SF2940 Probability Theory 7.5 credits

Sannolikhetsteori

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

Establishment

The course syllabus is valid from Spring 2022 according to the school principal's decision: S-2022-0529 Decision date: 2022-02-24

Grading scale

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

Education cycle

Second cycle

Main field of study

Mathematics

Specific prerequisites

- English B / English 6
- Completed basic coursein probability theory and statistic (SF1918, SF1922 or equivalent).

Language of instruction

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

Intended learning outcomes

The overall aim of the course is for students to become well-acquainted with basic probability theory concepts, models and solutions methods applied to concrete problem.

After passing the course, the students should be able to

- formulate and explain central definitions, results and theorems within probability theory
- systematically apply concepts and methods to independently solve basic problems within probability theory
- read and understand a mathematical text.

Course contents

- Kolmogorov axioms and basic notions of measurability
- Random variables and their distributions, independence, conditional probabilities, conditional expectation
- Convergence of random variables, law of large numbers
- Convergence in distribution, characteristic function, central limit theorem
- Multivariate normal distribution and introduction to Gaussian processes

Examination

- TEN1 - Examination, 7.5 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.

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.