



LUND
UNIVERSITY

Faculty of Science

NUMA11, Numerical Analysis: Numerical Linear Algebra, 7.5 credits

Numerisk analys: Numerisk linjär algebra, 7,5 högskolepoäng
First Cycle / Grundnivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2007-04-12 to be valid from 2007-07-01, autumn semester 2007.

General Information

The course is a compulsory course for first-cycle studies for a Bachelor of Science in mathematics.

Language of instruction: Swedish and English

Main field of studies

Mathematics

Depth of study relative to the degree requirements

G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is that students on completion of the course should have acquired the following knowledge and skills: Knowledge and understanding To pass the course, the student should have shown considerably increased and more useful knowledge in numerical linear algebra than what is required in the basic course (NUMA22). Skills and abilities To pass the course, the student should have shown practical experience of implementation of algorithms on a computer and of their application. Judgement and approach The student should during the course with adequate terminology and in a logical manner account for the construction and application of essential numerical methods for linear problems.

Course content

The course consists of one subpart of 7.5 credits. The student learns how to solve practical problems by means of modern numerical methods and computers. Central concepts are convergence, stability and complexity. The tools are for example matrix factorizations and orthogonalisation. The algorithms can, inter alia, be used to solve very large systems of linear equations that arise when discretizing partial differential equations.

Course design

The teaching consists of lectures and computer exercises. Participation in the computer exercises and other teaching connected with them is compulsory.

Assessment

Examination takes the form of written laboratory reports during the course.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To pass the entire course, approved laboratory reports and participation in all compulsory parts are required. The final grade is determined from the joint grades on the individual laboratory reports.

Entry requirements

For admission to the course, general entry requirements and knowledge equivalent to the course NUMA21 Tools of Computational Mathematics, 7.5 credits are required.

Further information

The course may not be included in a higher education qualification together with NUM115 Numerical linear algebra 7.5 credits.

Subcourses in NUMA11, Numerical Analysis: Numerical Linear Algebra

Applies from H07

0701 Numerical Linear Algebra, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction