AF1765 Mathematics 3, Statistics 5.0 credits

Matematik 3, Statistik för byggnadsingenjörer

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

Establishment

Grading scale

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

Education cycle

First cycle

Main field of study

Mathematics

Specific prerequisites

Intended learning outcomes

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

- define and interpret key concepts in mathematical statistics
- use basic theorems and methods from mathematical statistics to solve applied problems
- explain how uncertainty analysis is used in measurement technology
- use software to solve problems within the scope of the course.

For higher grades, students should also be able to:

- solve more advanced problems in mathematical statistics.

Course contents

- Probability theory: Combinatorics, outcome space, dependent and independent events, random variables, expected value, variance, standard deviation, conditional probability, total probability law, functions of random variables and the central limit theorem.
- Probability distributions: Discrete and continuous uniform distribution, binomial distribution, Poisson distribution, exponential distribution, normal distribution and t-distribution.
- Statistical inference: Confidence intervals for one and two means and for paired dependent data.
- Descriptive statistics, digital tools, uncertainty analysis in measurement technology, and an introduction to the concepts of correlation and simple linear regression.

Examination

- TEN1 - Written exam, 4.0 credits, grading scale: A, B, C, D, E, FX, F
- TENB - Written exam, 1.0 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.

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.