Linnæus University

Jnr: 2015/4217-3.1.2

Course syllabus

Faculty of Technology
Department of Mathematics

4MA441 Matematisk modellering 2, 7,5 högskolepoäng
Mathematical Modelling 2, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
Second Level

Progression
A1F

Date of Ratification
Approved 2015-05-22
Revised 2015-12-22 by Faculty of Technology. Prerequisites and literature list is revised.
The course syllabus is valid from autumn semester 2016

Prerequisites
30 credits in mathematics at the advanced level including 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
The aim of the course is to improve the students knowledge about mathematical modelling and to establish a deeper knowledge in modelling techniques within a specific field.

After the course the student is expected to:

- understand and apply the principles of mathematical modelling
- plan and perform a modelling project
- be able to analyze and evaluate obtained results
- be able to use LaTeX to write reports, according to the demands of publishing within the mathematical field
- present results orally.

Content
The course contains:

- modelling principles
- discrete models, continuous models, deterministic models, stochastic models
- problem solving by mathematical modelling

- the typesetting standard LaTeX
- report writing
- presentation techniques.

Type of Instruction
Teaching consists of lectures, seminars, laboratory work and tutoring.

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 examination on the course consists of written assignments (3 credits), and a project (4.5 credits) in a form of written report that also is to be presented orally. As a part of the project the student should write an opposition report.

Course Evaluation
During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

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: 4MA141 Mathematical Modelling 2, 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
Stefan Heinz, Mathematical modeling, Springer, 2011 or later