

## SYLLABUS

**Course title:** QUASI AND NATURAL EXPERIMENTS

**Instructors:** Prof. Christian PEUKERT  
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**Course website:** Moodle

**Semester:** Autumn 2024

**Timetable:**

Tuesday from 9:00 to 13:00, Room 4144 (Anthropole)

First class: September 24, 2024.

**Credits:** 3.0

**Prerequisites:**

A basic understanding of programming languages and statistics/econometrics is helpful but not required.

**Registration procedure:**

Sign-up for the course by sending an e-mail to [benedicte.moreira@unil.ch](mailto:benedicte.moreira@unil.ch)

### GENERAL DESCRIPTION OF THE COURSE

The objective of this course is to provide students with an understanding of causality in empirical research, and why experiments are so useful to uncover causal relationships. It is tailored for PhD students with an interest in doing research in areas such as behavioral economics, consumer behavior, organizational behavior, strategy and (business) policy evaluation.

We discuss methods for observational data, where the researcher cannot actively design an experiment, but must rely on variation from natural or quasi experiments. We make use of simulation to build an intuition for when these methods work well, and when they are better avoided.

We will replicate published research to give you hands-on experience in applying the methods covered in the course.

Sessions are conducted in an interactive format, with extensive discussion of concrete examples, coding challenges, and solutions.

## READINGS

Selected weekly readings (see section “Course Information per Session”)

Textbooks:

- Angrist, J.D. and Pischke, J.S., 2008. Mostly harmless econometrics: An empiricist's companion. Princeton University Press.
- Baum, C.F., 2009. An introduction to Stata programming (Vol. 2). College Station: Stata Press.
- Cunningham, S., 2021. Causal inference: The mixtape. Yale University Press. Also available here: <https://www.scunning.com/mixtape.html>

## ASSESSMENTS AND GRADING POLICY

Weekly readings and homework are a prerequisite to passing the course. The final grade consists of two group assignments and two individual assessments.

40% group assignments

- Replication of research articles and presentation

60% individual assessments

- End of semester open book exam

## RETAKE ASSESSMENT

Re-examination procedure: Students can redo failed assessments. The resits will be during the official resit examination period. The group class-room assignments can be redone individually, which will be evaluated with an oral presentation. The grade after resits will be calculated on the assessments that are redone along with the assessments that are not redone as per weighting scheme of the original syllabus.

## COURSE INFORMATION PER SESSION

### Session 1 (September 24, 2024): Causality

- Content:
  - o Recap of basic concepts in statistics
    - Inference
    - Data generation processes
  - o The potential outcome model
  - o Linear Regression
  - o Why we need experiments and which type to choose when
- Readings/Videos:
  - o Angrist and Pischke, Chapters 2-3
  - o Cunningham, Chapter 9

### Session 2 (October 1, 2024): Introduction to STATA

- Content:
  - o Introduction to Stata
    - Data types
    - Basic data manipulation
    - Basic programming: Macros and loops
    - Visualization
- Readings/Videos
  - o Baum, C.F., 2009. An introduction to Stata programming (Vol. 2). College Station: Stata Press, Chapters 2-10.
  - o There are tons of helpful resources on the internet to learn Stata. Consider watching videos on YouTube. Google will often point you to Statalist for specific problems.
  - o Ben Lambert, Monte Carlo Simulation for estimators, An Introduction:  
[https://www.youtube.com/watch?v=5nM5e2\\_1OQ0](https://www.youtube.com/watch?v=5nM5e2_1OQ0)
  - o Nick Huntington-Klein, Monte Carlo Simulation in Stata:  
<https://www.youtube.com/watch?v=-SKz6EhORqQ>

### Session 3 (October 8, 2024): Natural experiments 1

- Content:
  - o Introduction to experiments in observational data
  - o Natural experiments
  - o **Difference-in-differences**
    - Assumptions
    - Pitfalls
    - Communicating results
- Readings:
  - o Angrist and Pischke, Chapter 5
  - o Cunningham, Chapter 10
- Replication exercise:
  - o Abouk, Rahi, and Scott Adams. 2013. "Texting Bans and Fatal Accidents on Roadways: Do They Work? Or Do Drivers Just React to Announcements of Bans?" American Economic Journal: Applied Economics, 5 (2): 179-99.
  - o Moser, Petra, and Alessandra Voena. 2012. "Compulsory Licensing: Evidence from the Trading with the Enemy Act." American Economic Review, 102 (1): 396-427.

**Session 4 (October 15, 2024): Natural experiments 2**

- Content:
  - o **Regression discontinuity**
    - Assumptions
    - Pitfalls
    - Communicating results
- Readings:
  - o Angrist and Pischke, Chapter 6
  - o Cunningham, Chapter 7
- Replication exercise:
  - o Bento, Antonio, Daniel Kaffine, Kevin Roth, and Matthew Zaragoza-Watkins. 2014. "The Effects of Regulation in the Presence of Multiple Unpriced Externalities: Evidence from the Transportation Sector." *American Economic Journal: Economic Policy*, 6 (3): 1-29.
  - o Nekoei, Arash, and Andrea Weber. 2017. "Does Extending Unemployment Benefits Improve Job Quality?" *American Economic Review*, 107 (2): 527-61.

**Session 5 (October 22, 2024): Quasi experiments 1**

- Content:
  - o **Matching**
    - Exact matching, propensity score matching
    - Assumptions
    - Pitfalls
    - Communicating results
- Readings:
  - o Cunningham, Chapter 6
- Replication exercise:
  - o Blaseg, D., Schulze, C. and Skiera, B., 2020. Consumer protection on Kickstarter. *Marketing Science*, 39(1), pp.211-233.
  - o He, S., Hollenbeck, B. and Proserpio, D., 2022. The market for fake reviews. *Marketing Science*.

Session 6 (October 29, 2024): Quasi experiments 2

- Content:
  - **Selection models**
    - Assumptions
    - Pitfalls
    - Communicating results
  - **Instrumental variables**
    - Assumptions
    - Pitfalls
    - Communicating results
- Readings:
  - Angrist and Pischke, Chapter 4
- Replication exercise:
  - Clark, Damon, and Emilia Del Bono. “The Long-Run Effects of Attending an Elite School: Evidence from the United Kingdom.” *American Economic Journal: Applied Economics* 8, no. 1 (January 2016): 150–76.
  - Draca, Mirko, Stephen Machin, and Robert Witt. “Panic on the Streets of London: Police, Crime, and the July 2005 Terror Attacks.” *American Economic Review* 101, no. 5 (August 2011): 2157–81.