Linnæus University

Jnr: 2014/3195-3.1.2

Course syllabus

Faculty of Technology
Department of Mathematics

4MA414 Integralekvationer, 7,5 högskolepoäng
Integral Equations, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved by Faculty of Technology 2014-10-03
The course syllabus is valid from autumn semester 2015

Prerequisites
4MA415 Functional analysis 7.5 credits or equivalent.

Objectives
Upon completion of the course, the student should be able to:

- apply functional analytic methods on operators and integral equations
- describe definitions and relations in the theory for integral equations and to use these in problem solving
- interpret, communicate and argue using mathematical notions.
- apply the studied theories within one area in applied mathematics, science and engineering.

Content
The course comprises:

- bounded and compact operators
- Riesz theory
- Fredholm theory
- potential theory
- approximations of operators
- quadrature methods
- projection methods
- iterativa methods.

Type of Instruction

Lectures and seminars. Group assignments and compulsory assignments may be given during the course.

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 course is assessed in two stages where the first stage includes assignments that will be graded A, B, C, D, E, or F. The grades Fx D, E, F or Fx become the final grade of the course. Grades A, B and C give the grades A, B or C as the final grade for a volontary oral examination and grade C without this second examination.

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

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:4MA114 Integral Equations, 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
Rainer Kress *Linear Integral Equations*, 2nd edition, Springer, 1999. 265 pages.