Department of Economics
University of Notre Dame
Fall 2015

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ECON 30331
Econometrics

Classroom: DeBartolo 118
Day & Time: Tuesday & Thursday 12:30-1:45 pm

Office Hours: Monday & Wednesday 2-4 pm and by appointment.

Class Website: Sakai. This is where lecture notes, data sets, problem sets, etc. will be posted.

Textbook: Jeffrey Wooldridge, *Introductory Econometrics: A Modern Approach*, 5th edition, 2013. (The 3rd or 4th editions should work too, but you are responsible for matching up textbook content to what is taught in class.) This is a very good textbook.

Prerequisite: ECON 30330 (Statistics for Economics) or an equivalent statistics course.

Course Description

The main objectives of this course are 1) to enable you to understand and critique empirical papers in the economics literature, and 2) to be proficient in conducting basic regression analysis of your own. We will spend the bulk of the course on regression analysis. Topics we will cover include model specification, estimation, and hypothesis testing. We will focus on the ordinary least squares (OLS) estimator, which is the workhorse statistical model in economics and the social sciences in general.

For each topic, I will first present a standard textbook treatment. This will involve explanations of the theory behind a statistical model, which will include mathematical derivations. We will spend substantial time developing an intuitive understanding of regression analysis by reading and discussing assigned papers, and by working with data.

Statistical Software

Stata is the statistical software of choice among most applied economists, so we will use Stata in this course. Stata is available on all public computers on campus. If you want Stata on your own computer, the only option is to buy a license here: http://www.stata.com/order/new/edu/gradplans/student-pricing/. "Small Stata" is sufficient for this course but will not be enough if you intend to use Stata for research.

Help for Stata is widely available. I have created a Stata guide here: http://nd.libguides.com/stata. Another resource is Professor Bill Evans' guide: http://www3.nd.edu/~wevans1/econ30331/Introduction%20to%20STATA.pdf. Do not hesitate to Google ways to get Stata to do what you want or ask me whether in person or through email.

Grading

Problem sets	20%
Project	15%
Midterm 1	20%
Midterm 2	20%
Final Exam	25%
Total	100%

Problem Sets

You will be assigned eight problem sets throughout the semester. These problem sets are designed to help test and increase your understanding of the concepts discussed in class. You will solve two types of problems. The first type is "pen and paper" problems -- mathematical derivation, using formulas, calculations. The second type involves computer work -- producing and interpreting statistical output from datasets that will be given to you. The use of Stata is required for the computer questions.

Problem Set 1 has been posted on Sakai and is due September 3. It covers concepts that you should have learned in ECON 30330. Textbook Appendix B and C will help you solve Problem Set 1. Some rust is perfectly understandable but if you find yourself seriously stumped by these questions, you have some urgent catching up to do.

You are encouraged to work in groups on the problem sets but you must turn in your own copy of the answers. You must turn in your answers in hard copy, stapled, at the beginning of class on the day that they are due. Late problem sets will not be accepted.

Exams

There will be two in-class midterm exams and a cumulative final exam. All exams will be held in the regular classroom, DeBartolo 118 and will be closed book, so no notes or books allowed. Please see the schedule below for exam coverage. Attendance for all exams is absolutely mandatory. Do not schedule travel or other conflicts during exam times! **No makeups will be given**, except for university-approved absences (e.g. death in the immediate family, hospitalization, official athletic duties), in which case I will require EXTENSTIVE written documentation and will also require receipt of the documentation within 48 hours of the missed exam. Unapproved absence from an exam will earn you a zero for the exam.

Course Project

A group research project is due December 10, the last day of class. The project will involve carrying out an empirical project and writing up the results in the form of a research paper. Data sets and research questions will be given to you in October. You will work in groups of three. More information will be posted on Sakai.

Attendance and Participation

I do not take attendance nor give points for participation in class. Keep in mind that this is a challenging course, so miss class at your peril.

Honor Code

Although you may work in groups on problem sets and the research project as outlined above, bear in mind that as a precondition for admission into the University, you agreed to not participate in or tolerate academic dishonesty. Please familiarize yourself with the Undergraduate Academic Code of Honor: http://honorcode.nd.edu/

Schedule

Date	Topic	Chapter	Assigned	Due
8/25	Introduction, Simple Regression	1, 2	PS 1	
8/27	Simple Regression	2		
9/1	Simple Regression	2		
9/3	Simple Regression	2	PS 2	PS 1
9/8	Multiple Regression	3		
9/10	Multiple Regression	3		PS 2
9/15	Multiple Regression	3	PS 3	
9/17	**Class cancelled.** Go through Stata tutorials nd.libguides.com/stata			
9/22	Inference	4	PS 4	PS 3
9/24	Inference	4		
9/29	Asymptotics	5		PS 4
10/1	**Midterm 1, in class.**	**1-4**		
10/6	Dummy variables	7		
10/8	Dummy variables, interactions	7, 6		
10/13	Interactions, data scaling, adjusted R^2	6	PS 5	
10/15	Heteroskedasticity	8		
10/20 **10/22**	**No class. Fall break.**			
10/27	Proxy variables, measurement error, functional form misspecification	9	PS 6	PS 5
10/29	Instrumental Variables	15		
11/3	Instrumental Variables	15		PS 6
11/5	Applications			
11/10	**Midterm 2, in class.**	**6-9, 15**		
11/12	Panel Data	13		
11/17	Panel Data	13	PS 7	
11/19	Panel Data	14		
11/24	Applications			PS 7
11/26	**No class. Thanksgiving.**			
12/1	Time Series	10		
12/3	Time Series	11	PS 8	
12/8	Time Series	12		PS 8
12/10	Review			Project
12/16	**Final Exam** **Time: 10:30am – 12:30pm**	**Cumulative**		

Note: I reserve the right to change the schedule as necessary.

Last updated 8/4/2015