

Syllabus “Advanced Econometrics” ECON-355, Fall 2011

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Office hours: Tue 3:00-4:30pm, Wed 12:00-1:30pm or by appointment.

Time: Tue, Thu 1:30-2:45pm
Location: King 321

Course Objectives: The course aims to provide the student with a solid knowledge of the most commonly used econometric estimation techniques beyond basic OLS. The first part (about half the course) focuses on endogeneity problems in linear models and how panel data methods, instrumental variables and simultaneous equations models can be employed in the identification of a causal effect. The second part introduces the student to Maximum Likelihood Estimation (MLE) and develops estimators for its most common applications. The third part discusses the problems encountered with time series data and the estimation techniques available to get around them.

Roughly half the course (6-7 weeks) will be allocated on the first part, which will have a strong focus on how the techniques covered can be applied to real world problems. Parts two and three will comprise 3-4 weeks each and will be much more theoretical in nature.

Course requirements and grading schemes: Letter grades will only be given at the end of the semester, not on individual assignments. There will be five problem sets, a midterm, and an exam at the end of the course. Problem sets are due in class on Tuesday the week after they have been assigned, you will be graded on the best four problem sets you handed in. The final grade will consist of the following:

20% Participation
20% Problem sets
20% Midterm
40% Final exam

Textbook & Readings: The principal textbook for the course is

Introductory Econometrics: A Modern Approach by Jeffrey M. Wooldridge, South Western College Publishing, 2009, 4th Edition. **(W)**

I will also post a few chapters from the following book on Blackboard (mostly as an easier introductory reading):

Introduction to Econometrics by James H. Stock and Mark W. Watson, Addison Wesley 2003. **(SW)**

In addition, we will go over a number of empirical papers which employ the methods discussed in class:

Pritchett, Lant; “*Where Has All the Education Gone?*” Policy Research Working Paper #1581, The World Bank 1996

Acemoglu, Daron; Johnson, Simon; Robinson, James A.; “*The Colonial Origins of Comparative Development: An Empirical Investigation*”; AER 2001 (AJR 01)

Clemens, Michael; “*Do visas kill? Health effects of African health professional emigration*”; CGD Working Paper #114, 2007

Yang, Dean; “*International Migration, Remittances and Household Investment: Evidence From Philippine Migrants’ Exchange Rate Shocks*”; EJ 2008

Duflo, Esther; “*Schooling and Labor Market Consequences of School Construction in Indonesia: Evidence From an Unusual Policy Experiment*”; AER 2001

Albouy, David; “*The Colonial Origins of Comparative Development: An Investigation of the Settler Mortality Data*”, NBER Working Paper #W14130, 2008

Miguel, Edward; Kremer, Michael; “*Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities*”, *Econometrica* 2004

Chattopadhyay, Raghendra; Duflo, Esther; “*Women as Policy Makers: Evidence from a Randomized Policy Experiment in India*”, *Econometrica* 2004

Bertrand, Marianne; Mullainathan, Sendhil; “*Are Emily and Greg More Employable than Lakisha and Jamal? A Field Experiment on Labor Market Discrimination*”, NBER Working Paper No. 9873

Bertrand, Marianne; Djankov, Simeon; Hanna, Rema; Mullainathan, Sendhil; “*Obtaining a Driving License in India: An Experimental Approach to Studying Corruption*”; QJE 2007 (BDHM 07)

Collier, Paul; Hoeffler, Anke; “*On Economic Causes of Civil War*”; *Oxford Economic Papers* 50 (1998), 563-573

Gindling, T. H.; “*Labor Market Segmentation and the Determination of Wages in the Public, Private-Formal, and Informal Sectors in San José, Costa Rica*”; *Economic Development and Cultural Change*, Vol. 39, No. 3 (Apr., 1991), pp. 585-605

Honor code: The Oberlin College Honor Code applies to all assignments for this course. You can access complete information on the Honor Code via Blackboard (go to the tab Lookup/Directories>Honor Code). Before turning in each of your exams and your problem sets,

you need to write the honor pledge and sign it. The pledge is as follows: *"I affirm that I have adhered to the Honor Code in this assignment."* The exams are all closed book and closed notes. For the exams signing the honor pledge signifies that you have abided by those restrictions and neither given nor received aid during the exams.

You are encouraged to work on your problem sets in groups. However, if you do so each of you is required to clearly state with who you worked on that particular problem set. A failure to do so will be considered a violation of the Honor Code.

Students with Disabilities: If you have specific physical, psychiatric or learning disabilities that require accommodations (such as a note taker or special testing arrangements), please let the instructor know early in the semester so your learning needs can be appropriately met. You will need to provide documentation of your disability to Ms. Jane Boomer, Coordinator for Services for Students with Disabilities. Her office is in Peters G-38A and her phone number is x58464.

Course outline:

Part I: Identification

Week 1: Introduction, Causes of Endogeneity & Simple Panel Data Methods

- W: Chapter 3.3: pgs. 89-94
- W: Chapter 9.4
- W: Chapter 16.1 & 16.2
- W: Chapter 13
- Pritchett 96, pgs.6-14
- AJR 01: up to pg. 1377
- Clemens 07: pgs. 1-4 & 12-13

Week 2: Simple Panel Data Methods cont. & Advanced Panel Data Models

- W: Chapter 13
- W: Chapter 14
- Yang 08
- Duflo 01

Week 3: Advanced Panel Data Models & IV Estimation

- W: Chapter 14
- W: Chapter 15
- SW: Chapter 8
- SW: Chapter 10

Problem Set 1

Week 4: IV Estimation cont. & Simultaneous Equation Models

- W: Chapter 15
- W: Chapter 16
- AJR 01
- Albouy 08
- Pritchett 96: pgs. 1-14
- Clemens 07

Week 5: Experimental vs. Non-Experimental Approaches, Regression Discontinuity Models

- SW: Chapter 11
- Miguel, Kremer 04
- Chattopadhyay, Duflo 04
- BDHM 07
- Bertrand, Mullainathan 03

Problem Set 2

Part II: Maximum Likelihood Estimation

Week 6: Introduction to MLE & Binary Dependent Variable Models (Probit & Logit)

- W: Chapter 17.1
- SW: Chapter 9

Week 7: Binary Dependent Variable Models cont. & Midterm

- W: Chapter 17.1
- SW: Chapter 9

MIDTERM: Thu Oct 20 (covering part I).

Problem Set 3

Week 8: The Tobit Model & Poisson Regression

- W: Chapter 17.2
- W: Chapter 17.3
- Collier, Hoeffler 98

Week 9: Censored and Truncated Regression & Sample Selection Corrections

- W: Chapter 17.4
- W: Chapter 17.5
- Gindling 91

Problem Set 4

Part III: Time Series Data

Week 10: OLS with Time Series Data

- W: Chapter 10
- W: Chapter 11

Week 11: Serial Correlation & Heteroskedasticity

- W: Chapter 12

Problem Set 5

Week 12: Advanced Topics in Time Series

- W: Chapter 18

Week 13: Advanced Topics cont. & Review

FINAL EXAM: Sun, Dec 18, 2:00-4:00pm