Philosophy of science, 2 ECTS

Schedule spring 2018

Wednesday, February 28, 09.15-12.00, HC104 Humanisthuset
Lecture 1: Knowledge and truth
What does it mean that a statement is true? Is truth relative? What is it to have evidence for a statement? What is required if one is to know that such-and-such is the case? Is knowledge possible?

Readings:


Wednesday, February 28, 13.15-15.00, HC104 Humanisthuset
Lecture 2: Scientific method
the distinction between formal and empirical sciences, scientific method in formal sciences: the traditional view on proof in mathematics and an alternative view, scientific method in empirical sciences: hypothetico-deductive method, statistical hypothesis testing, and inference to the best explanation

Readings:


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


Thursday, March 1, 13.15-15.00, HC104 Humanisthuset
Seminar 1: Scientific method in practice
One or several scientific articles will be discussed with regard to what hypotheses and evidence are presented, what methods are used, which background assumptions are made, what results are achieved, etc.

Reading:
Friday, March 2, 09.15-12.00, HC104 Humanisthuset
Lecture 3: Logical positivism and Karl Popper
verifiability as a criterion of meaningfulness, the problem of induction and Karl Popper’s
solution, falsifiability as a criterion of demarcation between science and non-science,
objections to logical positivism and Popper

Reading:

Friday, March 2, 13.15-15.00, HC104 Humanisthuset
Lecture 4: Thomas Kuhn and afterwards
Thomas Kuhn’s theory of the development of sciences, paradigms, anomalies and scientific
revolutions, Kuhn’s thesis of incommensurability, puzzle-solving capability as a criterion of
demarcation between science and non-science, developments after Kuhn

Reading:

Monday, March 5, 13.15-15.00, HC104 Humanisthuset
Seminar 2: Pseudoscience and other deviations from good science
Different proposals of how science should be demarcated from pseudoscience and other
deviations from good science, such as fraud in science, will be discussed; in addition, a
concrete example of “deviation from good science” will be discussed with regard to how it
deviates from good science and whether it should be characterized as pseudoscience, fraud in
science, incompetence and negligence, or something else.

Readings:
"Allegations of scientific misconduct at Harvard have academics up in arms". The Economist, August 26, 2010. [http://www.economist.com/node/16886218](http://www.economist.com/node/16886218)


All the readings, except the links, will be available as pdf:s on the course Cambro site.

**Instructor**
Peter Melander, universitetslektor  
peter.melander@umu.se

Idé- och samhällsstudier (filosofi)  
Umeå universitet