

DEGREE PROJECT IN FINANCIAL MATHEMATICS / MATHEMATICAL STATISTICS, SECOND CYCLE (30 HP)

MATSTAT, COURSE RESPONSIBLE: ANJA JANSSEN (ANJAJ@KTH.SE)

1. ADMISSION TO THE COURSE

1.1. General admission rules. Please inform yourself about general admission rules to the Master thesis for your program or contact your Utbildningskansli / Study advisor in case of questions.

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. The degree project should normally be carried out during the last semester.

1.2. Specific admission rules.

1.2.1. Degree Project in Financial Mathematics (SF291X, SF298X). At the beginning of the course (28/10/2019), eligible students must have passed

- the two courses SF2701 Financial mathematics and SF2942 Portfolio theory and risk management
- at least one of the two courses SF2975 Financial derivatives or SF2980 Risk management (for SF2980 it is sufficient to have passed the project part of the course)
- 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.

1.2.2. Degree Project in Mathematical Statistics (SF290X, SF299X). At the beginning of the course (28/10/2019), eligible students must have passed

- at least three of the four courses SF2930 Regression analysis, SF2935 Modern methods of statistical learning, SF2943 Time series analysis and SF2955 Computer intensive methods in mathematical statistics.

For questions regarding the specific admission rules, contact Anja Janssen (anjaj@kth.se) in good time before the registration of the course starts.

2. GENERAL INFORMATION

Each student is responsible for finding an external project partner and a relevant project for their thesis. Projects without an external project partner are only possible in exceptional cases and by previous agreement with a supervisor from KTH. The work can be carried out together with another student or individually. In the former case, both students have to be enrolled in the same course (i.e. both write a thesis in Mathematical Statistics or both write a thesis in Financial Mathematics) and the examiner should ensure that each student's effort meets the requirements for an individual Master thesis. Groups of three or more students are not allowed. We encourage our students to work in pairs as we observe that this makes it often easier to proceed with the thesis project and finish in time.

The preferred language for report and presentation is English, the title and the abstract of the final report should be both in Swedish and English.

There are a number of mandatory deadlines, listed in Section 3 below. Peer review seminar I and Peer review meeting II as well as the final presentations are mandatory for all students. There are also deadlines for the upload of a project description, a preliminary version of the report, a report for approval and for the final report. If a student misses a deadline or makes a submission which does not meet the pass requirements, he or she may be transferred to the following instance of the course. If the course is not finished within a year, it is graded as *Fail* or *F*.

3. IMPORTANT DATES AND DEADLINES

Date	Time	Room	Description	Type
We, 16/10	23:59	Email	1a. Early bird registration	Non-mandatory deadline
We, 30/10	23:59	Email	1b. Late registration	Deadline
We, 6/11	23:59	Canvas	2. Submission of project proposal	Deadline
We, 13/11	8:15-14:00	F11	3. Peer review seminar I	Mandatory seminar
Fr, 15/11			4. Notification of approval of project	Email
Fr, 7/2	23:59	Canvas	5. Preliminary report uploaded	Deadline
Mo, 17/2	13:15–16:00	F11	6. Peer review meeting II	Mandatory seminar
Mo, 28/2	23:59	Canvas	7. Report for approval uploaded	Deadline
Fr, 6/3	23:59	Canvas	8. Final thesis uploaded	Deadline
Fr, 13/3	all day	F11	9. Final presentation	Presentation

1a. Early bird registration. Students *who need to be registered for the course during the usual registration period at the beginning of period 1 (for example in order to be eligible for CSN)*, need to send a project description and the filled out registration form (“examensarbetsansökan”, to be found in Canvas) **latest 16/10** to anjaj@kth.se. The **project description** should be at least half a page and should describe the aim of the project and how it relates to the chosen Master thesis program (i.e. how methods of financial mathematics and / or statistics will be used).

Students can also make a suggestion for a supervisor, although we cannot guarantee to respect all suggestions in the end.

