



LUND
UNIVERSITY

Faculty of Science

MATB16, Mathematics: Linear Analysis, 7.5 ECTS credits
Matematik: Lineär analys, 7,5 högskolepoäng
First Cycle / Grundnivå

Confirmation

The course syllabus was confirmed by the Education Committee of the Faculty of Science on 27-04-2007 to be valid from 27-04-2011, Autumn semester of 2011.

General information

The course is an optional course at the First cycle in a Bachelor's degree in science.

Language of instruction: Swedish or English. When needed, the entire course will be given in English.

Main Field of Studies

Mathematics

Specialisation

G1F, First cycle, has less than 60 credits course/s at the first cycle as admission 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

On completion of the course, the student shall:

- be able to use and describe the theory and applications of function series and Fourier series
- be acquainted with the mathematical notions and methods brought up within the course

Skills and abilities

On completion of the course, the student is expected to:

- have developed an ability to interpret relevant information and to independently identify, formulate, and solve problems concerning the areas listed under the course content
- have developed a good skill and ability to handle problems within basic linear analysis
- have developed his/her ability to identify the logical structure of mathematical arguments and to prove mathematical statements,
- have developed his/her ability to communicate mathematics in spoken and written form

Assessment skills and approach

On completion of the course, the student is expected to:

- be able to appreciate and use formal mathematical concepts
- have acquired basic knowledge to be prepared for further studies of mathematics

Course content

- Function series, uniform convergence, pointwise convergence
- Fourier series, Parseval's formula
- Cosine and sine series
- Applications to classical partial differential equations

Course implementation

The teaching consists of lectures and group exercises.

Course examination

Examination consists of a written test at the end of the course. Students who fail the ordinary examination are offered a re-examination shortly after.

Grading scale

The grading scale consists of the grades Fail, Pass, Pass with distinction.

In order to pass the entire course, it is required to pass the written examination.

The final grade is determined by the quality of the results on the different parts of the examination.

Admission requirements

To be eligible for the course requires basic eligibility and the courses MATA14 Analysis 1, 15 ECTS credits, MATA15 Algebra 1, 15 ECTS credits and MATB11, Linear Algebra, 7.5 ECTS credits, or corresponding.

Additional information

The course can not be credited as part of a degree along with the course MATB12 Fourier Analysis, 7.5 ECTS credits.