

Seminar on Seminal Ideas and Controversies in Statistics

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General Information I

Teacher:

- Carsten Jentsch

Module requirements:

- Good knowledge in (elementary) probability and statistics (Bachelor) and some advanced knowledge (Master).

Place and Time:

- Seminar presentations in a block seminar after the semester

Language:

- Deutsch/English

First date:

- Seminar kick-off meeting: **First** week of the semester
- Meeting to assign seminar topics: **Second** week of the semester

General Information II

Exam admission

- none

Type of examination

- term paper, seminar presentation

ECTS points

- 4

Module can be credited for:

- BSc Statistik: BS 12
- BSc Data Science: BD 14
- MSc Statistik: MS 4
- MSc Data Science: MD 4
- MSc Econometrics: ME 6/7

Binding registration

- until 25.02.2026 via the link in the mail from the dean's office

Seminal Ideas and Controversies in Statistics (book)

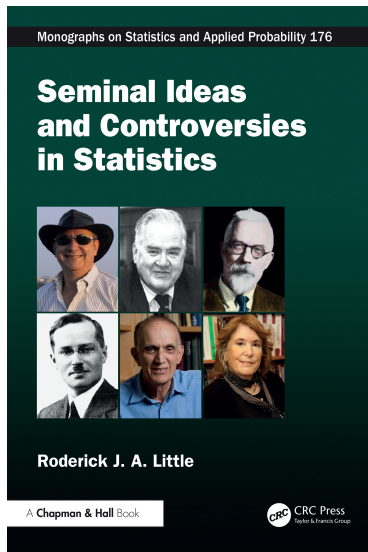


Abbildung: .

Aims and scope

- The aim of the seminar is to learn about seminal ideas that had large impact on statistics and controversies in statistics that have been debated since decades.
- Learn and understand the details of a certain seminal idea or controversy.
- Discuss and illustrate the seminal idea or controversy in terms of examples, simulations or real data applications.

Table of content I

You can choose your topic from the list (chapters from the book) below:

Part I Statistical Inference

1. Fisher and the Method of Maximum Likelihood
2. To C or Not to C, That is the Question
3. Frequentist Flaps: Hypothesis Testing, Significance Testing, or Something Else?
4. Fiducial Inference and the Behrens-Fisher Problem
5. Do You Like the Likelihood Principle?
6. A Bayesian/Frequentist Compromise: Calibrated Bayes

Table of content II

Part II Statistical Methods

7. Baseball Averages, Foreign Cars, and Shrinkage Estimation
8. Alternatives to Least Squares in Regression
9. Multiple Perspectives on Multiple Comparisons
10. Generalized Estimating Equations
11. The Bootstrap and Bayesian Monte-Carlo Methods
12. Exploratory Data Analysis and Data Science

Part III Topics in Design

13. Randomization in Survey Sampling
14. Randomized Clinical Trials and the Neyman/Rubin Causal Model
15. Propensity Score Methods

Summary

Milestones

- First week of semester: kick-off meeting
- Second week of the semester: assignment of the topics
- Middle of semester: In-person meetings to discuss progress
- After the semester: presentation, submitting term papers

Contact

- jentsch@statistik.tu-dortmund.de

Office hours

- by appointment and ask questions per email

Further questions?