

Organization

Venue

The course will take place in Heidelberg at the University Campus 'Im Neuenheimer Feld'.

Registration

Deadline for registration is October 10, 2019.

Course fee

The fee for the course is € 645; discounted rate for affiliated with a university € 430.

Cancellation

The cancellation policy is as follows, 75% refund for cancellations after October 17, no refund for cancellations after October 24, 2019.

Attendee substitutes may be made at any time.

Public Transport

Costs and schedule: www.vrn.de

Information

<http://www.biometrie.uni-heidelberg.de/datascience>

Concept and Contents

University of Heidelberg
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**MEDIZINISCHE
FAKULTÄT
HEIDELBERG**

**Working with Data, Plotting, Re-
producibility, and Presentation**

31.10 - 02.11.19



**MEDICAL
DATA SCIENCE**

Aims

Course participants will be able to:

- import data from a wide variety of sources in the R-environment
- understand the basic structure of relational data-bases and to perform SQL joins and transform in R
- visualize data using a systematic, grammar-based approach
- generate offline reports
- generate interactive reports using the Shiny technology
- present his/her work using web applications

Course content

The course will cover following topics:

Working with data:

- Importing data from various sources (SAS, SPSS) ('haven' package)
- Visualizing data using a 'Grammar of Graphics' ('ggplot2' package)
- Modern data transform ('dplyr', 'purrr' package)
- Basics of relational data and "tidy" data ('tidyr' package)

Reproducibility:

- Why reproducible research is essential to good scientific practice
- RMarkdown and knitr for automatic report generation
- Package dependencies / CRAN / MRAN

Presentation:

- Offline reports ('knitr', 'rmarkdown' package)
- Web presentation using Shiny

Pre-requisites

- Basic R programming skills
- R Studio installed

Schedule

Thursday

9:00 – 12:30 Working with data part I

13:30-17:00 Working with data part II

Friday

9:00 – 12:30 Reproducibility and offline reports part I

13:30-17:00 Reproducibility and offline reports part II

All parts include practical exercises. Bring your own laptop with R Studio installed.

Saturday

9:00 – 10:30 Interactive reports using Shiny

10:45- 12:30 Practical exercise: Publishing an interactive analysis as Web-App

Number of Participants

The number of participants is limited to 20 per course.

Course instructors

Kevin Kunzmann, University of Cambridge

Prof. Dr. Heidi Seibold, LMU München