PhD Course Econometrics

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For empirical research knowledge and practice in econometrics are indispensable. In almost all economic fields, researchers apply econometric methods to confront theory with empirical evidence and to provide empirical results useful for economic policy. The large field of econometrics provides the tools necessary for empirical research in economics.

This course is a first year Phd-course in econometrics. The main aim of the course is to help students to learn how to do empirical research in economics and to obtain the basic knowledge necessary for applying econometric methods properly. The course is designed to provide a discussion of the core econometric material and it also includes work on exercise sheets including own work on a replication exercise.

1 Time Schedule

The course will be held in two blocks in class from **April 14$^{\text{th}}$** until **April 16$^{\text{th}}$**, 2026 (Tuesday - Thursday) and **April 28$^{\text{th}}$** until **April 30$^{\text{th}}$**, 2026 (Tuesday - Thursday).

Week 1: April 14-16		
Tuesday	09:45 - 13:00	SR 15 (SoWi)
	17:45 - 20:00	SR 15 (SoWi)
Wednesday	09:45 - 13:00	SR 15 (SoWi)
	16:45 - 20:00	SR 15 (SoWi)
Thursday	09:45 - 13:00	SR 15 (SoWi)
	16:45 - 20:00	SR 15 (SoWi)
Week 2: April 28-30		
Tuesday	09:45 - 13:00	SR 15 (SoWi)
	16:45 - 20:00	SR 15 (SoWi)
Wednesday	09:45 - 13:00	SR 15 (SoWi)
	16:45 - 20:00	SR 15 (SoWi)
Thursday	09:45 - 13:00	SR 15 (SoWi)
	16:45 - 20:00	SR 15 (SoWi)

Please note that the Phd-course has to cover 3 units a 45 minutes per week during a regular semester. I plan 7 blocks a 45 minutes per day in the first week and 6 units a 45 minutes in the second week which makes 39 units. So we have some flexibility and can discuss in class how to handle the evening sessions.

2 Workload and Grading

The course is valid 6 ECTS, each ECTS is 25 hours of workload, therefore in sum 150 hours of workload are designated to this course. About 30 hours are spent in class for lectures/presentations and 120 hours are allocated to work on the exercises and to preparing for the exam.

1. The Exercise sheet 1 is available in OLAT on April 16th and it is due on April 27th, 2026 at 12 pm. Exercise sheet 2 refers to the second block (available on April 28th and it is due on May 8th, 2026 at 12 pm). Each Exercise sheet is valid up to 30%, in sum **60%** can be achieved.

   Please work on the exercises in groups of up to four people and upload one file per group with your solutions (scan or pdf) to OLAT. The name of the file and each sheet of the solution document should include the names of all group members.

2. Exam: The final exam is an online open books exam. It is worth **40%**. The exam lasts 90 minutes (+ 10 minutes for upload) and takes place online on **Wednesday, May 13th, 2026**, from 18:00 until 19:30. You need a camera and a microphone to communicate.

In order to obtain a positive grade 50% of the points for all three parts together must be achieved. It is not necessary to have each part positive with more than 50%. Grading is as follows:

Result	Grade
$\leq 50\%$	fail
$50\% - 65\%$	4
$65\% - 75\%$	3
$75\% - 85\%$	2
$> 85\%$	1

3 Further Important Information

In our OLAT course you will find all updates, news and downloadable materials e.g., slides or assignments.

For problems discussed in the lecture the software R and Stata are used. If you want to do the assignments with a software package you are more familiar with, e.g. Phyton or MATLAB, feel free to do so.

In the exam you just have to be able to interpret R/Stata outputs, but this is surely no problem even if you usually work with a different software package.

4 Topics

The topics considered in this course are

- Introduction, basic concepts of statistics and asymptotic theory
- Linear model and OLS estimation in large samples
- GMM estimation, IV-estimation and weak instruments
- Linear and non-linear Panel models and the incidental parameter problem

5 Literature

The underlying textbooks are *Econometric Analysis*, W. H. Greene (2008), Prentice Hall and Bruce Hansen (2022), *Econometrics*, Princeton University Press. Further useful readings are are provide in the lecture slides.