

Econometrics summer 2023

4 SWS + 2 SWS

Carsten Jentsch (lectures) and
Maxime Faymonville (exercises)

Course presentation

TU Dortmund University

February 8, 2023

Audience:

- ▶ Compulsory for Master Econometrics.
- ▶ Voluntary for Master Data Science, Master Statistics and Bachelor Statistics.

Organization:

- ▶ Course will be taught in **english**.
- ▶ 4 SWS (Lectures) + 2 SWS (Exercise Class)
- ▶ Course will be run via the university's e-learning platform moodle.

Prerequisites:

- ▶ There are no formal prerequisites, but:
 - (i) The course will mainly cover theory. For this it would be good, if you have some previous knowledge of:
 - Classical Linear Regression (incl. matrix notation)
 - Asymptotic Theory (incl. stochastic convergence concepts, LLN, CLTs)
 - (ii) Some exercise questions will be applied. To answer these you will need some knowledge of the software programme R.

Tentative course overview

- ▶ Review of the classical linear regression model
 - Interpretation
 - Finite-sample theory
 - Asymptotics
- ▶ Generalizations to the classical linear regression model:
 - Allow for heteroskedasticity
 - Allow for endogeneity (instrumental variable methods)
- ▶ System of linear equations and linear panel data models
- ▶ M-estimation, Maximum Likelihood (MLE) and Generalized Method of Moments (GMM)
- ▶ Time permitting - outlook to further topics.

I will try to follow the presentation of: Wooldridge, Jeffrey M.(2010). *Econometric Analysis of Cross Section and Panel Data*. MIT Press.

Lectures:

- ▶ There will be two lectures per week. Tuesday, 8-10 and Thursday 10-12, both in ME28.

Exercises:

- ▶ There will be one exercise class per week. Time, place and exact format are TBD.
- ▶ You will be expected to hand in your solutions every week. Exact procedure is TBD.

Exam:

- ▶ Written exam at the end of term.
- ▶ Eligibility to exam will depend on results on exercises/mid-terms. Exact procedure is TBD.

- ▶ Content related questions? Email
jentsch@statistik.tu-dortmund.de.
- ▶ To register for the course/get the Moodle password email
faymonville@statistik.tu-dortmund.de.