# Bavarian Graduate Program in Economics "Quasi-Experimental Estimation Methods for Causal Effects" - Syllabus -

Lecturer:	Prof. Dr. Aline Bütikofer, Norwegian School of Economics	
Dates:	August 4-8, 2025	
Location:	Moosburger Hof Hotel, Pfaffenhofen	
<b>Preliminary Schedule:</b>	The lectures take place in the form of an intensive 5-day course.	
	Sunday, August 3:	19:00 (welcome meeting and dinner)
	Monday, August 4:	09:00-17:30
	Tuesday, August 5:	09:00-17:30
	Wednesday August 6:	09:00-17:30
	Thursday, August 7:	09:00-17:30
	Friday, August 8:	09:00-13:30
Daily Schedule:		
	09:00-10:30: First lecture	
	10:30-11:00 Coffee break	
	11:00-12:30 Second lecture	
	12:30-14:00 Lunch	
	14:00-15:30 Third lecture/Problem sets	
	15:30-16:00 Coffee break	
	16:00-17:30 Discussion of problem sets and review	
	19:00 Dinner	

#### **Course overview**

**Goal:** To introduce participants to the theory and practical application of modern econometric evaluation techniques through a combination of lectures and guided lab sessions.

Examples and applications presented in class will primarily come from Labour Economics, Health Economics, Economics of Education, and Economic History. However, the methods covered are broadly applicable across all sub-fields of Economics.

**Background:** Participants are expected to have a working knowledge of probability and statistics, including conditional expectations and fundamental limit theorems such as the Law of Large

Numbers and the Central Limit Theorem. A basic understanding of matrix algebra and multivariable calculus—particularly as they relate to probability—is also assumed. In addition, participants should be comfortable with ordinary least squares (OLS) regression and have at least a basic understanding of instrumental variables (IV) estimation.

**Structure:** Some sessions will focus on reviewing the theoretical foundations, while others will be hands-on, involving the (re-)estimation of published papers. These practical sessions will emphasize understanding the identification strategies employed and how they are implemented.

We will revisit several classic studies as well as more recent contributions, including papers that introduce less commonly used methods which have proven useful in a range of applications.

## Key topics

This course will cover, among others, the topics as follows:

- Rubin's Model of Causal Inference and the Potential Outcomes Framework
- Instrumental Variables Approach
- Difference-in-Difference Framework
- Regression Discontinuity Design
- Shift Share and Movers' Design
- Bad controls, measurement error, and clustering

### Readings

Mostly Harmless Econometrics: An Empiricist's Companion, Joshua D. Angrist and Jörn-Steffen Pischke, 2009.

Causal Inference: The Mixtape, Scott Cunningham, 2021.

The course builds on Cunningham (2021) and Angrist and Pischke (2009), two applied nononsense book that deals with the practical as well as the formal arguments about identification.

### Software program

Guided lab sessions are in Stata, but students my use R for the lab sessions if they prefer.

### Credit requirements and grading

- 1. Course attendance. Students are expected to participate in class.
- 2. Presentation in class.
- 3. Individual exam.