SF1900 Probability Theory and Statistics 6.0 credits

Sannolikhetsteori och statistik

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

Establishment

Course syllabus for SF1900 valid from Autumn 2019

Grading scale

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

Education cycle

First cycle

Main field of study

Technology

Specific prerequisites

Completed course in Calculus in one variable SF1625 or SF1685.

Language of instruction

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

Intended learning outcomes

To pass the course, the student should be able to

- solve problems that require knowledge about standard concepts and methods in probability theory
- solve problems that require knowledge about standard concepts and methods in statistics

Course contents

Basic concepts such as probability, conditional probability and independent events. Discrete and continuous random variables, in particular one dimensional random variables. Measures of central tendency, dispersion and dependence of random variables and data sets. Common distributions and models, such as the normal, binomial and Poisson distributions. The Central limit theorem and the Law of large numbers.

Descriptive statistics. Point estimates and general methods of estimation, such as maximum likelihood estimation and the method of least squares. General confidence intervals and in particular confidence intervals for the mean and variance of normally distributed data. Confidence intervals for proportions and for difference in means and proportions. Statistical hypothesis testing. Chi2-tests of goodness of fit, homogeneity and independence. Linear regression.

Course literature

Blom, Gunnar. Probability and Statistics (1989), Studentlitteratur

Complemental material from the department.

Examination

- TEN1 - Examination, 6.0 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.

The examiner decides, in consultation with KTHs Coordinator of students with disabilities (Funka), about any customized examination for students with documented, lasting disability.

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.