

**Statistical Classification Analysis, 8.0 credits**

Statistisk klassificering, 8.0 hp

Third-cycle education course

6FMAI20

Dept 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.