



# FAK3024 Introduction to Theory of Science and Research Methodology, for Graduate Students in Technology and Natural Sciences 4.5 credits

Introduktion till vetenskapsteori och forskningsmetodik, teknik och naturvetenskaplig inriktning

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

**Establishment**

**Grading scale**

G

**Education cycle**

Third cycle

**Specific prerequisites**

Entry requirements for PhD studies.

## 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 will be able to

- account for and apply fundamental concepts from the theory and methodology of science on problem areas within the theory and methodology of science,
- account for fundamental theories concerning the epistemological and explanatory status of science,
- identify and critically discuss, both orally and in writing, fundamental theoretical and methodological issues in the technical, natural and social sciences,
- identify and critically discuss, both orally and in writing, specific metodological problems in a study, the design of an exeriment, the use of a particular method of measurement, or the use of a particular model,
- analyze the relationship between the basic results of a study and the conclusions that legitimately can be drawn on the basis of the results.

## Course contents

Scientific knowledge, hypothesis testing, causes and correlations, observations and measurements, experiments, models, laws and explanations, the development of science, scientific writing and peer review, research ethics.

## Course literature

Sven Ove Hansson: The Art of Doing Science.

Additional literature will be announced at least four weeks before the course starts.

## 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.

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

## Other requirements for final grade

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