SF1627 Mathematics for Economists 9.0 credits

Matematik för ekonomer

This is a translation of the Swedish, legally binding, course syllabus.

Establishment

Course syllabus for SF1627 valid from Autumn 2007

Grading scale

A, B, C, D, E, FX, F

Education cycle

First cycle

Main field of study

Mathematics, Technology

Specific prerequisites

High school mathematics course C

Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

Intended learning outcomes

After the course the student should be familiar with some of the tools and methods in practical Calculus in one variable and introductory linear algebra that are needed for some standard applications in economics.

Also the student should be acquainted with beginning several variable calculus. This means that the student should be able to:

- Understand and use the basic notions of calculus – e.g. function, continuity and derivative – and be able to read economics texts that make use of such concepts and mathematical notation.
- Use important properties of some elementary functions, especially polynomials, exponential functions and logarithms, to study problems in economics
- Compute certain limits of sequences that are of interest in economics
- Read texts in economics that use series
- Use the product rule, the quotient rule and the chain rule to compute derivatives of elementary functions
- Use the derivative as a tool to study features of elementary functions, eg. extreme value problems and problems concerning growth, with applications to economics
- Use Taylor's formula for approximations
- Compute partial derivatives to certain functions of severable variables
- Read texts in economics that involves functions of severable variables
- Follow basic mathematical reasoning, read mathematical texts using mathematical language and notation
- See how mathematics can be used in economical models

Course contents

Basic one-variable calculus: functions and economical models. Elementary functions, especially polynomials, exponential functions and logarithms. Continuity, derivative, rules of derivation. Applications of derivatives, especially extreme value problems. Taylor's formula. Some simple facts of sequences and series.

Beginning multivariable calculus: some simple facts of functions of severable variables and their role in economical modelling, including partial derivatives, differentiability, Jacobi matrix, gradient, directional derivative and an orientation about optimization in several variables may be included.

Linear algebra: Linear systems of equations, matrices, determinants, vectors, inverse matrix, an orientation about linear transformations

Course literature

Knut Sydsaeter, Peter Hammond: Essential Mathematics for Economic Analysis.

Examination

- TEN1 - Examination, 9.0 credits, grading scale: A, B, C, D, E, FX, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

Other requirements for final grade

Continuous examination and an exam (TEN 1; 9 hp). The nature of the continuous examination will be decided on by the teacher

Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.