# SF1918 Probability Theory and Statistics 6.0 credits

## Sannolikhetsteori och 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 SF1918 valid from Autumn 2020

## Grading scale

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

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

Completed course SF1625 Calculus in one variable.

## 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. Basic decision theory and Bayesian inference. Confidence intervals. Statistical hypothesis testing. Linear regression.

# 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.

# 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.