



## **Econ 401/604 - Applied Econometrics**

Sabancı University, Faculty of Arts and Social Sciences

Instructor: Abdurrahman B. Aydemir

E-mail: [aaydemir@sabanciuniv.edu](mailto:aaydemir@sabanciuniv.edu)

Office/Phone: FASS 1047 / 9344

Office Hours: by email appointment

Lectures: Mon: 8:40-10:30 FASS G043

Tues: 13:40-14:30 FASS G049

### **Course Overview**

The purpose of this course is to familiarize students with state-of-the-art econometric methods used in current research for empirical analysis of micro data. The course will underline the challenges in inferring causality in social scientific research and focus on credible identification of causal parameters of interest. The emphasis will be on applications of empirical modeling tools to real world problems through discussions of several policy relevant topics.

### **Prerequisites**

Econ 301 – Econometrics

### **Study Materials**

Course discussions and assigned papers for each topic are the core reading material. There is no required textbook for the course. Students are referred to the following optional texts that cover some of the materials that will be discussed in class.

Colin Cameron and Pravin K. Trivedi, *Microeconometrics: Methods and Applications*, 2005, Cambridge University Press

Jeffrey Wooldridge, *Introductory Econometrics*, Thomson, Third or fourth edition

Jeffrey Wooldridge, *Econometric Analysis of Cross Section and Panel Data*, MIT Press, 2002

Joshua D. Angrist and Jörn-Steffen Pischke, *Mostly Harmless Econometrics*, Princeton University Press, 2009, Princeton and Oxford.

## **Requirements and Grading**

The course involves in class discussions and presentations. Therefore full participation in class activities is expected.

The course will cover papers that discuss empirical methods and their applications. Students will be expected to read the assigned papers before class, write critical reviews, and get involved in the discussions.

The evaluation for the course will be based on the tasks associated with weekly readings, applied exercises in Stata, and a research paper. The details for these tasks are provided below following the course outline.

For Stata software resources: <https://www.stata.com/links/resources-for-learning-stata/>

Grading: Participation in discussions (15%), paper presentations (15%), critical review and applied exercises (30%), research paper (40%).

Note that course content, requirements and policies are subject to change at the discretion of the instructor.

## **Rules of Conduct**

The definition for scholastic dishonesty is given in the rules and regulations of the Sabanci University. In the case of scholastic dishonesty, no credits will be given for that particular work. Cheating during written work will result in an F for the course. All incidents of scholastic dishonesty will be reported to FASS for disciplinary action.

## **Course Outline**

Selected topics from the following list will be covered. The readings for the covered topics will be assigned throughout the term.

- I. Causality
- II. Randomized experiments
- III. Selection on observables
  - a. Regression
  - b. Dummy variables/interactions
  - c. Quantile regression
  - d. Matching
  - e. Propensity score methods
- IV. Selection on unobservables
  - a. Linear panel Data Models – Fixed effects and difference-in-differences
  - b. IV methods: IV estimator /2SLS and Weak Instruments
  - c. Regression Discontinuity Methods
- V. Weighting and cluster robust standard errors

#### Details of courses requirements

There are two major components:

First, students will do weekly readings, write a critical review and carry out several applied exercises in Stata using micro data throughout the term.

- (i) All students are expected to read the papers being discussed in class. The day before paper discussion (by 10:00 pm) students will send one question about each paper assigned for that week. The question may be about the methodology or the topic the paper addresses. This will give students an incentive to read and think about the paper in advance.
- (ii) Each week, one student will be the discussion leader who will be responsible from presenting that week's paper(s) and monitoring the discussion based on the questions sent the day before. Depending on the final number of students in class and the nature of the paper, presentation of a paper may be done by a group of students. See the end of the course outline for suggested structure for the presentations.
- (iii) Students will be assigned an article for which they are going to write a critical evaluation from the perspective of identification of parameters of interest (rather

than just summarizing papers' arguments). The report will be short (max 2 pages in length, 12 point font, double spaced), due before discussion of the paper in class. Late reports will not be accepted.

- (iv) Applied exercises will introduce some estimators and how they are implemented in Stata using real data. Students will carry out the estimation and interpret their findings. For the estimation students can work together but each student will turn in their own version of the assignment (answers to the questions and the Stata log file).

Second, the students will write a research paper on a particular applied topic that will be announced. Follow the instructions provided with term paper assignment. Deadline for submission of term papers: **Deadline - Jan 14, 2024, 10 pm**

#### Suggested structure of presentations

The presentations of assigned papers will be limited to 40 minutes. You may want to structure your presentation along the following lines:

Background: Why is the topic important? What do we already know?  
What are the limitations of previous work? (5 minutes)

Methods: Which econometrics methods and data are used?  
What is the econometric model? (5-10 minutes)

Results: What are the main findings? (5-10 minutes)

Discussion: Critical discussion of the identification strategy. Is it convincing?  
Are improvements possible? (15 minutes)

Conclusion: What have we learnt from this study? (5 minutes)