SF298X Degree Project in Financial Mathematics, Second Cycle 30.0 credits

Examensarbete inom finansiell matematik, avancerad nivå

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

Establishment

Course syllabus for SF298X valid from Autumn 2015

Grading scale

A, B, C, D, E, FX, F

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

For students in Master's programme at least 60 credits must be completed before the degree project starts

For students within the Master's part of five-year degree (civilingenjör) at least 240 credits must be completed, and no more than 2 courses may be incomplete in the Bachelor part of the degree

It is the responsibility of the examiner to make sure that the student has an appropriate specialization and that the student has completed sufficient parts of the studies before the degree project is started. Exemption can, after assessment, be granted by the director of first and second cycle education. The degree project should normally be carried out during the last semester.

Specific eligibility requirements

Typically, the specific requirements for a degree project in financial mathematics are fulfilled if the student has completed the courses SF2701 Financial mathematics, SF2942 Portfolio theory and risk management, and at least one of the two courses SF2975 Financial derivatives or SF2980 Risk management, and at least one of the four courses SF2930 Regression analysis, SF2935 Modern methods of statistical learning, SF2943 Time series analysis, or SF2955 Computer intensive methods in mathematical statistics.

Depending on the project, other requirements may apply.

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

The student is expected to demonstrate the ability to:

- apply relevant knowledge and skills to a given problem within the engineering field of study,
- independently plan and carry out a project in optimization and systems theory
- collect additional knowledge and information necessary for the completion of the task
- present the results in a written report and orally including a discussion of the prerequisites, methodology, approach and results of the work
- identify one’s need for further knowledge and continuously develop one’s own competencies .

Course contents

The degree project work should treat a problem in financial mathematics.

The emphasis is placed on analysis and modelling, not programming and implementation. The extent of the project should correspond to at least 20 weeks of full time studies. The formulation of a detailed project description and plan is required as well as literature studies. The completed work is presented at an open seminar.

Course literature

An independent literature search and study within the relevant field is expected. A reading list can be suggested by the examiner or supervisor.

Examination

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

- XUPP - Examination Question, 30.0, grade scale: A, B, C, D, E, F,

Other requirements for final grade

The degree project is performed individually or together with another student. In the latter case the examiner must ensure that the contribution of each student corresponds to the requirements for an individual degree project. The project is reported in writing and orally in english or swedish.

The evaluation criteria for the degree project are given below, divided into the categories: Process, Engineering-related and Scientific Content and Presentation. The final grade is given by the examiner based on an overall assessment. To get a passing grad the student can not be insufficient in any of the three evaluation categories. The evaluation criteria should also be regarded as a guideline for the students aiming at higher grades.

A student who is not finished with the dgree project within 8 months can be failed. This descision is taken by the examinar after consulting the programme director.

Process

Excellent
Independently plan and carry out the project within agreed time frames, show good initiative and be open to supervision and critique. Independently identify one's own need for new knowledge and acquire this knowledge. Show a good ability to adopt the perspective of another's work and formulate relevant and constructive critique.

Good
Plan and carry out the degree work within agreed time frames, show initiative and be open to supervision and critique. Show the ability to acquire new knowledge. Show the ability to adopt the perspective of another's work and formulate relevant critique.

Sufficient
Carry out the project work within agreed time frames, show certain initiative and be open to supervision and critique. Show a sufficient ability to acquire new knowledge. Show a sufficient ability to adopt the perspective of another's work and formulate critique.

Insufficient
Insufficient respect for agreements, severe lack of independence, or disregard for supervision. Lacks the ability or desire to acquire new knowledge.

Engineering-related and scientific content

Excellent
From problems/inquiries and methodology, show a very good ability to apply engineering-related and scientific skills like problem formulation, modelling, analysis, development and evaluation in a systematic way. Where this is relevant, show awareness of societal and ethical aspects, including economically, socially, and ecologically sustainable development.

Good
From problems/inquiries and methodology, show a good ability to apply engineering-related and scientific skills like problem formulation, modelling, analysis, development and evaluation in a systematic way. Where this is relevant, show awareness of societal and ethical aspects, including economically, socially, and ecologically sustainable development.

Sufficient
From problems/inquiries and methodology, show a sufficient ability to apply engineering-related and scientific skills like modelling, analysis, development, and evaluation. Where this is relevant, show a certain awareness of societal and ethical aspects, including economically.

Insufficient
Significant lack of engineering-related or scientific skills or lack of methodology despite the request.

Presentation

Excellent
Show a well disposed report, with clear accounts of the project and the results, clear analysis, and well founded argumentation, as well as good language usage, format and scientific accuracy. Show a good ability to orally present with clear argumentation and analysis, and also a good ability to discuss the work.

Good
Show a well disposed report with clear accounts of the project and the results, analysis and argumentation, as well as good language usage and format. Show a good ability to orally present and discuss the project.

Sufficient
Show a written report with acceptable structure, format and language usage. Show the ability to orally present the report.

Insufficient
Lacks important elements in the written report despite the request, or lack of the ability to orally present or discuss the project.

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.

- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.