



# **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**

Basic degree 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 the 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

## Course literature

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

## 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

- Seminars 1.5 hp
- Exam 3 hp

## 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.