

# Multivariate Statistical Methods

Single subject and programme course

6 credits

Multivariata Statistiska Metoder

732A37

Valid from:

**Determined by**  
The Quality Board at the Faculty of Arts  
and Sciences

**Date determined**  
2008-09-10

**Revision date**  
2013-03-18

## Main field of study

Statistics

## Course level

Second cycle

## Advancement level

A1X

## Course offered for

- Master's Programme in Statistics and Data Mining

## Entry requirements

For acceptance to the course, the student must have a bachelor's degree with a total of at least 90 ECTS credits (1.5 years of full-time studies) in mathematics, applied mathematics, statistics, and computer science. The undergraduate courses in mathematics should include both calculus and linear algebra. Basic undergraduate course in computer science and at least one intermediate course in each of the following areas: probability theory, statistical inference and linear statistical models are also required.

Documented knowledge of English equivalent to Engelska B/Engelska 6.

## Intended learning outcomes

After completion of the course, the student should be able to:

- use multivariate inference methods generalizing widely used univariate methods
- demonstrate insightful understanding of covariance structures in the analysis of multivariate data
- select and apply suitable methods for extracting, summarizing and analyzing the information carried by multivariate data

## Course content

- training in matrix algebra
- multivariate normal distribution and inference of mean vectors
- principal component analysis and factor analysis
- canonical correlation analysis
- multidimensional scaling

## Teaching and working methods

The teaching comprises lectures, seminars, and computer exercises. Lectures are devoted to presentations of theories, concepts and methods. Computer exercises provide practical experience of analyzing multivariate data. The seminars comprise student presentations and discussions of computer assignments. Language of instruction: English.

## Examination

Reports on computer assignments. A final oral or written examination.

## Grades

ECTS, EC

## Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus. The course is carried out in such a way that both men's and women's experience and knowledge is made visible and developed.

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## Department

Institutionen för datavetenskap