10140201 Econometric Analysis.

Lecture: Tuesday 12:15–13:45, HS104, FU Berlin (weekly).
First lecture October, 17th 2023.
Instructor: Lars Winkelmann, lars.winkelmann@fu-berlin.de
Consultation hour: Tuesday 15:00–16:00, Boltzmannstr. 20, 301.

Tutorials: Friday 10:15–11:45, HS104, FU Berlin (weekly).
First tutorial: October, 20th 2023.
Instructor: Lea Wolf, l.sieckmann@fu-berlin.de
Consultation hour: Friday 12:00–13:00, Boltzmannstr. 20, 323.

Course description

This course covers statistical tools needed to understand empirical economic research and to plan and execute independent research projects. A theoretical background in linear regression analysis is the key. Selected topics include estimation and inference, asymptotic theory, big data, simultaneous equations models. Special attention will be placed on limitations and pitfalls of different methods, their potential fixes and connections.

Chapters:

(1) Multiple linear regression model:
geometric properties, statistical properties, hypothesis testing.

(2) Estimation methods:
Generalized least squares, instrumental variables estimation, generalized method of moments, maximum likelihood, penalized least squares.

(3) Multivariate models:
linear simultaneous equation models, seemingly unrelated regression.

(4) Model selection and specification:
Functional form, variable selection.

Prerequisites

The course builds on the bachelor-level courses "Introduction to Econometrics" and "Statistics", or equivalent. Students are assumed to be familiar with basic concepts in linear algebra, analysis, probability theory and statistical inference. The introductory course "Quantitative methods" (Oct. 9) is highly recommended.

Grading

Grades will be based on a final, 2 hours exam. To qualify for the final exam you need to solve three homework assignments and achieve at least 33% of the total points. Due dates for the problem sets will be announced on blackboard and the tutorial. The problem sets and final exam will emphasize different aspects of the course, including theory and empirical procedures. We will test if you understand

the main results and underlying intuition, the tools and how they are applied.

Textbooks and Readings

The primary text is Davidson and Mackinnon (2021, Econometric Theory and Methods). In addition, you can also consult more applied text books like Verbeek (2012, A Guide to Modern Econometrics) or Wooldridge (2018, Introductory Econometrics). A classic reference for asymptotic theory in the linear regression model is Hayashi (2000, Econometrics). From Greene (2020, Econometric Analysis) we got the title of our course. This book is very helpful to look up certain things and to get an idea about the material we will not be able to cover! Another recent and applied book is Békés and Kézdi (2021, Data Analysis for Business, Economics, and Policy).