Applied Statistics: Analysing Medical Data using R

ADVANCED STUDIES

Statistical computing and graphics

R is a free of charge, open-source software for statistical computing and generating graphics. Knowing of how to use this powerful tool for handling, analysing and displaying data provides users with a wide array of possibilities to get the best out of research data.

By learning of how to write functions and scripts reproducible and well documented results can be displayed in an appealing way. Excellent graphics which can be adapted to individual needs can be created.

Target audience

This 3-day course is open for everyone who is working with research data and wants to learn how to use the statistical software R. It is assumed that all participants have some basic knowledge of statistics. The course is especially appropriate for clinical investigators and research personnel involved in the statistical analysis of clinical research projects.

Course fee

CHF 1'500

The course fee contains all course materials and provision during tea/coffee breaks.

The Department of Clinical Research (DKF) offers training grants for members of DKF clinical research groups. Applications for training grants can be submitted when registering for the program.

Registration

Please visit our website dkf.unibas.ch/en/appliedstatistics for further information and to register online.

The number of participants is limited. Application will be considered based on the date of receipt.

Course structure

During this course a variety of teaching methods including lectures, exercises and interactive group discussions will be applied. Mandatory home assignments will complete the learning portfolio. Students have to bring their own notebook with an installation of R, available from www.r-project.org.

Certificate

Participation in this course results in a certificate issued by Advanced Studies, University of Basel, and accounts for 1 ECTS credit point.

Learning objectives

- To manage the main functions of the statistical Software R

- To understand the importance and consequences of data types and distributions

- To select appropriate graphics for data illustration

- To describe the rational behind hypothesis testing

- To comprehend the basic principles and the application of classical statistical tests for medical data analysis

List of topics

- Why statistics matters

- Principles of the R language

- Data management

- Graphics

- Data characteristics

- Correlations

- Hypothesis testing

- Statistical models

- ANOVA

- Linear regression

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