



SF1681 Linear Algebra. Advanced Course 6.0 credits

Linjär algebra, fortsättningskurs

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

Establishment

Course syllabus for SF1681 valid from Autumn 2018

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

SF1672 Linear algebra

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 students should for a passing grade be able to

- Explain the meaning of basic concepts and theorems within the parts of linear algebra as described by the course content.
- Use basic concepts and theorems within the parts of linear algebra as described by the course content in order to solve applied problems and to communicate with the help of mathematical terminology also in other contexts.

For higher grades, the student should in addition be able to

- Explain how different theorems and concepts are connected and deduce relationships from the given theorems.

Course contents

Vector spaces, linear transformations, bases, direct sums, eigenvalues and generalized eigenvectors, Jordan canonical form, inner product spaces, adjoint, Hermitian and unitary operators, singular value decomposition, tensor products, outer product and finite groups, with applications in, for example, differential equations, signal analysis, inverse problems, linear regression, image compression, Markov chains or graph theory.

Course literature

Applied Linear Algebra by Lorenzo Sadun

Examination

- TEN1 - Exam, 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.

Other requirements for final grade

Written exam (TEN1, 6 hp) supplemented with bonus points from continuous examination.

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.