Statistical Classification Analysis, 8.0 credits

Statistisk klassificering, 8.0 hp

Third-cycle education course

6FMAI20

Department of Mathematics

Valid from: First half-year 2023

Approved by
Head of Department

Approved

Registration number

Entry requirements

Elementary multivariate normal distribution theory, statistical regression analysis.

Learning outcomes

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

- explain and formulate the theoretical concepts important for linear and quadratic classification, as well as logistic regression;
- understand and use non-parametric classification methods;
- understand the limitations of the different classification methods;
- calculate, interpret and evaluate probabilities of misclassification;
- identify the strengths and weaknesses of different statistical classifiers and use them in practice;
- implement statistical classifiers using statistical software and draw adequate conclusions.

Contents

- Likelihood-Based Approaches to classification
- Classification via Normal models
- Linear and quadratic classifiers
- Classification using logistic models
- Non-parametric classification
- Misclassification error

Educational methods

Lectures, projects with presentations, and home assignments.

Examination

Home assignments and projects with presentations.

Grading

Two-grade scale

Course literature

"Discriminant Analysis and Statistical Pattern Recognition" by G.J. McLachlan (2004) and "Statistical Regression and Classification - From Linear Models to Machine Learning" by N. Matloff (2017), as well as articles if needed.