

Syllabus for the course: “Data Analysis 3”

1. Course Title: Data Analysis 3

2. Lecturer: Gábor Békés

3. No. of Credits. 2 credits (ECTS 4 credits)

4. Semester timing of the course: Winter 2017

5. Relationship with other courses: Prerequisite: Data Analysis 1. Parts of Data Analysis 2 may also be needed. Followed by Data Analysis 4.

6. Course Level: MA / MSc first year

7. Background and overall aim of the course.

Data Analysis 3 covers the analysis of the effects of interventions. This course improves students' knowledge and skills to apply regression analysis in evaluating business and policy interventions. It also introduces students to the design of randomized experiments. Similar to Data Analysis 1 & 2 we focus on the most robust, credible and transparent methods, and we emphasize correct interpretation and convincing presentation. This course covers topics such as the design of randomized experiments, difference-in-differences analysis, and the use of time series regressions and panel data regressions to evaluate the effects of interventions.

8. The learning outcomes of the course.

By successfully completing the course the students will be able to:

- Successfully formulate questions on the effects of interventions that are answerable by empirical analysis;
- Design simple randomized experiments when possible to measure such effects;
- Carry out regression analysis to estimate such effects from experimental data;
- Carry out regression analysis to estimate such effects from observational data, understand the limits of such analysis and assess their credibility;
- Discuss and interpret results of causal analysis, understand validity and constraints.
- Present empirical causal analysis and write short reports;
- Evaluate the merits of presentations and reports that carry out causal analysis.

9. Textbook(s) /tentative/

Handouts provided by the instructor

10. Software

R and Stata.

11. Grading

Quizzes 15%

Assignments 10%

Term Project 25%

Exam: 50%

Passing the course requires a passing score on the exam (over 50%)

12. More detailed presentation of course contents

Week Topic

- 1 Causal analysis. Recap potential outcomes. Causality in regressions (confounders, selection, reverse causality)
- 2 Doing experiments
- 3 Learning from natural experiments
- 4 Policy analysis with time series data
- 5 Diff-in-diffs. Panel regression in first diffs
- 6 Panel regressions: FE, pooled OLS, RE. Synthetic controls.