SF1677 Foundations of Analysis 7.5 credits

Analysens grunder

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

Course syllabus for SF1677 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed basic course SF1626 Calculus in Several Variable or SF1674 Multivariable Calculus.

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

- use concepts. theorems and methods to solve and present solutions to problems within the parts of foundations of analysis described by the course content,
- read and comprehend mathematical text, in order to learn to solve problems involving proofs of basic concepts in analysis.

Course contents

- Real numbers. Metric spaces. Basic topological concepts. Heine-Borel's theorem. Bolzano-Weierstrass theorem. Convergence. Continuity. Derivative. Riemann-Stieltjes integral. Uniform convergence. Spaces of functions. Stone-Weierstrass theorem. Arzela-Ascoli theorem.
- Derivative of multivariable functions. Banach's fixed point theorem. Implicit and inverse mapping theorem. Something about the Lebesgue integral.

Course literature

Announced no later than 4 weeks before the start of the course on the course web page.

Examination

- TEN1 - Exam, 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.

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.