

## Education plan

for

**Master's Programme in Financial Mathematics and Finance**  
**Masterprogram i finansmatematik och finansiell ekonomi**

**120.0 Higher Education**  
**Credits**  
**120.0 ECTS credits**

<b>Programme code:</b>	NFMAO
<b>Valid from:</b>	Spring 2013
<b>Date of approval:</b>	2010-10-27
<b>Changed:</b>	2013-03-04
<b>Department:</b>	Department of Mathematics (incl. Math. Statistics)

### Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University, 2006-10-18, and reviewed 2007-10-15, 2008-10-13, 2013-03-04.

### Prerequisites and special admittance requirements

A Bachelor's degree with 45 ECTS credits in Mathematics and 60 credits in Mathematical Statistics. Second level courses in probability theory and stochastic processes, and an introductory course in financial mathematics are also recommended, as is experience with statistical programming in R or Matlab. English B (Swedish upper secondary school course) or equivalent, or one of the following tests: IELTS: 6.5 (with no section below 5.5). TOEFL (paper based): 575 (with minimum score 4,5 in the written test). TOEFL (internet based): 90 (with minimum score 20 in the written test). University of Cambridge and Oxford: Certificate in Advanced English or Diploma of English Studies.

### Programme structure

The Master's Programme in Financial Mathematics and Finance is an education that leans towards students who want to provide deeper knowledge within mathematical statistics, especially within financial mathematics and finances.

The programme is a two year full-time study programme that is composed of courses in mathematics, mathematical statistics, business and national economy on the second level. The education covers 120 credits. One course in mathematical economics (7.5 credits), one course in financial mathematics (7.5 credits) and two courses in finances (enclosed 15 credits) are compulsory courses. Other courses are elective within fields: mathematical statistics, business and national economy. The education ends with a degree project in financial mathematics for 30 credits. Prerequisites are a knowledge equivalent to courses Probability Theory II, FC, 7.5 hp (MT5002), Stochastic Processes and Simulation II, FC, 7.5 hp (MT5004) and Introduction to Finance Mathematics, FC, 7.5 hp (MT5009). A student who does not have these prerequisites is recommended to study them within facultative block.

## Goals

The main field of study is mathematical statistics.

For a Degree of Master students must

- demonstrate knowledge and understanding in their main field of study, especially financial mathematics and finance, both broad knowledge in the field and substantially deeper knowledge of certain parts of the field, together with a deeper insight into current research and development work,
  - demonstrate deeper methodological knowledge within financial mathematics and finance,
  - demonstrate an ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations, even when limited information is available,
  - demonstrate an ability to critically, independently and creatively identify and formulate issues and to plan, and in using appropriate methods, carry out advanced tasks within specified time limits, so as to contribute to the development of knowledge and to evaluate this work,
  - demonstrate an ability to clearly present and discuss their conclusions and the knowledge and arguments behind them, in a dialogue with different groups, orally and in writing, in national and international contexts,
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- demonstrate the skill required to participate in research and development work or to work independently in other advanced contexts,
  - demonstrate an ability to make assessments in the main field of study, taking into account relevant scientific, social and ethical aspects, and demonstrate an awareness of ethical aspects of research and development work,
  - demonstrate insight into the potential and limitations of science, its role in society and people's responsibility for how it is used, and
  - demonstrate an ability to identify their need of further knowledge and to take responsibility for developing their knowledge.

## Courses

Ms is stated for courses within mathematical statistics.

Compulsory courses:

1. Advanced Finance Mathematics, 7.5 hp (MT7010)(Ms)
2. Mathematical Economics, 7.5 hp (MM7011)
3. Statistical Models, 7.5 hp (MT7002) (Ms)
4. Finance Mathematics, Degree Project, 30 hp (Ms).

At least one of courses 5-6 below:

5. Probability Theory III, 7.5 hp (MT7001) (Ms)
6. Stochastic Processes III, 7.5 hp (MT7023) (Ms)

Elective courses: The collection of elective courses is decided by the department board. The list of elective courses is brought up to date every new academic year. Before every new start of a programme there will be a list showing a minimal amount of elective courses that will be guaranteed during the time of the programme.

The minimum amount of credits that has to be studied in elective courses is 30 credits in mathematical statistics and 15 credits in economics or business. Optional courses 15 credits.

## Degree

Master's Degree

## Misc

Students, admitted to the program and not having finished it within two years, may request that they be allowed to finish the program even after it has ceased to apply. By this the limitations given in the syllabi of the courses in the program must be taken into consideration.

Programme in cooperation with School of Business and Department of Economics.