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
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Working with Data, Plotting, Reproducibility, and Presentation

31.10 - 02.11.19
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

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

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:
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- Web presentation using Shiny

Pre-requisites
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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