

Syllabus: Statistische Analyse Unvollständiger Daten

Lecturers: Dr. Florian Meinfelder, Paul Messer, MSc.

Overview

- Place and Date: FMA/01.20 (for Bamberg students) from 10:15 to 13:45 h
- Examination: Poster presentation (preliminary date: 9 and 10 March 2023)

Course Contents

This course provides an introduction to the theory and application of methods for analyzing incomplete data sets. The main focus will be on Multiple Imputation (MI) which has become a very popular way for handling missing data, because it allows for correct statistical inference in the presence of missing data. With the advent of MI algorithms implemented in statistical standard software (R, SAS, Stata, SPSS, . . .), the method has become more accessible to data analysts. For didactic purposes, we start by introducing some naive ways of handling missing data, and we use the examination of their weaknesses to create an understanding of the framework of Multiple Imputation. Solid R skills are a prerequisite for this course.

Dates

Lecture

- 1) 24 Oct 2022: Introduction to the problem of Missing data
- 2) 31 Oct 2022: Missing data mechanisms/ missing data patterns
- 3) 7 Nov 2022: Introduction to MI
- 4) 14 Nov 2022: MI algorithms and MCMC methods
- 5) 21 Nov 2022: Joint Modeling and Fully Conditional Specification
- 6) 28 Nov 2022: Fully Conditional Specification / MICE
- 7) 5 Dec 2022: Software implementations
- 8) 12 Dec 2022: *Poster presentation topics*
- 9) 19 Dec 2022: MI methods
- 10) 9 Jan 2023: Generic MI analysis and deviations from the fully Bayesian approach
- 11) 16 Jan 2023: Diagnostics and empirical problems
- 12) 23 Jan 2023: (Multilevel) Regression analysis with multiply imputed data
- 13) 30 Jan 2023: Applications and alternatives to MI
- 14) 6 Feb 2023: Nonignorable missing data