

Master's Program in Statistics and Machine Learning: 720A04 Philosophy of Science, VT 2019

Teacher: Valdi Ingthorsson (valdi.ingthorsson@gmail.com)

Please answer the following questions in essay format. Answers are graded on the basis of completeness and depth, not length, but as a rule of thumb 1–1,5 (+/- 20%) pages per question should be about right. I award up to 8 points per answer. 50% for Pass, 75% for Pass with distinction. **Deadline is 24 May at 17:00.** Hand-in via Lisam.

1. What is the hypothetico-deductive method, and what are its strengths and weaknesses with respect to its ability to verify and/or falsify hypotheses? Do you think science revolves around the use of the H-D method?
2. What is a scientific paradigm and how do they influence scientific practice? Is it good or bad that science is guided by paradigms? Do you think the programme you have chosen is schooling you into a particular programme?
3. What does it mean for a scientific hypothesis to be falsifiable, and: (i) why is it good that they are falsifiable, and (ii) why is even better that they can be falsified in many different ways?
4. In what way are observations theory-dependent, and why does that challenge the idea that hypotheses are generated inductively from observations?
5. What is the difference between the natural and the human sciences according to Ingthorsson? Include a reflection on what Ingthorsson says about the nature of the phenomena that the natural and human sciences study, and relate to what that nature implies about differences in method.
6. What is the difference between science and pseudo-science according to Sven-Ove Hansson, and why should we care?
7. What does it involve to be a scientific realist, and what reasons can we have for adopting that position? Do you think those reasons are convincing, and do think it would make any difference for you to take a realist or anti-realist approach to research in your discipline?

Course literature

Ladyman, James, *Understanding Philosophy of Science*, Routledge, London, 2002

Additional readings

Bird, Alexander (2013). 'Thomas Kuhn', in E. N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy*. Available online: <https://plato.stanford.edu/archives/fall2013/entries/thomas-kuhn/>

Wikipedia contributors [online resource], 'Paradigms'. In *Wikipedia, The Free Encyclopedia*. Available online: <https://en.wikipedia.org/wiki/Paradigm>

Wikipedia contributors [online resource]. 'Hypothetico-deductive model'. In *Wikipedia, The Free Encyclopedia*. Available online: https://en.wikipedia.org/wiki/Hypothetico-deductive_model

Home Exam

Chalmers, Alan (1987). 'The Theory-dependence of Observations'. Available online:
<https://www.uow.edu.au/~sharonb/STS300/science/shaping/articles/artjudgement2.html>

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

Ingthorsson, R. D. "The Natural vs. The Human Sciences: Myth, Methodology, and Ontology", *Discusiones Filosóficas* 22(1): 13–29, 2013, May 2013, available at
https://www.academia.edu/3553833/The_Natural_vs._The_Human_Sciences_Myth_Methodology_and_Ontology