



# IX1307 Problem-Solving in Mathematics 7.5 credits

## Problemlösning i matematik

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

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

## Establishment

The course plan is valid from VT 2024 according to the faculty board's decision:

J-2024-1032.

Decision date: 2024-05-14

## Decision to discontinue this course

The course will be discontinued at the end of HT 2026 according to the faculty board's decision: J-2024-1032.

Decision date: 2024-05-14 The course is offered for the last time Autumn 2024. The last opportunity to take an examination in the course is Autumn 2026. The exam is offered in the re-examination period. Contact the examiner to be examined on hand-in assignments.

## Grading scale

P, F

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

## Language of instruction

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

## Intended learning outcomes

This course should give a basis to university mathematics. On completion of the course, the student should be able to:

- communicate mathematical content
- use mathematical statements (propositions, predicates, definitions, axioms, theorems)
- use and visualise basic mathematical concepts: real numbers (integers, rational and irrational numbers), complex numbers, sets, functions as well as algebraic equalities and inequalities
- use mathematical argumentation and different proof techniques
- use computer-based mathematical tools for calculation and visualisation

## Course contents

Mathematical logic, mathematical definitions, basic number theory, sets, functions, mathematical axioms, algebraic equalities and inequalities, visualisation in mathematics, complex numbers, mathematical argumentation, mathematical proofs and proof models, generalisation of mathematical statements, use of computer-based mathematical tools

## Examination

- INL1 - Hand-in assignments, 4.5 credits, grading scale: P, F
- TEN1 - Exam, 3.0 credits, grading scale: P, 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.

## 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.