and academic credit transfer regulations.

7. Literature

Brown, J. R. (2001). *Who Rules in Science?* Cambridge, Mass.: Harvard University Press, 49-74.

Allegations of scientific misconduct at Harvard have academics up in arms. *The Economist*, August 26, 2010. <http://www.economist.com/node/16886218>

Alvarez, Luis et al. (1980). Extraterrestrial Cause for the Cretaceous-Tertiary Extinction. *Science*, 208, 1095-1108.

Documents Shed Light on Investigation at Harvard. *The Chronicle of Higher Education*, August 19, 2010. <http://chronicle.com/article/Document-Sheds-Light-on/123988/>

Duhem, P. (1914/1954). *The Aim and Structure of Physical Theory*. Princeton, New Jersey: Princeton University Press, 183-188.

Gödel, K. (1947). What is Cantor's Continuum Problem? *The Mathematical Monthly*, 54, 515-525.

Hand, D. J. (2008). *Statistics: A Very Short Introduction*. Oxford: Oxford University Press, 85-89.

Hansson, Sven Ove (2008). Science and Pseudo-Science. *The Stanford Encyclopedia of Philosophy*. <http://plato.stanford.edu/entries/pseudo-science/>

Huygens, C. (1690). *Treatise on Light*. (Excerpt from the preface.)

Koertge, N. (2012). Critical perspectives on feminist epistemology. In Sharlene Nagy Hesse-Biber (ed.): *Handbook of Feminist Research: Theory and Practice, Second Edition*. Los Angeles: Sage, 119-134.



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Kourany, J. (2012). Feminist critiques: Harding and Longino. In James Robert Brown (ed): *Philosophy of Science: Key Thinkers*. London: Continuum, 236-254.

Okasha, S. (2002). *Philosophy of Science: A Very Short Introduction*. Oxford: Oxford University Press, 18-33.

Updated: Harvard says Marc Hauser guilty of science misconduct. *USA Today*, August 20, 2010.

<http://content.usatoday.com/communities/sciencefair/post/2010/08/marc-hauser-harvard-science-misconduct-/1>

Further articles and excerpts from books may be added.