



## Course syllabus

Faculty of Technology

Department of Mathematics

2MA450 Matematik, vetenskap och samhälle, 5 högskolepoäng

Mathematics, science and society, 5 credits

### Main field of study

Mathematics

### Subject Group

Mathematics

### Level of classification

First Level

### Progression

G2F

### Date of Ratification

Approved by Faculty of Technology 2020-05-18

The course syllabus is valid from spring semester 2021

### Prerequisites

Courses comprising 60 credits in mathematics, mathematics education, computer science or physics, at least of which 45 credits in mathematics, and of those at least 7,5 credits on the G2F level, or corresponding.

## Objectives

After the course the student must:

- be able to explain the hypothetic-deductive scientific method
- be able to explain the axiomatic mathematical method and discuss its limitations
- be able to discuss ethical problems in mathematics and its applications
- be able to write mathematics and handle references on a basic level
- be able to present mathematical arguments in written and in oral form, using presentation tools (for example Beamer)

## Content

### Philosophy of science and mathematics

- The hypothetic-deductive method
- The axiomatic mathematical method and its limitations
- What we mean by applied mathematics
- Ethics for mathematicians

### Mathematical communication

- Report writing and reference management
- Mathematical writing (formulas in text, structure, theorems, definitions, etc)
- Presentation technique
- LaTeX

## Type of Instruction

Lectures, seminars and supervision

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A is the highest grade, and the remaining grades follow in decreasing order where E is the lowest grade to pass. The grade F means that the student's performance is considered insufficient to pass.

The moment on Philosophy of science is examined by an oral exam. 2 credits (A-F)

The moment Assignment on mathematical writing is examined by assignments. 1 credit (A-F)

The moments Mathematical essay and oral communication is examined by a submitted essay and an oral presentation of its contents. 2credits (A-F)

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

## Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

## Required Reading and Additional Study Material

- Philosophy of Science - A contemporary introduction, Alex Rosenberg, Routledge, 2011
- Material from the department
- Ethical guidelines, American Mathematical Society [Electronic source]
- The not so short introduction to LaTeX, T. Oetiker et al. [Electronic source]
- Mathematical Writing, Franco Vivaldi, Springer, 2014