FDD3447 Statistical Methods in Applied Computer Science 6.0 credits

Statistiska metoder i datalogi

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 FDD3447 valid from Spring 2019

Grading scale

P, F

Education cycle

Third cycle

Specific prerequisites

For non-program students, 90 credits are required, of which 45 credits have to be within mathematics or information technology. Furthermore, English B or the equivalent is required.

Language of instruction

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

Intended learning outcomes

The student should, on completion of the course, be able to:

explain and justify several important machine learning methods,

account for a number of types of methods and algorithms that are used in the field and implement them by means of the book, as well as expand and modify them

evaluate the application of the methods in new contexts critically and design new applications, follow research and development in the area.

Course contents

Basic statistical concepts and basic probability theory.

Generative models.

Bayesian inference.

Directed graphical models.

Undirected graphical models.

Exactly inference for graphical models.

State space models.

Particle filters.

Monte Carlo estimation.

Sequential Monte Carlo.

Markov Chain Monte Carlo.

Clustering.

The Dirichlet process.

Examination

• EXA1 - Examination, 6.0 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.

Examination takes place in the form of homework and project.

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.