

Statistics

Lecturer: Prof. Dr. Matthias Birkner

Dates: Wed 8-10 and Fr 12-14

Are female bank employees disadvantaged when it comes to promotions? Are people born under the sign of Pisces more likely to survive a septic shock?

It is easy to lie with statistics. It is hard to tell the truth without it.

(Andrejs Dunkels, 1939–89)

In this lecture, we will discuss classic topics in (mathematical) statistics and provide some insights into more modern, specifically high-dimensional methods, illustrating them with examples in R.



The lecture is aimed at advanced B.Sc. students as well as M.Ed. and M.Sc. students. Knowledge from *Einführung in die Stochastik* is required, knowledge from *Stochastik-Praktikum* and the lecture *Stochastik I* is occasionally helpful, but not absolutely necessary.

Literature (selection):

H.-O. Georgii, *Stochastik: Einführung in die Wahrscheinlichkeitstheorie und Statistik*, de Gruyter (2015).

P.J. Bickel, K.A. Doksum, *Mathematical Statistics: Basic Ideas and Selected Topics*, Holden-Day (1977).

J.A. Rice, *Mathematical Statistics and Data Analysis*, Duxbury Press (1995).

G. James, D. Witten, T. Hastie and R. Tibshirani, *An Introduction to Statistical Learning with Applications in R*, 2nd Ed., Springer (2021).

L. Wasserman, *All of Statistics: A Concise Course in Statistical Inference*, Springer (2004).

The R Project for Statistical Computing <http://www.r-project.org/>