



SF2740 Graph Theory 7.5 credits

Grafteori

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 syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

Grading scale

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

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

English B / English 6

Completed basic course SF1610 Discrete Mathematics, SF1662 Discrete Mathematics, SF1679 Discrete Mathematics or SF1688 Discrete Mathematics.

Language of instruction

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

Intended learning outcomes

After the course the student should be able to

- explain basic concepts, theorems and proofs within the parts of graph theory described by the course content,
- use basic concepts, methods and theorems in graph theory to solve problems and communicate with the help of mathematical language.

Course contents

Basic concepts of graph theory: degree, distance, diameter, matching etc. Theory for matchings, in particular for bipartite graphs. Structure theorems about 2- and 3- connected components of graphs, also Mader's and Menger's Theorems. Theory about minors, planarity. Coloring of various kinds, Perfect graphs, Hadwiger's conjecture, random graphs and the probabilistic method.

Examination

- TEN1 - Examination, 7.5 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.

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 re-examination of individual students.

Other requirements for final grade

Continuous examination with assignments and presentation of project.

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.