Department of Mathematics
(incl. Math. Statistics)

Stockholm University

Syllabus

for course at first level

Introduction to Finance Mathematics
Grundläggande finansmatematik

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	MT5009
Valid from:	Autumn 2008
Date of approval:	2008-02-04
Changed:	2008-10-13
Department	Department of Mathematics (incl. Math. Statistics)
Subject	Mathematical Statistics
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 15 October 2007 and revised on 4 February 2008, 13 October 2008.

Prerequisites and special admittance requirements

Prerequisites for the course are courses equivalent to Mathematical analysis III FC, 7.5 hp (MM5001), Linear Algebra II FC, 7.5 hp (MM5004), Statistical analysis FC, 7.5 hp (MT4001) and Stochastic processes and simulation I FC, 7.5 hp (MT4002).

Course structure

Examination code	Name	Higher Education Credits
LABO	Computer Exercises	1.5
TENT	Introduction to Finance Mathematics	6

Course content

a. The course is about risk management for financial markets. The cours covers interest rate, arbitrage, forwards, options including Black-Schole's formula, optimal portfolios, CAPM and Value at Risk.
b. The course includes the following elements:
1. Theory 6 hp
2. Computer Exercises 1.5 hp

Learning outcomes

It is expected that the student after taking the course will be able to:
* define the basic concepts of mathematical finance
* describe the financial problems in mathematical terms
* solve simple finance mathematical problems
* have skill to use mathematical computer programs as tools for analysis of financial problems

Education

The education consists of lectures, exercises and computer exercises. Participation in the computer exercises is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

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 E is required to pass the course.

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.

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

The course may not be included in a degree together with the course "Bayesianska metoder" (MS 3180).

The course is a component of the Master's Programme in Biostatistics, and it can also be taken as an individual course.

The course is a component of the Bachelor's Programme in Mathematics, Bachelor's Programme in Biomathematics, and Bachelor's Programme in Mathematics and Economics, and it can also be taken as an individual course.

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University on 27 September 2006.

The content of the course is decided by the supervisor in cooperation with the student. The work should be described in a written work plan that must be approved by the supervisor.

It is expected that the student after taking the course will be able to:
• independently acquire more profound knowledge of a mathematical field
• account for theoretical studies and independent investigations in an individually written report
• present acquired results in a seminar.

The education consists of seminars and supervision of project work.

a. Examination for the course is in the following manner: measurement of knowledge takes place through a written report and a presentation in a seminar of the degree project.

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 computer exercises and participation in all compulsory education.

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 courses "Finance Mathematics I", 5 p (MS3200), "Finance Mathematics II, 5p (MS3000) and Introduction to Finance Mathematics, GN, 7.5 hp (MT5008).

Misc

The course is a component of the Bachelor's Programme in Mathematics and Economics, but can even be the component of the Bachelor's Programme in Mathematics, Bachelor's Programme in Biomathematics,and 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.