



# LT2048 Mathematics Didactics

## 7.5 credits

Matematikdidaktik

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

### Establishment

The official course syllabus is valid from the autumn semester 2022 in accordance with the decision by the Head of the ITM School: M-2022-1859. Date of decision: 09/11/2022

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Technology and Learning

### Specific prerequisites

- The upper secondary courses Sw B/3 and/or ENG B/6
- Mathematics, 4 ECTS, equivalent to module MAT1 in course LT1018

### Language of instruction

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

## Intended learning outcomes

Upon completion of the course, the students should be able to

1. Make short- and long-term didactic plans with special focus on students with individual conditions for learning
2. Design a practical lesson by using a variety of approaches
3. Demonstrate an understanding of the process of developing and planning curricula
4. Use various models and stages to develop curricula
5. Apply various strategies to examine the validity and reliability of test tasks.
6. Analyse assessment material from both national and international examinations
7. Explain research-based principles for assessment, mapping and measures, and how these can be used in practice.

## Course contents

This course deepens the student's knowledge of the didactics of mathematics, based on didactic research and practice-based knowledge. The course aims to develop the student's basic knowledge and practice regarding the development of students' mathematical abilities and how the the students' learning process can be monitored. Course topics:

- Principles of school mathematics
- Efficient teaching and learning of mathematics in the classroom
- Reflective teaching and teaching strategies
- Curriculum design in mathematics
- Mathematical abilities in the curriculum and in didactic research
- Students with special needs and students with special abilities in need of additional challenges
- Common misconceptions regarding mathematics among pupils in school year 7-9
- Didactic focus on analysis in one variable, vector algebra and discrete mathematics
- The affective, cognitive and psycho-motoric domains of learning
- Formative and summative assessment and grading
- Design of tests, and the validity and reliability of test tasks
- Swedish pupils' results in international assessments
- Didactic focus on selected fields in mathematics subject of the Swedish compulsory school.

## Examination

- KON1 - Partial examinations, 2.0 credits, grading scale: A, B, C, D, E, FX, F
- PRO1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Written examination, 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.