



GRADUATE SCHOOL

GM1040 Mathematics for Finance, 7.5 credits

Matematik för Finans, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Graduate School on 2021-03-15 to be valid from 2021-08-30, autumn semester of 2021.

Field of education: Social Sciences 100%

Department: Graduate School

Position in the educational system

The course Mathematics for Finance is a course within the Master of Science programmes at the Graduate School, School of Business, Economics and Law, University of Gothenburg.

Main field of studies

Economics

Specialization

A1N, Second cycle, has only first-cycle course/s as entry requirements

Entry requirements

To be eligible for the course Mathematics for Finance, the participant must fulfill the entrance qualifications for the Master of Science programme in Finance. For programme specific entrance requirements, see programme syllabus.

Learning outcomes

On successful completion of the course, the student will be able to:

1. solve and analyze optimization problems in several variables, including both unconstrained and constrained optimization problems
2. solve systems of linear equations

3. master the foundations of integral calculus
4. master the foundations of probability theory and main concepts in statistics
5. perform standard matrix operations, use functions and perform elementary programming in MATLAB.

Course content

After completing the course the students will be able to understand the main mathematical concepts in Economics and Finance. The course includes the following items: (i) Linear Algebra, (ii) Differential Calculus, (iii) Integral Calculus, (iv) Static Optimization, (v) Probability, (vi) MATLAB.

Form of teaching

The coursework consists of lectures, exercises and labs.

Language of instruction: English

Assessment

Learning outcomes 1-4 are assessed through an individually written exam.

Learning outcome 5 is assessed through compulsory labs and an oral exam.

The individual written exam shall be written individually, cooperation in formulating text, tables, figures etc. is not allowed.

A student who has taken two exams in a course or part of a course without obtaining a pass grade is entitled to the nomination of another examiner. The student needs to contact the department for a new examiner, preferably in writing, and this should be approved by the department unless there are special reasons to the contrary (Chapter 6 Section 22 of the Higher Education Ordinance).

If a student has received a recommendation from the University of Gothenburg for special educational support, where it is compatible with the learning outcomes of the course and provided that no unreasonable resources are required, the examiner may decide to allow the student to sit an adjusted exam or alternative form of assessment.

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, but no more than two years, after the course has ceased/been changed.

The number of examinations is limited to five.

Grades

The grading scale comprises: Excellent (A), Very good (B), Good (C), Satisfactory (D), Sufficient (E) and Fail (F).

Pass is required on all examination forms. The grade (A-E) corresponds to the total score a student obtains on the written exam. To receive a pass grade (A-E) $\geq 50\%$ points is required. The scale is tied to fixed score intervals:

A: 85-100%

B: 75-84%

C: 68-74%

D: 60-67%

E: 50-59%

F: $<50\%$

Course evaluation

The course will be evaluated upon completion. The results of and possible changes to the course will be shared with students who participated in the evaluation and students who are starting the course.