



Course syllabus

Faculty of Technology
Department of Mathematics

4MA451 Forskningsmetodik, 7,5 högskolepoäng
Research Methodology, 7.5 credits

Main field of study

Mathematics

Subject Group

Mathematics

Level of classification

Second Level

Progression

A1F

Date of Ratification

Approved by Faculty of Technology 2014-10-03

The course syllabus is valid from autumn semester 2015

Prerequisites

60 credits in mathematics at the advanced level including 4MA441 Mathematical Modelling or equivalent and at least one of the courses 4MA423, 4MA424 or one of the courses 4MA412, 4MA403 or one of the courses 4MA503, 4MA505, 4MA502, 4MA507.

Objectives

After this course the student should have a knowledge in the theory of science and research in general and be able to

- formulate goals and limits for research projects
- choose and argument for selection of model and mathematical methods
- find known research results of interest for a specific project
- present results orally
- write mathematical texts using LaTeX
- present mathematical results in research papers using LaTeX.

Content

The course consists of the following parts:

- Theory of science and research methodology
- The process of writing academic reports
- Exercises in oral presentation.
- Preparation and planning of a research project
- Writing mathematical texts using LaTeX

Type of Instruction

The teaching consists of lectures, exercises and project work. Some elements are compulsory.

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 fail (i.e. received the grade F).

The assessment of student performances is usually based on submitted reports and exercises. Oral examination may also be included. The principal assessment method for the course is determined at the beginning of the course.

Course Evaluation

A course evaluation will be carried out at the end of the course in accordance with the guidelines of the University. The result of the course evaluation will be filed at the department.

Credit Overlap

This course cannot be part of a degree in combination with another course in which the content fully or partly correspond to the content of this course: 4MA151 Research Methodology, 7.5 credits

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

Philosophy of Science - A contemporary introduction, Alex Rosenberg, Routledge, third edition or later, 2011

Ethical guidelines, American Mathematical Society (<http://www.ams.org/about-us/governance/policy-statements/sec-ethics>)

Handbook of Writing for the Mathematical Sciences, Nicholas J Higham, SIAM, 1998.