Linnæus University

Jnr: 2014/3178-3.1.2

Course syllabus

Faculty of Technology
Department of Mathematics

1MA441 Grundläggande matematik för dataloger, 7,5 högskolepoäng
Basic Mathematics for Computer Scientists, 7.5 credits

Main field of study
Mathematics

Subject Group
Mathematics

Level of classification
First Level

Progression
G1N

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

Prerequisites
General entry requirements and Mathematics D or Mathematics 3c (Field-specific entry requirements 8/A8).

Objectives

The student should be able to:

- perform computations in different number sets.
- solve elementary equations and inequalities involving rational expressions or absolute values.
- solve problems within the areas of set theory, number theory and combinatorics.
- describe definitions and sketch graphs of elementary functions.
- perform elementary computations with complex numbers.
- solve linear systems of equations by Gaussian elimination.
- perform computations with matrices.
- describe definitions of and derive relations between central concepts of the course and apply these relations to solve problems.
- solve problems and visualize concepts and relations with mathemtical software.

- be able to interpret, communicate and argue using mathematic notions.

Content
Numbers, logic, set theory, algebraic expressions, equations and inequalities, elementary functions, divisors, prime numbers, division algorithm, congruences, recurrence relations, induction, permutations, combinations, binomial theorem, complex numbers, complex plane, factor theorem, Linear equation systems, Gaussian elimination, matrices.

Type of Instruction
Lectures, seminars and computer exercises. 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 student's knowledge is assessed in the form of written examinations, which involve both computation and theory questions. Furthermore, continuous assessment can be used during the course.

Course Evaluation
A course evaluation will be carried out and compiled after the course is completed. The compilation will be presented to the current board as well as to the students and filed.

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: 1MA141 Basic Mathematics for Computer Scientists, 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
Sullivan M.*College Algebra*, international edition. Pearson, latest edition. 800 pages.

Houston K.//How to think like a Mathematician, Cambridge, latest edition, 200 pages.

Material from the department