



SF1661 Perspectives on Mathematics 6.0 credits

Perspektiv på matematik

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

Establishment

Course syllabus for SF1661 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Basic requirements.

Language of instruction

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

Intended learning outcomes

After completing this course with a passing grade the student should, within the areas specified under Course Main Content, be able to

- Read and understand mathematical text
- Perform and in writing communicate various types of mathematical reasoning such as calculations, derivations, logical conclusions and proofs.
- Formulate and use methods, concepts and theorems in problem solving.

Course contents

Main mathematical content:

- Sets and operations on sets. The concept of numbers. Representation of and arithmetics with natural numbers, integers, rational, real and complex numbers. Prime numbers. Sums. The binomial theorem.
- Euclidean distance, the absolute value and the equation of the circle. Polynomials and factorization.
- Functions. Invertible functions. The elementary functions and their basic properties. Limits of sequences and real-valued functions of one real variable. Simplifications and computations. Equations and inequalities.

The course also treats

- The concepts of mathematics, including “Definition”, “Theorem” and “Proof”. Mathematical reasoning and mathematical communication. Various types of proofs, including mathematical induction. Techniques for studying mathematics and learning of mathematics.

Course literature

The course literature is announced on the course webpage no later than three weeks before the start of the course.

Examination

- TEN1 - Examination, 6.0 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.

During the course there is also a number of non-mandatory tests and assignments where students have the possibility to get bonus points adding to the score of the final exam.

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability. The examiner may allow another form of examination for reexamination of 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.