Econ 690-01  Microeconometrics  Spring 2017

Mondays and Wednesdays, 3:05pm – 4:20pm, Biological Sciences 063.

Instructor: Adam Rosen (adam.rosen@duke.edu).

Synopsis

This course studies how data on individual economic agents can be used to draw inferences on their behavior. We will cover general econometric methods that economists use for empirical microeconomic research. This will include the study of econometric models with limited dependent variables, non-linear models, models of selection and censoring, and methods for panel data. While the focus will primarily be on parametric models, there will also be some discussion of semi-parametric models.

Key concepts will include an introduction to identification, as well as widely applicable estimation methods such as maximum likelihood estimation (MLE) and generalized method of moments (GMM). While we will focus on their application in the context of several particular models commonly used in empirical research, we will cover them at a sufficiently high level of generality to enable their application to structural econometric models more broadly. A firm understanding of these tools is excellent preparation for applied work in economics in the private sector, for government policy work, or for future research in econometrics, such as in a PhD program.

Along the way we will discuss application of some of these models to economic data in contemporary empirical research, but our focus will be primarily methodological in order to establish a firm understanding of commonly used microeconometric models, and the statistical properties of their associated estimators.

Prerequisites

There is no formal prerequisite, but students are expected to have sufficient background to be familiar with material covered in Economics 608D. If you have not taken 608D and are not sure if you have the right background, please come see me.

Course Textbook


Office Hour

I will hold office hours each week on Tuesday from 11:00am – 12:30pm in Social Sciences 221B.

Teaching Assistant

Beiqing Huang (beiqing.huang@duke.edu) is the teaching assistant for this course. He will hold weekly office hours to provide additional support with regard to course material and problem sets at a time yet to be determined.
Grading

Your course grade will be determined by your performance on problem sets, a mid-term exam, and a final exam, as follows:

Problem Sets: 30%
Midterm Exam: 30%
Final Exam: 40%

There will be no makeup exams.

Preliminary Course Plan (subject to updates as the semester proceeds)

Chapters 1 & 4.1 – 4.2.3.


*Wednesday January 25*: Maximum Likelihood and M-estimation.
Chapters 13.5 & 12.1 – 12.4.

Chapters 16.1 – 16.2.2 & 16.3.1 – 16.3.2.

*Wednesday February 1*: Censored regression. Type I Tobit Model.
Chapters 17.1 – 17.4
Problem Set 1 due.

*Monday February 6*: A Control Function Approach to Endogeneity.
Chapter 6.2.

*Wednesday February 8*: Discrete Response Models with Endogenous Regressors.
Chapters 15.7.2 – 15.7.3, 16.2.3 & 16.3.3.

Chapter 17.6

Chapter 17.7
Problem Set 2 due.

*Monday February 20*: Quantile Regression.
Chapter 12.10.1 – 12.10.2.
http://www.cemmap.ac.uk/resource/id/koenker/koenker_mc_handout.pdf

*Wednesday February 22*: Quantile Regression, continued.
http://www.cemmap.ac.uk/resource/id/koenker/koenker_mc_handout.pdf

Monday February 27: Generalized Method of Moments.  
Chapter 14.1 – 14.3. See also chapters 8.1 – 8.3.

Wednesday March 1: Catch up and review.  
Problem Set 3 due.

Monday March 6: Midterm Review

Wednesday March 8  
Midterm exam

Monday March 13: No class, spring recess.

Wednesday March 15: No class, spring recess.

Monday March 20: Seemingly Unrelated Regressions.  
Chapters 7.1 – 7.7

Chapter 9.1 – 9.3.

Monday March 27: Simultaneous Equations Models, continued.  
Chapter 9.4 – 9.6.

Wednesday March 29: Linear Panel Data Models.  
Chapters 10.1 – 10.4  
Problem Set 4 due.

Monday April 3: Linear Panel Data Models, continued.  
Chapters 10.5 – 10.8

Wednesday April 5: GMM and IV for Linear Panel Data Models.  
Chapter 11.1 – 11.3.

Monday April 10: First Differencing IV and Measurement Error with Panel Data.  
Chapter 11.4 – 11.5.

Wednesday April 12: Dynamic Panel Data Models.  
Chapter 11.6 – 11.7.  
Problem Set 5 due.

Monday April 17: Binary Response Models for Panel Data.  
Chapter 15.8.

Wednesday April 19: Further Nonlinear Panel Data Models.  
Chapter 16.2.4, 16.3.4 & 17.8.

Monday April 24: Catch up and review.

Wednesday April 26: Review.  
Problem Set 6 due.
The final exam will be held during the exam period May 1-6.