SF2750 Algbraic Topology 7.5 credits

Algebraisk topologi

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

Establishment

Course syllabus for SF2750 valid from Spring 2020

Grading scale

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

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

Completed courses SF1678 Groups and Rings.

Language of instruction

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

Intended learning outcomes

After completing the course, the student will be able to:

- formulate and prove basic theorem in algebraic topology
- compute the (co)homology of topological spaces and interpret the results geometrically.

Course contents

- Singular homology and cohomology of topological spaces
- Exact sequences, chain complexes, and homology
- homotopy invariance of singular homology
- Mayer-Vietoris sequence and excision
- Cell complexes and cellular homology
- The cohomology ring
- Homology and cohomology of spheres and projective spaces
- Applications such as the hairy ball theorem, Brouwer's fixed point theorem and the Borsuk-Ulam theorem

Course literature

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

Examination

- ÖVN1 - Assignment, 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.

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

The examiner decides about adapted examination for students with documented, severe disabilities in consultation with the contact person for disabilities at KTH (Funka). The examiner may allow a different 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.