Syllabus

for course at first level

Mathematics II - Analysis, part A	**7.5 Higher Education**
Matematik II - Analys, del A	**Credits**
	7.5 ECTS credits

Course code:	MM5010
Valid from:	Spring 2015
Date of approval:	2014-08-22
Department	Department of Mathematics (incl. Math. Statistics)
Main field:	Mathematics/Applied Mathematics
Specialisation:	G1F - First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University on 22 August 2014.

Prerequisites and special admittance requirements

To qualify for the course, knowledge equivalent to Mathematics I, 30 ECTS credits (MM2001) or Mathematics for the Natural Sciences I, 15 ECTS credits (MM2002) and Mathematics for the Natural Sciences II, 15 ECTS credits (MM4001), or equivalent, is required.

Course structure

Examination code	Name	Higher Education Credits
HELA	Mathematics II - Analysis, part A	7.5

Course content

The course covers the theory of differential calculus in one variable (limits, continuity, derivative, Taylor's theorem), introduction to integral calculus in one variable, differential calculus in several variables (limits, continuity, differentiability, gradient, higher derivatives, Taylor's theorem, maximum and minimum problems with and without constraints), series and improper integrals in one variable.

Learning outcomes

It is expected that the student after taking the course will be able to:
* define and account for the basic concepts in differential calculus in one and several variables, integral calculus in one variable and the theory for series and improper integrals,
* account for and prove basic theorems in differential calculus in one and several variables and the theory for series and improper integrals,
* explain and use methods in differential calculus in several variables to solve mathematical and applied problems,
* explain and use methods in the theory for series and improper integrals.

Education

Instruction is given in the form of lectures and exercises.

Forms of examination

a. Examination for the course is in the following manner: measurement of knowledge takes place through written examination.

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.

e. Students who fail an ordinary examination are entitled to take additional examinations as long as the course is offered. There is no restriction on the number of examinations. The term "examination" here is used to denote even 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.

The course has at least two examinations for each academic year in the years in which instruction is provided. Intervening years include at least one examination.

f. A student who receives the grade Fx will be given an opportunity to upgrade to E by successfully completing some extra task(s) assigned by the examiner, who also decides on the criteria to be fulfilled in order to pass. The completion must take place before the following examination session.

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. The provision also applies in the case of revisions to the syllabus.

Limitations
The course may not be included in a degree together with the course Mathematical analysis III (MM5001), or equivalent.

Misc
The course is a component of the Bachelor's Programmes in Mathematics, Mathematics and Philosophy, Mathematics and Economy, Computer Science, Physics, Biomathematics and Computational Biology, Oceanography, Astronomy, Meteorology and Master's Programme in Medical Physics. It can also be taken as an individual course.

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