

Linear algebra

Linjär algebra
6 credits

Programme course

TAIU13

Valid from: 2022 Autumn semester

Determined by	Main field of study	
Board of Studies for Electrical Engineering, Physics and Mathematics	Mathematics	
Date determined	Course level	Progressive specialisation
	First cycle	G1X
Revised by	Disciplinary domain	
	Natural sciences	
Revision date	Subject group	
	Mathematics	
Offered first time	Offered for the last time	
Autumn semester 2022		
Department	Replaced by	
Matematiska institutionen		

Course offered for

- Bachelor of Science in Applied Physics

Intended learning outcomes

After completing the course, the student should be able to

- formulate and explain basic concepts and theorems
- demonstrate basic skills in calculation, problem solving and using its key concepts, theorems and methods in applications
- perform standard calculations with good certainty.

Course content

Systems of linear equations. Matrices and inverses. Geometrical vectors. Scalar product. Vector product and orientation. Determinants. Lines and planes. Method of least squares. Change of basis. Linear mappings and their matrices. Eigenvalues and eigenvectors. The spectral theorem with applications. Systems of differential equations.

Teaching and working methods

Lectures and tutorials.

Examination

TEN1	Written Examination	6 credits	U, 3, 4, 5
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Grades

Four-grade scale, LiU, U, 3, 4, 5

Other information

About teaching and examination language

The teaching language is presented in the Overview tab for each course. The examination language relates to the teaching language as follows:

- If teaching language is “Swedish”, the course as a whole could be given in Swedish, or partly in English. Examination language is Swedish, but parts of the examination can be in English.
- If teaching language is “English”, the course as a whole is taught in English. Examination language is English.
- If teaching language is “Swedish/English”, the course as a whole will be taught in English if students without prior knowledge of the Swedish language participate. Examination language is Swedish or English depending on teaching language.

Other

The course is conducted in a manner where both men's and women's experience and knowledge are made visible and developed.

The planning and implementation of a course should correspond to the course syllabus. The course evaluation should therefore be conducted with the course syllabus as a starting point.

If special circumstances prevail, the vice-chancellor may in a special decision specify the preconditions for temporary deviations from this course syllabus, and delegate the right to take such decisions.