Linnæus University

Course syllabus

Faculty of Technology

Department of Mathematics

1MA465 Flervariabelanalys och vektoranalys, 7.5 credits
Multivariable Calculus and Vector Calculus

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
First Level

Progression
G1F

Date of Ratification
Approved 2014-10-03
Revised 2022-03-07 by Faculty of Technology. Credit overlap is revised.
The course syllabus is valid from autumn semester 2022

Prerequisites
Calculus 2, 7,5 Credits (1MA404, 1MA132), and Linear algebra, 7,5 Credits (1MA406, 1MA133), or equivalent.

Objectives
After completing the course, the student should be able to solve problems, perform calculations, and conduct lines of reasoning within the part of mathematics that is covered by the course, and to communicate those solutions, calculations, and reasonings in writing.

Content
Vector valued functions of several variables, scalar and vector fields, line, surface, double and triple integrals, partial derivatives, gradient, divergence and curl, scalar and vector potential, Green's, Gauss's and Stokes' theorems, curvilinear coordinates, engineering applications.

Type of Instruction
Lectures , exercises and laboratory lessons. Laboratory work may be individually or in group. Compulsory assignments.

Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as failed.

The assessment of the student's performance is by written exams and presentation of compulsory assignments.

- Assignment 1 credit (P/F)
- Exam 6.5 credits (A-F)

Repeat examination is offered in accordance with Local regulations for courses and examination at the first and second-cycle level at Linnaeus University.

If the university has decided that a student is entitled to special pedagogical support due to a disability, the examiner has the right to give a customised exam or to have the student conduct the exam in an alternative way.

Course Evaluation

During the implementation of the course or in close conjunction with the course, a course evaluation is to be carried out. Results and analysis of the course evaluation are to be promptly presented as feedback to the students who have completed the course. Students who participate during the next course instance receive feedback at the start of the course. The course evaluation is to be carried out anonymously.

Credit Overlap

The course cannot be included in a degree along with the following course/courses of which the content fully, or partly, corresponds to the content of this course: 1MA165 Multivariable Calculus and Vector Calculus, 7.5 credits, 1MA906 Multivariable Calculus and Vector Calculus, 7.5 credits, 1MA916 Multivariable Calculus, 5 credits, 1MA452 Analysis of several variables, 5 hp

Other

Grade criteria for the A–F scale are communicated to the student through a special document. The student is to be informed about the grade criteria for the course by the start of the course at the latest.

Required Reading and Additional Study Material

Required reading

Adams, Robert A., , Essex, Christopher *Calculus – A complete course*, Addison-Wesley, 2013.