

# Real Analysis, Honours Course

Programme course

6 credits

Analys, överkurs

TATA34

Valid from: 2017 Spring semester

**Determined by**

Board of Studies for Electrical  
Engineering, Physics and Mathematics

**Date determined**

2017-01-25

## Main field of study

Mathematics, Applied Mathematics

## Course level

First cycle

## Advancement level

G2X

## Course offered for

- Industrial Engineering and Management - International, M Sc in Engineering
- Industrial Engineering and Management, M Sc in Engineering
- Applied Physics and Electrical Engineering - International, M Sc in Engineering
- Applied Physics and Electrical Engineering, M Sc in Engineering
- Mathematics, Bachelor's Programme

## Entry requirements

Note: Admission requirements for non-programme students usually also include admission requirements for the programme and threshold requirements for progression within the programme, or corresponding.

## Prerequisites

A basic course in calculus and linear algebra.

## Intended learning outcomes

To extend and enhance the analysis taught in the basic calculus courses as a preparation for more advanced studies in mathematics and applied subjects. In the course, the student also practices his/her ability to read and write mathematical text and, in particular, mathematical proofs. After completing the course, the student should

- have a good understanding of the real number system and of functions of a real variable,
- be able to cite and explain the essential definitions and theorems in real analysis,
- be able to apply the theory to new situations,
- be able to independently formulate and prove simple results about functions of a real variable.

## Course content

The real number system, limits of sequences, series, limits of functions, continuity, differentiation, sequences and series of functions, the Riemann integral.

## Teaching and working methods

Lectures.

The course runs over the entire autumn semester.

## Examination

UPG1      Assignments      6 credits      U, 3, 4, 5

## Grades

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

## Department

Matematiska institutionen

## Director of Studies or equivalent

Jesper Thorén

## Examiner

Jana Björn

## Course website and other links

<http://courses.mai.liu.se/Lists/html/index-amne-tm.html>

## Education components

Preliminary scheduled hours: 36 h

Recommended self-study hours: 124 h

## Course literature

### Additional literature

#### Books

S. Abbott, (2001) *Understanding Analysis*

## Common rules

Regulations (apply to LiU in its entirety)

The university is a government agency whose operations are regulated by legislation and ordinances, which include the Higher Education Act and the Higher Education Ordinance. In addition to legislation and ordinances, operations are subject to several policy documents. The Linköping University rule book collects currently valid decisions of a regulatory nature taken by the university board, the vice-chancellor and faculty/department boards.

LiU's rule book for education at first-cycle and second-cycle levels is available at [http://stydokument.liu.se/Regelsamling/Innehall/Utbildning\\_pa\\_grund-\\_och\\_avancerad\\_niva](http://stydokument.liu.se/Regelsamling/Innehall/Utbildning_pa_grund-_och_avancerad_niva).