Department of Mathematics (incl. Math. Statistics)

Stockholm University

Syllabus

for course at first level

Introductory Course in Mathematics
Förberedande kurs i matematik

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	MM1003
Valid from:	Autumn 2007
Date of approval:	2007-06-07
Department	Department of Mathematics (incl. Math. Statistics)
Subject	Mathematics
Specialisation:	G1N - First cycle, has only upper-secondary level entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University on 27 September 2006, revised on 7 June 2007.

Prerequisites and special admittance requirements

Swedish upper secondary school course Mathematics C, or equivalent.

Course structure

Examination code	Name	Higher Education Credits
F101	Algebra	3
F102	Function theory	4.5
F103	Introductory course in mathematics	7.5

Course content

a. The course treats the difference between a number and its notation and the difference between an arithmetic operation and different algorithms for performing it – these operations are treated in the extentions of the basic field of numbers from the positive integers to the complex numbers – the binomial theorem, prime numbers and factorization, the connection between variables, inequalities, absolute value, algebraic and graphic representation of point sets, especially domains limited by circles and straight lines, the importance of the derivative in graph scetching and in optimization problems, trigonometric functions and equations, polar representation of complex numbers, arithmetic operations on polynomials, the factor theorem, the concept of the integral as an infinite sum.

b. The course includes the following elements:
1. Algebra 3 credits (F101)
2. Function theory 4.5 credits (F102)

Learning outcomes

It is expected that the student after taking the course will be able to:
• understand the meaning of the arithmetical operations in different number domains and know in different ways how to perform these
• change between graphical and algebraic representations of point sets on the line, in the plance and in space
• handle polynomials algebraically and use this in equation solving
• use the derivative in graph scetching and in optimization problems

• account for the general definitions of the trigonometric functions and their use in polar representation of complex numbers
• in communication with other students argument and account for mathematical reasoning and test and evaluate different reasonings.

Education

The education consists of distance independent studies on Internet, and obligatory submitted work.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through Written and/or oral examination that could take place over the internet. The element F102 is graded with a 7-point grading scale, se point b. below.

b. Grading is carried out according to a 7-point scale related to learning objectives:
A = Excellent
B = Very Good
C = Good
D = Satisfactory
E = Sufficient
Fx = Fail
F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with pass of element F101.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term "examination" here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Limitations

The course may not be included in a degree together with the course "Introductory course in mathematics" (MA1130), or the equivalent.

Misc

The course is given as an individual course.

Required reading

Course literature is decided by the departmental board and is described in an appendix to the syllabus.