Syllabus

for course at advanced level

Advanced Finance Mathematics
Fördjupning i finansmatematik

7.5 Higher Education Credits
7.5 ECTS credits

Course code:	MT7010
Valid from:	Spring 2009
Date of approval:	2006-09-27
Changed:	2008-10-13
Department	Department of Mathematics (incl. Math. Statistics)

Subject	Mathematical Statistics
Specialisation:	A1N - Second cycle, has only 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 27 September 2006 and revised on 13 October 2008.

Prerequisites and special admittance requirements

Knowledge equivalent to 60 hp in Mathematical Statistics including the course Introduction to Financial Mathematics FC, 7.5 hp (MT5009) or equivalent is required in order to be eligible for admission to the course. Also required is knowledge equivalent to Swedish upper secondary school course English B or equivalent to one of the following tests; Cambridge CPE and CAE: Pass, IELTS: 6.0 (with no part of the test below 5.0), TOEFL (paper based): 550 (with minimum grade 4 on the written test part), TOEFL (computer based): 213, TOEFL (internet based): 79.

Course structure

Examination code	Name	Higher Education Credits
TEOR	Advanced Finance Mathematics, exam	5.5
LABO	Computer Exercises	2

Course content

The course covers immunization of bond portfolios, stability of statistical estimators of parameters, trading strategies for several assets, optimal portfolios under constraints, rebalancing, performance measure, and simplified covariance structure.
b. The course includes the following elements:
1. Theory, 5.5 hp
2. Computer Exercises, 2 hp

Learning outcomes

It is expected that the student after taking the course will be able to:
* define the advanced concepts of
mathematical finance
* describe the financial problems in
mathematical terms
* solve advanced 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.

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" (MS 3200) and "Finance Mathematics II" (MS 3000).

Misc

The course is a component of the Master's Programme in Financial Mathematics and Finance, 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.