

PhD in Economics and Management 2019-20

MICROECONOMETRICS

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OBJECTIVES

The course offers an applied economist's take on recent advances in the analysis of microeconomic data. We will see theory and – most important - applications. Pre-requisites: knowledge of OLS, IV, panel data models at the level of a first-year graduate course in econometrics.

COURSE EVALUATION

All students will take a written examination. This is composed of two open questions. Additional marks will be awarded to students who present selected papers in front of the class at the end of the course.

TOPICS

1. Talking about causality: potential outcomes and treatment effects. Research designs and their different shades of validity.
2. Randomization and randomized trials. Inference: clustering and the Moulton problem, randomization inference, the problem of multiple testing. Power calculation and minimum detectable effects. Trial registration and pre-analysis plans.
3. Instrumental variables. Constant treatment effects (review). Heterogeneous treatment effects: the LATE theorem. Compliers: counting and characterizing them. Monotonicity and defiance. Testable implications of the LATE theorem: external validity and instrument validity. The case of variable treatment intensity: average causal response. If time permits: Marginal Treatment Effects.
4. Sharp and fuzzy regression discontinuity designs: identification and inference. The regression probability kink design and regression king design.
5. Linear (and non-linear) difference – in – differences. Event studies. Testing for parallel trends. Synthetic control methods. Inference in difference-in-differences and synthetic control methods.
6. Making do with observables: matching and regression. Big data, machine learning and their use in program evaluation.

REFERENCES

The key textbook is Angrist, J. D. and Pischke J.S. (2009). *Mostly Harmless Econometrics*. I will also use several journal articles and make many applied examples.