



DEPARTMENT OF MATHEMATICAL SCIENCES

MMGD30 Calculus D, 7.5 credits

Matematisk analys D, 7,5 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Mathematical Sciences on 2017-06-28 and was last revised on 2022-11-11 to be valid from 2023-01-16, spring semester of 2023.

Field of education: Science 100%

Department: Department of Mathematical Sciences

Position in the educational system

The course can be part of the following programme: 1) Computer Science, Bachelor's Programme (N1COS)

Main field of studies

Mathematics

Specialization

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

Entry requirements

General entry requirements and knowledge equivalent to the course *MMGD20 Linear Algebra D*.

Learning outcomes

On successful completion of the course the student will be able to:

? define and manipulate elementary functions and algebraic expressions,

? explain the concepts of derivative and integral and the connection between them,

? calculate integrals both analytically and numerically,

- ? explain optimality criteria,
- ? solve simple differential equations,
- ? approximate functions with polynomials and represent them as power series,
- ? combine knowledge of different concepts in practical problem-solving.

Course content

Elementary functions. Limits. Continuity and differentiability for real functions. Mean value theorem. Riemann integral. Primitive functions and the connection to integrals. Applications of integrals to calculate volumes of bodies and the length of curves. Simple differential equations. Taylor expansions and approximations of functions. Complex numbers.

Form of teaching

Language of instruction: Swedish

Assessment

The course is examined through a written examination at the end of the course. During the course, there may be optional assignments that give bonus points on the exam. Examples of such assignments are small written tests, labs, and oral or written presentations. Information for the current course instance is given via the course homepage.

If a student, who has failed the same examined component twice, wishes to change examiner before the next examination, a written application shall be sent to the department responsible for the course and shall be granted unless there are special reasons to the contrary (Chapter 6, Section 22 of Higher Education Ordinance).

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

The course is evaluated with an anonymous questionnaire and/or a discussion with the student representatives. The result and any changes to the course will be communicated to the students who carried out the evaluation and to the students who are to start the course.

Additional information

For literature list, see:

<https://www.chalmers.se/sv/institutioner/math/utbildning/grundutbildning-goteborgs-universitet/kurslitteratur/Sidor/Kurslitteratur-i-matematik.aspx>

The course syllabus of MMGF30 was originally established to apply from 01/07/2007, when it replaced MAN120.