The course will take place as an online course.

**Registration**
Deadline for registration is October 22, 2020.

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

**Cancellation**
The cancellation policy is as follows: 100% refund for cancellations till October 28; 75% refund for cancellations between October 29 and November 4; no refund for cancellations after November 5, 2020.
Attendee substitutes may be made at any time.

**Information**
http://www.biometrie.uni-heidelberg.de/datascience

**Concept and Contents**
University of Heidelberg
Institute of Medical Biometry and Informatics
Department of Medical Biometry
Im Neuenheimer Feld 130.3
69120 Heidelberg

**Contact**
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Aims
Course participants will be able to:
- Understand linear regression and its extensions
- Know the limitations of these procedures
- Use resampling models and evaluate regression models
- Apply these methods in R

Course content
The course will cover following topics:
- Linear models and generalized linear models
- Resampling methods (Bootstrapping, jackknife, cross-validation) including selected model evaluation measures
- Mixed models for dependent data
- Techniques of survival analysis
- Implementation in R

Pre-requisites
The participants must have
- Basic knowledge of statistics, linear algebra, and probability theory
- Basic knowledge in R (data manipulation base R/tidyverse)

Schedule
Thursday (12th of November)
9:00 – 10:30 Linear Regression I
11:00 – 12:30 Linear Regression II
13:30 – 15:00 Generalized Linear Models I
15:30 – 17:00 Generalized Linear Models II

Friday (13th of November)
9:00 – 10:30 Resampling Methods I
11:00 – 12:30 Resampling Methods II
13:30 – 15:00 Mixed Models I
15:30 – 17:00 Mixed Models II

Saturday (14th of November)
9:00 – 10:30 Survival Analysis I
11:00 – 12:30 Survival Analysis II

All parts include practical exercises. Please preinstall R Studio on your laptop.

Number of Participants
The number of participants is limited to 20 per course.

Course instructors
Maximilian Pilz M.Sc., IMBI Heidelberg
Dorothea Weber M.Sc., IMBI Heidelberg

Further lecturers
Dr. Johannes Krisam, IMBI Heidelberg

Basic reading