



Course syllabus

Faculty Board of Science and Engineering

School of Computer Science, Physics and Mathematics

OMA101 Matematik på basåret/basterminen I, 15 högskolepoäng

OMA101 Mathematics, Preparatory course I, 15 credits

Subject Group

Mathematics

Level of classification

Pre-university level

Progression

G1N

Date of Ratification

Approved 2009-08-11

Revised 2010-08-04 by School of Computer Science, Physics and Mathematics.
Revision of prerequisites and course evaluation.

The course syllabus is valid from spring semester 2011

Prerequisites

General entry requirements and Mathematics 2a / 2b / 2c, Physics 1b1 / 1a or
Mathematics B, Physics A (Field-specific entry requirements 7/A7).

Objectives

The student shall be able to:

- perform calculations regarding trigonometry, derivatives and integrals
- interpret and use elementary functions and equations
- sketch graphs and solve extreme value problems
- use trigonometry, derivatives and integrals in problem solving
- give an account of definitions and important ideas in the course
- interpret, communicate and argue using mathematical forms of representation.

Content

Algebra and functions:

Algebraic simplifications, equations, inequalities, exponential functions, logarithms, polynomials, power functions.

Trigonometry: The unit circle, theorems on triangles, trigonometric equations, trigonometric identities and functions.

Derivatives: The definition of derivative, derivatives of elementary functions,

derivatives of compositions, products and quotients, using derivatives to interpret functions.

Integrals: The definition of integral, primitive functions of elementary functions, calculating areas, numerical methods for calculating integrals, applications of integrals.

Use of graphing calculators.

Type of Instruction

Lectures and seminars. Compulsory assignments may be given during the course.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

The student's knowledge is assessed in the form of oral and/or written examinations. The principal assessment method is decided at the beginning of the course.

On request, students may have their credits translated to ECTS-marks. Such a request must be sent to the examiner before the grading process starts.

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.

Required Reading and Additional Study Material

Required reading

Björup K mfl. *Nya delta - Matematik kurs C*, Gleerups, 2002. 190 (190) pages.

Björup K mfl. *Nya delta - Matematik kurs D*, Gleerups, 2002.
190 (190) pages.