Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PFG0003 Multivariate Data Analysis, 7.5 credits

Syllabus approved

2002-06-04

Subjects

Statistics, Computer Science and Systems Science

Education cycle

Third cycle

Grading scale

Pass / Failed
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

The equivalent of: 7 Swedish Higher Education Credits (HEC) of basic courses in Mathematical Statistics and 7.5 HEC of basic courses in Regression Analysis.

Objective, including learning outcomes

Multivariate data means we have data for many variables for a number of individuals in a population. In a few cases it may be sensible to isolate each variable and study

it separately, but in most cases all the variables need to be examined simultaneously in order to fully grasp the structure and key features of the data. For this purpose, one or another method of multivariate data analysis might be most helpful.
On completion of the course the students shall be able to:
- recognize commonly used methods for analysis of multivariate data and their statistical foundations,
- select appropriate methods to analyse data,
- complete and interpret the analysis using a computer package.

Content

The course is delivered through a combination of lectures, computer lab sessions and a project work. The lectures introduce the students to basic concepts and methods of multivariate data analysis, and contain numerous worked examples to illustrate the concepts and methods. Computer lab sessions are held during which students work on specified exercises with the lecturer(s) and other staff on hand to help with any problems. This provides each student with one-to-one help when needed. The exercises aim to reinforce the lecture material, in addition to giving students practice of multivariate data analysis. The course ends with a project work where students are applying the knowledge gained during the course for analysis of multivariate data. Students will be encouraged to use their own adapted statistical data. The statistical software package R will be used in computer exercises and lecture examples.

Requirements for examination

Written examination and/or seminal presentation, and laboratory.

Additional information

Knowledge of matrix algebra is recommended.
Laboratory assignments and class examples will be in R, which has become one of the most widely used software packages in statistics. R is free and available for download from http://www.r-project.org/. Students are welcome to use any software package they are familiar with, but we will provide support only for R and several assignments will require writing R code.

For application to the course, please send an email to magnus.ekstrom@slu.se.

Deadline for application: February 1, 2011

Responsible department

Department of Forest Economics