



## Course syllabus

School of Business and Economics  
Department of Economics and Statistics

4NA060 Avancerad Matematisk ekonomi, 7,5 högskolepoäng  
Advanced mathematical economics, 7.5 credits

### **Main field of study**

Economics

### **Subject Group**

Economics

### **Level of classification**

Second Level

### **Progression**

A1N

### **Date of Ratification**

Approved by School of Business and Economics 2018-12-13

The course syllabus is valid from autumn semester 2019

### **Prerequisites**

General entry requirements for secondcycle studies and specific entry requirements:

- bachelor Degree in Economics, or in another social science or natural sciences or the equivalent
- a minimum of 90 credits in Economics,
- a minimum of 15 credits in Statistics,
- English B/English 6, or the equivalent

alternatively,

Students applying for the course within the Business Administration and Economics Programme need to have 60 credits Business Administration, 15 credits statistics, 15 credits Commercial Law, 90 credits economics and English B/English 6, or equivalent.

## Objectives

After completing this course, the student should be able to:

- use the mathematical tools covered in the course in an economics context
- apply the mathematical tools to relevant economic and econometric applications
- use mathematical notation consistently to formulate economic problems

## Content

The course contains:

- optimization of single variable and several variable problems

- elementary set theory (set inclusion, union, intersection, convex and concave sets)
- constrained optimization with equality and inequality (Lagrange and Kuhn-Tucker)
- convergence of series and limits (simple cases)
- integration
- linear algebra (vector, matrixes and determinant operations)
- differential equations (single variable)

## Type of Instruction

The teaching consists of lectures and exercises.

## Examination

The course is assessed with the grades A, B, C, D, E, Fx or F.

Examination consists of an individual written exam.

The grade A constitutes the highest grade on the scale and the remaining grades follow in descending order where the grade E is the lowest grade on the scale that will result in a pass. The grade F means that the student's performance is assessed as fail.

After each regular examination there will be at least one new examination in close proximity to the date the results of the regular exam were posted. Students who are close to the passing grade of reports can complement after instructions and time-frame given by the examiner to obtain a pass grade.

Grading criteria for the A–F scale are communicated in writing to the student by the start of the course at the latest.

## Course Evaluation

During the implementation of the course or in close connection to the course a course evaluation is to be carried out. Result and analysis of the course evaluation is to be presented as feedback both to the students who have completed the course and to the students who are to participate on the course the next time it is offered. The course evaluation is to be carried out anonymously.

## Required Reading and Additional Study Material

### **Required reading**

Sydsæter, K. & Hammond, P. *Essential mathematics for economic analysis*. Prentice Hall. Latest edition. About 810 pages.

Sydsæter, K., Hammond, P., Seierstad, A. and Stom, A. *Further Mathematics for Economic Analysis*, Prentice Hall. Latest edition. About 620 pages.

### **Additional Study Material:**

Scientific Articles. About 100 pages.