1b. Late registration. Latest until 30/10 students have to send a project description and the filled out registration form (“examensarbetsansökan”, to be found in Canvas) to anjaj@kth.se. The **project description** should be at least half a page and should describe the aim of the project and how it relates to the chosen Master thesis program (i.e. how methods of financial mathematics and / or statistics will be used).

Students can also make a suggestion for a supervisor, although we cannot guarantee to respect all suggestions in the end.

Students who chose late registration will be registered for the course when a supervisor has been found, which may take up to three weeks.

2. Submission of project proposal and agreement. Groups must upload a document which states

- Name(s) of students for this project
- External project partner (company and name of contact person)

- (Preliminary) project title
- Outline of the project, which shall include the research question, the methodology for analysis and the use and procurement of data
- Relevance of the project and how it relates to current scientific and industrial developments (this should include a short list of relevant literature / scientific articles)
- Time schedule for the project

Furthermore, students have to submit (to anjaj@kth.se) the signed agreement between KTH and the external project provider (to be found in Canvas).

3. Peer review seminar I. Each project group will present their project proposal (5-8 min) and receive feedback from their peers. Each project group will be assigned two other project proposals to evaluate, both in writing and orally.

The evaluation must address the project's *relevance, scientific and constructional quality and feasibility*.

- The oral feedback is given to the group after their project presentation.
- The written evaluations (approx 1/2 page each) should be uploaded in Canvas, as a reply to the project proposal.

4. Notification of approval of project. The groups will be informed if their proposal meets the academic standards for a Master thesis. In case that the proposal is deemed acceptable after suggested modifications, the group has one week time to implement these modifications into their proposal for re-evaluation. The project proposal must be accepted (latest after re-evaluation) in order to continue with the Master thesis in this course round. Otherwise, the current instance of this course is graded with *Fail* or *F* and a new project has to be proposed at the next instance of the course.

5. Preliminary report uploaded. The main work on the thesis takes place between deadlines 4. and 5. (meetings with the supervisor during this time are to be arranged individually) and should result in a preliminary report, which should already be close to a finished thesis. This preliminary report is the basis for the peer review process. In addition, the supervisor will point out if the preliminary report does not yet meet the standards of an acceptable thesis.

6. Peer review meeting II. Each group will be assigned another groups' report to evaluate, both in writing and orally. Each evaluation (of approx 1-2 pages) must address the report's *quality of writing* and *constructional/scientific quality* along with suggestions for improvement, which should be taken into account for the final report.

7. Report for approval uploaded. A complete report must be uploaded on Canvas before the deadline. All shortcomings pointed out in the preliminary report must have been addressed. The report will be evaluated by the advisor and must receive a passing grade in order for the group to present their thesis at the final presentation. Minor modifications are still possible after this date and until the deadline for the final thesis upload. The advisor can give suggestions for this. At this point, the report is also checked for plagiarism via Urkund.

8. Final thesis uploaded. The final report has to be uploaded on Canvas. This report will later be published via the DiVa-portal and cannot be changed after this deadline.

9. Final presentation. The thesis is presented orally in its final form. Each presentation should last around 25 minutes. After that there is time for questions from the audience. Each group is assigned to another group for opposition, both in writing (filled-out opposition form) and orally (by preparing questions to be asked after the presentation). Presence is mandatory during the half-day-slot (morning or afternoon session) of ones own presentation.

Visitors (friends, family, colleagues...) to final presentations are more than welcome!

4. SUPERVISION

Each project will be assigned a thesis advisor / supervisor. The thesis advisor will give feedback to the students and follow the students' performance. The extent and format for individual supervision is decided by each advisor and meetings should be arranged individually.

5. GRADES

Grades are given as *Pass/Fail* (SF291X and SF290X) or as *A,B,C,D,E,F* (SF298X and SF299X), where the first option is the default one. Grades are based on fulfillment of the respective learning outcomes for each course. Learning outcomes and more information about grading can be found in the course plan for the respective course. The grade is assigned by the examiner as an overall assessment after the written report has been checked for plagiarism. The degree project must pass each of the requirements.