Joint Faculties of Humanities and Theology

ÄMAA04, Mathematical Didactics 1, 3.5 credits

Matematikdidaktik 1, 3,5 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by The Education Board of Faculty of Science on 2024-11-27. The syllabus comes into effect 2024-11-27 and is valid from the autumn semester 2025.

General information

The course is a component of the teacher education programme at Lund University.

Language of instruction: Swedish

Main field of study	*Specialisation*
Mathematics	G1N, First cycle, has only upper-secondary level entry requirements

Learning outcomes

The overall goal of the course is for the student to be able to connect acquired knowledge in analysis in one variable as well as in algebra and vector geometry with basic methodology for teaching mathematics in upper secondary school. Furthermore, the course aims to prepare the student for the practice-based part of the subject teacher education.

Knowledge and understanding

On completion of the course, the students shall be able to

- account for mathematical concepts and methods of relevance for applications to other subject areas and for the future teaching profession
- account for basic learning processes with regard to mathematical concepts of relevance to upper secondary school
- account for relevant parts of policy documents for upper secondary school and for summative and formative forms of evaluation.

Competence and skills

On completion of the course, the students shall be able to

- present mathematical arguments and problem solving orally, in writing and graphically
- plan and carry out pupil activities connected to upper-secondary school mathematics
- assess and grade the mathematical knowledge of upper-secondary school pupils.

Judgement and approach

On completion of the course, the students shall be able to

- critically analyse the solutions and presentations of other students and assess solutions alternative to their own solutions
- handle teaching-related questions connected to mathematical analysis, algebra and vector geometry
- reflect on the importance of one's own knowledge and competence in mathematical analysis, basic algebra, vector geometry, and programming for teaching and learning at the upper secondary school level.

Course content

Aspects relevant to the teaching of mathematics in upper secondary school are considered from both subject and subject-didactic perspectives. Aspects of the teaching profession are connected to the subject of mathematics and some theoretical models from constructivist and social perspectives are introduced and used in examples from upper-secondary school mathematics teaching. Various control instruments for mathematics teaching are discussed. Elements of digital tools, such as GeoGebra, related to teaching in upper secondary school, are included in the course.

Course design

Teaching consists of lectures and seminars. An essential feature of the seminars is practice in problem solving and oral mathematical communication which aims to prepare the students for the practical part of the subject teacher training.

Assessment

The examination consists of a written assignments and oral presentation of a lesson planning during the course. The oral presentation of the lesson planning includes feedback on other students' presentations.

Students who do not pass a regular assessment will be offered another opportunity for assessment soon thereafter.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Grades

Grading scale includes the grades: Fail, Pass

To receive the grade Pass, it is required to pass the written assignment and the oral presentation of the lesson plan.

Entry requirements

General requirements and studies equivalent of course Mathematics 4/D from Swedish Upper Secondary School.

Further information

The course is given at the Centre for Mathematical Sciences, Lund University.