



F1N5113 Theory of Science and Research Method, Technological and Natural Sciences 7.5 credits

Vetenskapsteori och forskningsmetodik, teknik- och naturvetenskaplig inriktning

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for F1N5113 valid from Spring 2009

Grading scale

undefined

Education cycle

Third cycle

Specific prerequisites

Completed basic degree (at least 180 hp).

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The course provides an introduction to the theory and methodology of science and is intended for beginning PhD student. One aim is to supply the basic concepts needed for placing the techniques and knowledge acquired in the student's other courses in the wider context of the natural sciences. Another aim is to provide the basic intellectual tools that allow for a reasoned and critical assessment of results and methods from the wide variety of disciplines that the student is likely to encounter during his or her continued career in research and/or in professional life.

Course contents

- Scientific knowledge
- Hypothesis testing
- Causes and correlations
- Observations and measurements
- Experiments
- Models
- Law and explanations
- Science for societal decision-making
- The development of science
- Research ethics

Disposition

- Lectures 20 h (10 x 2)
- Seminars 8 h (4 x 2)
- Individual work on written essay, with work seminars

Course literature

- A.F. Chalmers "What Is This Thing Called Science?", latest edition
- Sven Ove Hansson "The art of being scientific", latest edition
- National Academy of Sciences, "On Being a Scientist", National Academy Press, 1995
- Jennifer Peat, "Scientific Writing: Easy When You Know How", latest edition

Equipment

None.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

Other requirements for final grade

- Active participation in seminars (1.5 credits)
- Passed written exam (3 credits)
- Passed written essay (3 credits)

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.