



## DEPARTMENT OF MATHEMATICAL SCIENCES

### **MMG900 Bachelor's Thesis in Mathematics, 15 credits**

Examensarbete för kandidatexamen i matematik, 15 högskolepoäng

*First Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Mathematical Sciences on 2015-12-30 and was last revised on 2019-12-18 to be valid from 2020-01-20, spring semester of 2020.

*Field of education:* Science 100%

*Department:* Department of Mathematical Sciences

#### **Position in the educational system**

The course constitutes an independent project according to the degree requirements for bachelor's degree in mathematics.

#### *Main field of studies*

Mathematics

#### *Specialization*

G2E, First cycle, has at least 60 credits in first-cycle course/s as entry requirements, contains degree project for BA/BSc

#### **Entry requirements**

General entry requirements and completed courses of at least 120 credits. Of these, at least 75 credits must be in mathematics. Of these, at least 15 credits must be advanced courses (course code MMGxxx where xxx is at least 500) or second-cycle courses. Other courses should include the courses MMG200 Mathematics 1, MMG300 Multivariable analysis, MMG400 Linear Algebra II and MMG410 Numerical analysis, or other courses that give equivalent or higher mathematical level of knowledge.

#### **Learning outcomes**

On completion of the course, the student should have advanced or broadened their knowledge in the field the project concerns.

The student should be able to

- formulate and delimit a problem in the chosen field
- plan the work to solve and report on the problem in the given time
- document the implementation of the project
- search, acquire and evaluate available literature and other information
- assess whether societal and ethical aspects need be considered for the chosen problem and, if relevant, analyse these aspects in the report
- present achieved results in a report written with the typesetting program Latex and designed according to the standard for publication of mathematical, scientific articles
- quote sources and be aware of the importance doing this in a correct way
- present the results orally and in a satisfactory way answer questions about the content of the report
- critically review another bachelor project, make constructive criticism both in writing and orally, regarding the formulation of the problem, implementation, results and presentation
- write a popular-science presentation of the research project
- reflect on the need of additional knowledge and propose future questions to investigate in the subject
- reflect on how the group worked together to fulfil common aims

### **Course content**

The course is read as half-time studies during a semester. Only if special circumstances apply is any deviation from this allowed, and if so only after written request and decision of director of studies.

In the course, the student carries out a project work in mathematics in a group, normally with 3-6 students. In the project, previously acquired knowledge should be deepened or broadened. During the project work, the student has access to supervisor. In consultation with the supervisor, the student should establish a project plan containing project description and time plan. The time plan should be such that the course in full is completed by the date specified at the beginning of the course. The procedure should be documented as specified at the beginning of the course.

The work is presented in a report, written in the typesetting program Latex. The report should be written in Swedish and follow the normal standard for publication of mathematical, scientific articles. It should also contain a popular-science presentation.

The report should be presented at a seminar for other students, the supervisor and the examiner. The student should also give constructive criticism on another project for bachelor's degree, both orally and in writing, at the other project's seminar.

**Form of teaching**

The teaching mainly consists of supervised group work. The course will teach report writing, with an emphasis on the structure and language of the report, how sources are referred to and quoted, and the importance of avoiding plagiarism and copying.

The course includes compulsory lectures and supervision sessions, partly depending on chosen project.

*Language of instruction:* Swedish

**Assessment**

The examiner will decide on the grade after an overall assessment of the individual achievements during the project work, the written presentation, the oral presentation, the critical review and the following discussion.

**Grades**

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

**Course evaluation**

Course evaluation is made through questionnaire and meetings between students, supervisor, examiner and director of studies both during and after the course.

**Additional information**

The course syllabus of MMG900 was originally established to apply from 15/12/2007. Earlier versions than 31/12/2014 are not in the Gubas syllabus database.