



LUND
UNIVERSITY

Faculty of Science

MASM02, Mathematical Statistics: Master's Degree Project, 30 credits

*Matematisk Statistik: Examensarbete - masterexamen, 30
högskolepoäng*

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2020-05-07 to be valid from 2020-05-07, spring semester 2021.

General Information

The course is a compulsory course for second-cycle studies for a Degree of Master of Science in Mathematical Statistics.

Language of instruction: English

Main field of studies

Mathematical Statistics

Depth of study relative to the degree requirements

A2E, Second cycle, contains degree project for Master of Arts/Master of Science (120 credits)

Learning outcomes

The aim of the degree project is that the student through an independent Project should show knowledge understanding, competence, skills, ability, judgement and approach in accordance with the requirements for obtaining a Degree of Master of Science in Sathematical Statistics. The degree project shall be specialised and show that the student can apply mathematical methodology.

Knowledge and understanding

After completing the course the student should be able to:

- in detail describe and use methods within a specialisation of some sub-field of mathematical statistics and be able to discuss the possibilities and limitations of these methods,

- describe research questions in a sub-field of mathematical statistics.

Competence and skills

After completing the course the student should be able to:

- critically, independently and creatively analyse, manage and formulate questions that are relevant to research or development work in a sub-field of
- mathematical statistics,
- plan and execute a scientific project work within given time frames using appropriate mathematical methods,
- give a clear and thorough written report on the results of the completed Project work and the knowledge and arguments on which they are based,
- at an oral presentation summarize the most important results of the project work as well as discuss the knowledge and arguments that underlie them,
- describe the most important results of the completed project work in a written popular scientific report.

Judgement and approach

After completing the course the student should be able to:

- discuss relevant scientific, social and ethical aspects related to the completed project work,
- take responsibility for their knowledge development, thereby identifying their own need for further knowledge and planning to acquire the needed knowledge.

Course content

The content and execution of the degree project are planned in consultation with a supervisor. The degree project consists of an independent smaller research assignment that can either relate to current projects at the department or to problems within the subject area at companies or other institutions within or outside the university. If the work is carried out outside the department, there should also be a supervisor at the department.

Course design

The thesis requires a literature review and special studies. In addition, there are a number of compulsory activities in the form of lessons, seminars and other exercises, which treat scientific, academic, and popular science communication, including both written and oral presentation, discussion and feedback.

The project work should correspond to twenty weeks of full-time studies. During the project, guidance is given by a qualified supervisor. If the work is carried out under supervision outside the department, another supervisor is appointed at the department. At the start of the course, the student, in consultation with the supervisor, should establish a study plan containing a description of the assignment, a problem Analysis and a timetable. During the completion of the degree project, the student can submit a progress report after half the planned working time. The progress report consists of a written report from the student on the progress of the work.

The work is presented in the form of a project report in English with a popular scientific description in Swedish or English. The work is also presented orally in English

at a public seminar for discussion, criticism and analysis. Prior to the presentation, the student, together with his / her supervisor, must review their work based on the learning objectives in this syllabus and / or in the goals of the Higher Education Act for the master's degree.

Assessment

Examination consists of a written scientific report, a brief written popular Scientific summary and through an oral presentation of the project work at a seminar. In addition, an approved written timetable established at the beginning of the work is required, participation in all compulsory activities and a brief reflection on the student's own learning. The written report must be submitted to the examiner in a version that permits examination at least two weeks before the seminar. Before that, the report must be approved by the supervisor. The department is responsible for the multiplication of the report according to the requirements of the university and the faculty. Upon final approval, the student is responsible for archiving the report in a system supplied by the university.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Subcourses that are part of this course can be found in an appendix at the end of this document.

Grades

Marking scale: Fail, Pass, Pass with distinction.

To obtain the grade Pass, the following examination parts are required:

- a timetable established at the beginning of the work,
- participation in all compulsory elements,
- a scientific written report on the work,
- an oral presentation of the work before a grading committee consisting of examiner and supervisor,
- a written popular scientific description of the work,
- a brief reflection on the student's own learning.

The final grade is determined by weighing in on the completion of the thesis, the written and oral presentation of the thesis, also the student's ability to work independently and the problem formulation are taken into account. The examiner decides the grade in consultation with the supervisor. If the examiner assesses that the degree project can not be approved, the student shall be given the possibility to supplement the work for a renewed assessment within approximately half a semester. If the work does not meet the learning outcomes of the course after this renewed assessment, the examiner may decide to fail it.

Entry requirements

Admission to the course requires a bachelor's degree in mathematics or equivalent and English B / 6. In addition, knowledge corresponding to courses at of at least 45 credits on advanced level in mathematical statistics; among these 45 credits at least three out of the four courses MASM11 Monte Carlo methods for stochastic inference

7.5 credits, MATM30 Mathematical Foundations of Probability 7.5 credits, MASM15 Statistical Modelling of Extreme Values 7.5 credits, MASM17 Time-series-Analysis 7.5 credits, should be included.

Further information

The course may not be included in degree together with MASM01 Mathematical Statistics: Master s Degree Project, 30 credits.

See further regulations for degree projects at the Faculty of Science.

Subcourses in MASM02, Mathematical Statistics: Master's Degree Project

Applies from V21

2101 Mathematical statistics: Master's Degree Project, 30,0 hp
Grading scale: Fail, Pass, Pass with distinction