Software tools for statisticians, spring 2010

Lecturer
Petri Koistinen

Course news

- Part I (the R software) has ended. Other students except EuroBayes students will get their 3 cu on week 8.
- There will still be some introductory lectures on the software that is needed for the project work of Part II.
- The EuroBayes students take Parts I and II and they will get their 6 cu after the practical work has been accepted.

Scope

3 cu (Part I only), or 6 cu (Parts I and II). Part II is intended for students in the EuroBayes masters program only.
Grading is either pass or fail. Arvosana-asteikko on hyväksytty/hylätty.

Type
Intermediate studies.

Prerequisites

Part I of the course (the R software) does not have any formal prerequisites. Some of the examples are, however, hard to follow if you do not have any prior knowledge of nor interest in statistics.

For part II you need to

- understand (elementary) multivariate probability theory
- have some understanding of Bayesian statistics in order to follow the BUGS examples.

Lectures

Period III, Monday 10-12, Thursday 10-12, computer class C128.

No lectures on Thu Feb 25.

The last lecture concerning part I (R software environment) is held on Mon 15 Feb. After that we will have some introductory lectures on the other software needed for part II.

Description

This course consists of two parts, of which part one can be taken separately and is offered to anybody interested.

Part I is intended for EuroBayes students only.

Part I: the R software.

R is a popular software environment for statistical computing and graphics. R is free, open source, and has lots of documentation available online. However, learning to use R on one's own is laborious, and therefore taking this course is useful.

The main topics in part I are

- the R programming language
- reading and writing data
- R graphics
- some statistical facilities of R

This part of the course can be passed by returning a sufficient number of solved exercises.

Part II: other software tools

In part II we look at some other software useful for a statistician:

- computer algebra systems (Maple)
- report writing using LaTeX
- the BUGS system for Bayesian analysis with the aid of MCMC methods.
This part of the course can be passed by finishing practical work (harjoitustyö).

Part II cannot be taken separately, but only together with part I.

Part II is intended for EuroBayes students only.

The department offers a separate LaTeX course which is open to all students.

**Course material**

- Material for part I: R software
- Material for part II.

**Registration**

Did you forget to register? [What to do.](#)