Econ 613: Applied Econometrics in Microeconomics

Spring 2017  TTH - 10:05AM to 11:20AM
Instructor: Daniel Yi Xu  Old Chemistry 116

This course is designed to provide applied econometric techniques, commonly used in Development, Industrial Organization, Labor, and Public Economics, to Master students in Economics, Public Policy, and Business. Students are expected to have taken at least one or more econometrics/statistics courses at the level of Econ 608D (Introduction to Econometrics).

The main aim of this course is not only to cover basic topics in cross section and panel data econometrics, but also to familiarize students with applications of these econometric techniques to real-world economic questions. The course instruction is divided between theoretical development in textbook and case studies, which are taken from academic publications.

The students will have hands-on experience using STATA to solve 4-5 empirical problem sets.

Course Textbook
Econometric Analysis of Cross Section and Panel Data, Jeffrey Wooldridge, MIT Press

Supplemental Reading
Mostly Harmless Econometrics, Angrist and Pischke, Princeton Press

Teaching Assistant and Office Hour
Tiancheng Chen and Sherry Wu are the teaching assistants for this course. They are available to help you with course material and empirical problem sets.

I will also hold additional office hours during periods of midterm and final exams.

Grading
Your course grade will depend on your performance on problem sets, mid-term exam, and a final exam in the following way:

Class Participation  10%
Midterm Exam 1: 25%
Midterm Exam 2: 25%
Problem Sets: 20%
Take-Home Final: 20%

There will be no makeup exams. If you miss one of the midterms, the weight of the missed exam will be placed on the other, with a penalty of 30% of your midterm grade. If you miss both midterms, you will automatically fail the course.

Take-home exam will be distributed in class on April 18 and due at the end of day April 21 (Friday).

**Preliminary Course Outline (We will update as course proceeds)**

1/12-1/24:

- Instrumental Variables Estimation of Single-Equation Linear Models
  - Application: Returns to Schooling
- System OLS
  - Application: U.S. Electricity Generating Plants and Regulation
- System Estimation by Instrumental Variables
  - Application: Demand for Broiler Chicken with time-series data
  
  *Problem Set 1*

1/26 - 2/9:

- Linear GMM
  - Application: Almost Ideal Demand System
- Panel Data Model I: Fixed Effect vs. Random Effect
  - Application: Competition and Airfare, Returns to Schooling of Twins
- Panel Data Model II: Dynamic Panel Data
  - Application: Production Function Estimation
  
  *Problem Set 2*
2/14: Midterm Exam I

2/16:

M-Estimation and Numerical Optimization

Brief Review of Maximum Likelihood Method

2/21-2/28:

Discrete Response Model I

Application: Workplace Smoking Ban, Female Labor Force Participation

Discrete Response Model II

Application: Choices of Energy for Heating

*Problem Set 3*

3/2 – 3/7:

Sample Selection

Application: Heckman Selection Model and its application

3/9: Midterm Exam II

3/14 – 3/16: Spring Recess

3/21 – 3/28:

Program Evaluation

Randomization and Average Treatment Effects

Matching Methods

Application: Job Training Program

*Problem Set 4*

3/30 - 4/11:

Dif-in-Dif

Application: Minimum Wage, Health Insurance, Disability Benefits

Regression Discontinuity Design
Application: Voting and Policy

Problem Set 5

4/13:

Optional Topics and Final Review

4/18: Final Exam