

## **ECON 503 Fall 2014**

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### **Course objectives**

Econometrics is the application of statistical methods to economic problems. It provides tools that make the practical application of economics possible. The importance of econometrics is not limited to economics—the tools you will learn are also widely used outside of economics, in fields ranging from public policy, public health, sociology and psychology to marketing and finance. In this course, we will develop and use basic and advanced econometric techniques. By the end of the course you should:

- (1) have a conceptual understanding of Ordinary Least Squares regression and some more advanced econometric techniques,
- (2) have proficiency using Stata (a statistical software package), and
- (3) be able to implement original research using the empirical techniques you have learned.

The focus of the course is cross-sectional and panel data analysis, though we will briefly discuss time-series issues towards the end of the course.

### **Texts and computer resources**

1. The (required) textbook is by James Stock and Mark Watson, *Introduction to Econometrics*, Third edition, Addison-Wesley. Don't buy Third Edition Update.
2. The software we will be using, Stata, is available in both PC and Mac versions, and should be installed on all lab computers. It is available for download from the OIT. Instructions for use of Stata will accompany homework assignments.

### **Attendance and class participation**

It is extremely important to note that in econometrics, even more than in most economics courses, learning is cumulative. Each topic builds on the previous one. You must be regular in attending class and in submitting problem sets. Because there are externalities (on other students as well as on me) when you miss class, the attendance policy in this course is fairly strict. With the exception of the optional review sessions held before each exam, you are expected to attend class. Five percent of your course grade is for attendance. You can miss two classes without penalty, and without providing any explanation. If you miss more than two, you will lose the 5%.

### **Evaluation**

Course grades will be based on your performance in Prof. Shore-Sheppard's final exam (5%) assignments (10%), a mid-term (25%), an empirical project (25%), attendance (5%), and final exam (30%).

## **Topics**

The topics to be covered are listed below. This list is subject to change, depending on time constraints.

1. Introduction.
2. Review of Probability
3. Review of Statistics
4. Linear Regression with one regressor.
5. Linear Regression with Multiple Regressors
6. Functional Forms in Regression Models
7. Instrumental Variables and Experiments, Natural and Otherwise
8. Pooled Cross-Section and Panel Data Methods
9. Binary Choice and Limited Dependent Variable Models
10. Introduction to Time-Series.

## Lecture Schedule

I like to retain flexibility in scheduling, so I am not providing a lecture-by-lecture outline now. Each Friday I will let you know the material that will be covered in the following week. The assigned reading can usually be done *after* the lecture, at which point (hopefully) it will be easier to follow.

## Logistics and Other Details

### Assignments

- Homework assignments will be posted on Glow by midnight on the dates shown and will be due by 4:15 p.m. on the dates indicated (see schedule below). Solutions will be posted on Glow by midnight on the same day.
- Assignments should be turned in to the course mailbox at the CDE.
- There will be six homework assignments overall, and I will use the best five to assign your grade. Late assignments will not be accepted.
- You are free to work together on homework assignments, except when I explicitly tell you otherwise. I recommend, however, that you work by yourself to the extent possible. Your T.A. for the course (Isaac Loh) will also be available to help. You can also consult Mohsina and Sultan.

### Exams

- During exams you will be allowed a one-sided “cheat sheet” (8.5X11) for the mid-term and a two-sided “cheat sheet” (8.5X11) for the final.
- Students with disabilities who may need disability-related classroom accommodations for this course are encouraged to set up an appointment to meet with me as soon as possible and to contact the CDE/Dean's Office to better insure that accommodations are provided in a timely manner.

## Empirical Project

You will work on your projects in groups in groups of three. If the class size is not a multiple of three we will make adjustments. Please let me know your group's composition by October 6, via e-mail (one e-mail will suffice, for the three of you!). If you don't want to choose a group for yourself, let me know (by September 30) and I will choose one for you. A three-page description of your project is due on November 5 and your final paper (approximately 15 pages, including tables) is due on December 1.

### **Schedule of Exams, Assignments, and Paper**

	Date Handed Out	Date Due
Assignment # 1	Sept 12	Sept 19
Assignment # 2	Sept 19	September 26
Assignment # 3	September 26	October 3
Group Composition Due	October 6, midnight, via e-mail	
Assignment 4	October 3	October 10
Midterm Examination	October 23, in class	
Paper outline due		Nov 5, midnight, e-mail. Hard copy in class the next day.
Assignment # 5	November 7	November 14
Assignment # 6	November 14	November 21
Final paper due		December 1, electronic copy by midnight, hard copy due the next morning, in class
Final Examination	TBA	