SYLLABUS
440.618.51 Microeconometrics

Instructor: Hanchen Jiang
Email: hjiang15@jhu.edu
Class Time: 6:00 - 8:45 pm Tuesdays
Office Hours: Before and after class as needed or by appointment

Overview

This course will cover a range of advanced econometric techniques frequently encountered in microeconometric analysis, the analysis of individual-level data on the economic behavior of individuals or firms.

In the first half of this course, we will begin with a brief review of the classical regression model. Then we will cover relevant econometric theory of cross section and panel data models. In the second half, we will move on to the frontier of empirical microeconomics, focusing on the identification of causality (also known as “Program Evaluation” or “Treatment Effect”). Methods such as Instrumental Variable (IV), Difference-in-Difference (DiD), and Regression Discontinuity (RD) design will be emphasized. We will also cover other advanced topics based on students’ interests if time permits.

By the end of the course, students will have solidified understanding of applied microeconometrics by putting it into practice and learned how to approach and analyze significant research questions using micro-data and appropriate estimation techniques.

Pre-requisites

Required: Statistics and Econometrics
Recommended: previous knowledge of Stata

1This version of the syllabus was compiled on February 12, 2017. A final version is subject to change.
Textbooks

In the first part of the course, we will mainly follow *Econometric Analyses of Cross Section and Panel Data* by Wooldridge. In the second part, *Mostly Harmless Econometrics* by Angrist and Pischke would be a good companion. Recent versions of the texts can be used. Handouts would also be provided.

There are some other popular books on microeconometrics in case students might find useful:

“Microeconometrics - Methods and Applications” by Cameron and Trivedi

“Microeconometrics Using Stata” by Cameron and Trivedi

Grading

→ **Problem Sets 40%**: These assignments will predominantly consist of computational exercises, though they will include some analytical questions as well. Students are encouraged to work together on these assignments. For exercises involving computation your code must be submitted.

→ **Quizzes 30%**: There will be pre-announced quizzes throughout the semester. The lowest score of quizzes will be dropped. There is no make up for missing a quiz.

→ **Referee Report 30%**: In the second half of this course, students are required to write a 2-pages referee report (summary and critiques) among a list of papers for different topics. More details will be discussed in class.

Tentative Schedule and Topics

Warm-up

→ Review of Linear Regression Model

→ Introduction to Stata

Part 1: Microeconometric Theory and Methods

→ Maximum Likelihood Estimation (MLE)

→ Generalized Method of Moments (GMM)

→ Binary Outcome Models
→ Multinomial Models
→ Censored (Tobit) and Selection Models
→ Introduction to Panel Data Models

Part 2: Casual Inference and Applications

→ Propensity Score Matching
→ Instrumental Variable
→ Difference-in-Difference
→ Regression Discontinuity Design
→ Fixed Effect

Part 3: Advanced Topics (time permits)

→ Control Function Method
→ Nonparametric/Semi-parametric Method
→ Structural Estimation
→ Quantile Regression
→ “Big Data”/Statistical Learning

Computing

Homework assignments will require the use of Stata, a general-use statistical package, to perform the applied econometric analysis. In addition, during class I will often illustrate theoretical concepts using Stata commands and output. I will cover a basic overview of Stata. Stata is available in the JHU computer lab, and can be purchased for home use at a student discount price: See http://www.stata.com/order/new/edu/gradplans/campus-gradplan/ You might also want to check the JHU’s website with resources on using Stata: http://www.stata.com/links/resources-for-learning-stata/
University Ethics Statement

The strength of Johns Hopkins University depends on academic and personal integrity. In this course, you must be honest and truthful. Ethical violations include cheating on exams, plagiarism, reuse of assignments, improper use of the Internet and electronic devices, unauthorized collaboration, alteration of graded assignments, forgery and falsification, lying, facilitating academic dishonesty, and unfair competition.

Report any violations you witness to the instructor. You may consult the associate dean of students and/or the chairman of the Ethics Board beforehand. See the guide on “Academic Ethics for Undergraduates” and the Ethics Board web site for more information.

Disability Resources

The Johns Hopkins University is committed to providing reasonable and appropriate accommodations to students with disabilities. Students in Advanced Academic Programs (AAP) who are in need of accommodations should visit

http://advanced.jhu.edu/current-students/current-students-resources/disability-accommodations/

for the appropriate steps and documentation needed. Requesting accommodations before the semester is preferable, but not required. The student should submit the Request for Accommodation Form prior to the beginning of each semester (s)he is registered to ensure that accommodations continue for that semester. Depending on the accommodation, there may be a time delay before accommodations can be implemented.