HF1003 Mathematics and Statistics 7.5 credits

Matematik och matematisk statistik

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

Establishment

Course syllabus for HF1003 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

Basic knowledge in calculus and linear algebra

Language of instruction

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

Intended learning outcomes

Course contents

- Complex numbers: The complex plane. Modulus and argument. Polar, rectangular and exponential form. Euler´s and de Moivre´s theorems. Binomial equations. Algebraic equations.

- Differential equations: Separable differential equations. First order differential equations. Linear differential equations with constant coefficients. Applications.

- Statistics: Descriptive statistics.

- Sets and combinatorics. Probability theory, basic notations.

- Sample spaces, dependent and independent events. Conditional probability. The theorem of total probability.

- Stochastic variables. Expected value, variance and standard deviation.

- Discrete stochastic variables.

- Uniform, hypergeometric distribution.

- The binominal and Poisson distributions.

- Continuous random variables. Uniform distribution, exponential and normal distribution

- Functions of random variables. The central limit theorem.

- Point estimation and interval estimation

Course literature

Contact the department for further information.

Examination

- TEN2 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Work, 1.5 credits, grading scale: P, 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

Passed exams:
(TEN1; 3 cr.), credit rate A-F
(TEN2; 3 cr.), credit rate A-F
Passed lab work (LAB1; 1,5 cr.), credit rate P/F
In total credit rate A-F.

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.