



# AK2055 Theory of Science and Research Methodology for Teachers 4.0 credits

Vetenskapsteori och forskningsmetodik för lärare

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

## Establishment

Course syllabus for AK2055 valid from Autumn 2019

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

## Specific prerequisites

General eligibility to master program studies is required.

## Language of instruction

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

## Intended learning outcomes

After completed course, the student is expected to

- be able to account for, and discuss, main concepts and topics in the philosophy of science,
- be able to account for, and discuss, main concepts and topics in scientific methodology,
- be able to discuss the strengths and weaknesses of different methods for collecting and analysing data in an experimental setting.

## Course contents

**Main concepts and topics in the philosophy of science:** knowledge, forms of knowledge, denial, explanations, causes, modes of inference, laws, theories, models, reductionism, underdetermination, theory dependence, falsification, demarcation, positivism, scientific values, scientific progress, repeatability.

**Main concepts and topics in scientific methodology:** observations, experiments, simulations, hypotheses and hypothesis testing, hypothesis generation, validity, reliability, blinding, randomisation, qualitative and quantitative data.

## Disposition

Lectures, seminars, students' own reading and writing work.

## Course literature

Course literature will be assigned no later than four weeks before the course start.

## Equipment

None.

## Examination

- SEM1 - Active Participation in Seminars, 1.5 credits, grading scale: P, F
- TEN1 - Written Assignment, 2.5 credits, grading scale: A, B, C, D, E, FX, F

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.

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

## **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.