HF1906 Mathematical Statistics 5.0 credits

Matematisk statistik

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

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

Establishment

Course syllabus for HF1906 valid from Spring 2022

Grading scale

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

Education cycle

First cycle

Main field of study

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

After completion of the course the student should be able to

Explain the meaning of basic concepts and theorems in the parts of mathematical statistics described by the course content
• Use basic concepts and theorems in the parts of mathematical statistics that are described by the course content in problem solving in order to be able to solve applied problems.
For higher grades, the student should also be able to
• Explain how different theorems and concepts are connected and be able to solve problems by combining concepts from different parts of the course.

Course contents

- 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 confidence intervals for means.
- Digital tools

Further information

Course web HF1906

Examination

- TEN1 - Examination, 5.0 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.

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.