



AK2034 Vetenskapsteori och vetenskaplig metodik (beräkningsvetenskap) 4,5 hp

Theory and Methodology of Science (Computational Science)

När kurs inte längre ges har student möjlighet att examineras under ytterligare två läsår.

Fastställande

Kursplan för AK2034 gäller från och med HT08

Betygsskala

A, B, C, D, E, FX, F

Utbildningsnivå

Avancerad nivå

Huvudområden

Särskild behörighet

Eligibility for "free movers" applying to single courses:

General entrance requirements for university studies, ie completed upper secondary schooling incl documented proficiency in English.

Undervisningspråk

Undervisningspråk anges i kurstillfällesinformationen i kurs- och programkatalogen.

Lärandemål

Course goals

The course provides an introduction to the theory and methodology of science and is intended for the Master student or 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 computational 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. The course is mainly focused on the general theoretical and methodological issues that arise in science, with an emphasis on the natural and computational sciences; but basic theoretical issues, techniques and problems from the social sciences are also covered to provide the student with a wider outlook. Emphasis is placed on the fundamental problems common to the computational, social and natural sciences and on the general strategies, methods and concepts that modern science has developed to address these problems.

Kursinnehåll

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

Kursupplägg

Course disposition

Lectures and seminars.

Kurslitteratur

Course literature

- A.F. Chalmers "What Is This Thing Called Science?"
- Sven Ove Hansson "The art of being scientific"

Examination

- SEM1 - Seminarier, 1,5 hp, betygsskala: P, F
- TEN1 - Tentamen, 3,0 hp, betygsskala: A, B, C, D, E, FX, F

Examinator beslutar, baserat på rekommendation från KTH:s handläggare av stöd till studenter med funktionsnedsättning, om eventuell anpassad examination för studenter med dokumenterad, varaktig funktionsnedsättning.

Examinator får medge annan examinationsform vid omexamination av enstaka studenter.

Etiskt förhållningssätt

- Vid grupparbete har alla i gruppen ansvar för gruppens arbete.
- Vid examination ska varje student ärligt redovisa hjälp som erhållits och källor som använts.
- Vid muntlig examination ska varje student kunna redogöra för hela uppgiften och hela lösningen.