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Announcement

In winter term 2025/2026 I am reading the BMS core course

Methods of Statistics

Lecture: (M. Reiß; in English or German)

Monday, 15h00 – 16h30, Rudower Chaussee 26 (Schrödinger-Zentrum), Room 1'304
Friday, 09h15 – 10h45, Rudower Chaussee 26 (Schrödinger-Zentrum), Room 1‘304

First lecture: Friday, 17 October 2025

Exercise class: (S. Meng)

Friday, 11:15 – 12:45 Uhr, Rudower Chaussee 26 (Schrödinger-Zentrum), Room 1'304

First class: Friday, 17 October 2025

Topics:

Parameter estimation (minimax, Bayes and Maximum-Likelihood methods)
Test theory (Neyman-Pearson- und Likelihood-ratio tests)
Linear model (regression, least squares estimator, analysis of variance)
Model selection (AIC, BIC, cross validation, Lasso)
Machine learning (classification, Support Vector Machines, neural nets)

Prerequisites: Analysis, Linear Algebra and Stochastics I

Literature:

Bach, F.: *Learning Theory from First Principles*, MIT Press, 2024
Georgii, H.-O.: *Stochastik*, de Gruyter, 2015
Giraud, C.: *Introduction to High-Dimensional Statistics*, CRC Press, 2015
James, G., Witten, D., Hastie, T., Tibshirani, R.:
An Introduction to Statistical Learning (with Applications in R), Springer, 2013
Richter, S.: *Statistisches und maschinelles Lernen*, Springer, 2019
Shao, J: *Mathematical Statistics*, Springer 2003
Trabs, M.; Jirak, M.; Krenz, K.; Reiß, M.: *Statistik und maschinelles Lernen*, Springer, 2021