

# Master's Program in Statistics and Data Mining: 720A04 Philosophy of Science, spring 2018

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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 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 23 May at 17:00.** Hand-in via email to valdi.ingthorsson@gmail.com.

1. What is the hypothetico-deductive method? Explain the difference between a verification and a falsification using the hypothetico-deductive 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?
3. What does it mean for a scientific hypothesis to be falsifiable, and why is it good that they are falsifiable?
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?
6. What is the difference between science and pseudo-science according to Sven-Ove Hansson and why should we care?

## 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](https://en.wikipedia.org/wiki/Hypothetico-deductive_model)

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](https://www.academia.edu/3553833/The_Natural_vs._The_Human_Sciences_Myth_Methodology_and_Ontology)