

Syllabus

[cmcd.economia@fgv.br]

Course Name: Topics in Microeconometrics

Faculty:

2025 FIRST SEMESTER

MARCH 10TH – 14TH

COURSE OUTLINE

This is a one-week course, with five lectures of 2h40min each. We will cover the theory behind popular econometric methods utilized by the modern empirical microeconomist such as resampling methods, instrumental variables (IV), difference-in-differences (DiD), regression discontinuity designs (RD), and bunching. Lectures will review the basics and cover latest advances from selected publications.

COURSE PROGRAM

- Resampling Methods
 - Bootstrap
 - Randomization Inference
 - Permutation Tests
- Instrumental Variables
 - Weak Instruments
 - Local Average and Marginal Treatment Effects
 - Policy Counterfactuals
- Difference in Differences
 - Two-way Fixed-Effects Estimators
 - Staggered Rollout
 - Continuous Treatment
- Regression Discontinuity Designs
 - Nonparametric Statistics
 - External Validity
 - Multiple Thresholds
 - Discontinuity Tests
 - Permutation Inference
 - Uniform Inference
 - School Matching Data
- Bunching Estimators

BIBLIOGRAPHY

- Resampling Methods
 - Chung and Romano (2013) “Exact and Asymptotically Robust Permutation Tests”, *Annals of Statistics* 41.2, 484-507.
 - Lehman and Romano (2022) “Testing Statistical Hypothesis”, 4ed.

- Instrumental Variables
 - Mogstad, Santos, Torgovitsky (2018). “Using instrumental variables for inference about policy relevant treatment parameters.” *Econometrica*, 86(5):1589–1619.
 - Lee, McCrary, Moreira, and Porter (2022). “Valid t-ratio inference for IV”. *American Economic Review*, 112(10):3260–3290.
 - Lee, McCrary, Moreira, Porter, Yap (2023). “What to do when you can't use '1.96' Confidence Intervals for IV.” NBER Working Paper No. w31893.
- Difference in Differences
 - Callaway, Sant'Anna (2021). “Difference-in-differences with multiple time periods.” *Journal of Econometrics*, 225(2):200–230.
 - Callaway, Goodman-Bacon, Sant'Anna (2024). “Difference-in-Differences with a Continuous Treatment.” Working paper available in Arxiv 2107.02637.
- Regression Discontinuity Designs
 - Bertanha, M. (2020). “Regression discontinuity design with many thresholds”. *Journal of Econometrics*, 218(1), 216-241.
 - Bertanha, Imbens (2020). “External validity in fuzzy regression discontinuity designs.” *Journal of Business & Economic Statistics*, 38(3):593–612
 - Bertanha, Moreira (2020). “Impossible inference in econometrics: Theory and applications.” *Journal of Econometrics*, 218(2):247–270.
 - Bartalotti, Bertanha, Calonico (2021). “Regression discontinuity designs in policy evaluation”. In *Handbook of Research Methods and Applications in Empirical Microeconomics*. Chapter 12, pg 325-358. Edward Elgar Publishing.
 - Bertanha, Chung, (2023). “Permutation tests at nonparametric rates.” *Journal of the American Statistical Association*, 118(544), 2833-2846.
- Bunching Estimators
 - Bertanha, McCallum, Payne, Seegert, (2022). “Bunching estimation of elasticities using Stata.” *The Stata Journal*, 22(3), 597-624.
 - Bertanha, McCallum, Seegert (2023). “Better bunching, nicer notching.” *Journal of Econometrics*, 237(2), 105512.
 - Bertanha, Caetano, Jales, Seegert (2024) "Bunching estimation methods." *Handbook of Labor, Human Resources and Population Economics*.

GRADING

There will be readings assigned before each lecture and students are expected to come to lecture ready to answer questions and engage in discussions. Student attendance and participation in class counts towards 50% of their final grade. The other 50% comes from a research proposal. Students are expected to come up with a research idea, hand in a written research proposal, and give a brief presentation in the last day of class.

CONTACT

Instructor:
 Email:
 Office:
 Office hours: