Economics 184: Econometrics
Fall 2012

Professor Brainerd
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Office hours:
Wednesdays,
10:00 am - 12:00 noon

Course description: This course provides an introduction to the methods and statistical techniques used to test economic theory and analyze economic data. 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.

The main tool of econometrics is regression analysis, which is concerned with uncovering and estimating relationships between different variables. In this course we will learn about regression analysis, emphasizing the intuition behind the procedures and how to apply them to real-world data. You will gain hands-on experience analyzing data and interpreting the results through a series of exercises in which you use econometric software to analyze data sets.

Learning goals: upon successful completion of the course you will:

- Understand the basic statistical assumptions underlying regression analysis and the situations in which these assumptions are appropriate
- Be able to identify when the basic regression assumptions may be violated and to correct for these violations using appropriate techniques
- Be able to critically assess empirical studies in economics and other professional journals
- Have proficiency using Stata (a widely-used statistical software package), and
- Be able to implement original research using the empirical techniques you have learned.

Prerequisites: Econ 80a and Econ 83a; Econ 80a may be taken concurrently.

Course materials: The required textbook for the course is James H. Stock and Mark W. Watson, *Introduction to Econometrics* (3rd edition), Pearson/Addison Wesley, 2011. It is fine to use the 2nd edition if you would like a cheaper option. Additional supplemental readings for the course will be posted on LATTE.

Attendance: Learning in econometrics is cumulative; each topic builds on the previous one. As a result, *attendance is extremely important*. I strongly recommend that you attend every class. Attendance will be taken in every class and will be the determining factor in borderline course grades.

Course requirements: Students will be evaluated on the following:

Problem sets	15%
Midterm 1 (Friday, Oct. 5)	20-30%*
Midterm 2 (Friday, Nov. 9)	20-30%*
Final exam (cumulative)	35%

(* The midterm with the highest grade will have a weight of 30%; the midterm with the lowest grade will be weighted at 20%.)

Problem sets and exams: Seven problem sets will be due during the semester, on the dates listed below. Complete problem sets must be turned in at the beginning of class on the due date. *Late problem sets will not be accepted under any circumstances*. To accommodate illness and unforeseen conflicts, I will drop the lowest score among your problem sets in the grade calculation. In other words, you must turn in six of the seven problem sets; alternatively you can turn in all seven problem sets and I will take the top six grades in calculating your problem set grade.

You may discuss your homework assignments with other students in the course and form study groups. However, you must do the computer assignments yourself and write up your own answers to all questions. Please write the name(s) of any students you have worked with on the first page of the problem set.

No make-up exams will be given in this course. Please note that absence from an exam will be excused ONLY for a serious illness or family emergency that is appropriately documented; otherwise a grade of zero will be assigned. There are NO EXCEPTIONS to this rule.

Recitation: Wednesdays, 6:30 pm - 8:20 pm

Special accommodations: If you are a student with a documented disability on record at Brandeis University and wish to have a reasonable accommodation made for you in this class, please see me immediately. Please keep in mind that reasonable accommodations are not provided retroactively.

Academic honesty: You are expected to be familiar with and to follow the University's policies on academic integrity (see http://www.brandeis.edu/studentlife/sdje/ai/). Instances of alleged dishonesty will be forwarded to the Office of Campus Life for possible referral to the Student Judicial System. Potential sanctions include failure in the course and suspension from the University. If you have any questions about my expectations, please ask. Academic dishonesty will not be tolerated.

KEY DATES FOR THE CLASS:

Most Fridays: Problem set due in class.

Midterm 1: Friday, October 5

Midterm 2: Friday, November 9

Final exam: Scheduled during exam period

CLASS SCHEDULE

Class #	Date	Topic	Reading	PS due
1	Friday, Aug. 31	Introduction to the course	Ch. 1	
2	Tuesday, Sept. 4	Review of probability	Ch. 2	
3	Friday, Sept. 7	Review of probability and statistics	Ch. 2 and 3	
4	Tuesday, Sept. 11	Review of statistics	Ch. 3	
5	Friday, Sept. 14	Bivariate regression	Ch. 4	1
6	Friday, Sept. 21	Bivariate regression	Ch. 4 and 5	
7	Tuesday, Sept. 25	Bivariate regression	Ch. 5	
8	Friday, Sept. 28	Multiple regression	Ch. 6	2
9	Tuesday, Oct. 2	Catch-up and review		
10	Friday, Oct. 5	Midterm 1		
11	Friday, Oct. 12	Hypothesis testing	Ch. 7	
12	Tuesday, Oct. 16	Hypothesis testing; nonlinear regressions	Ch. 7 and 8	
13	Friday, Oct. 19	Nonlinear regressions	Ch. 8	3
14	Tuesday, Oct. 23	Internal and external validity	Ch. 9	
15	Friday, Oct. 26	Panel data	Ch. 10	4
16	Tuesday, Oct. 30	Panel data	Ch. 10	
17	Friday, Nov. 2	Binary dependent variable	Ch. 11	5
18	Tuesday, Nov. 6	Catch-up and review		
19	Friday, Nov. 9	Midterm 2		
20	Tuesday, Nov. 13	Instrumental variables	Ch. 12	
21	Friday, Nov. 16	Instrumental variables	Ch. 12	
22	Tuesday, Nov. 20	Experiments and quasi-experiments	Ch. 13	6
23	Tuesday, Nov. 27	Experiments and quasi-experiments	Ch. 13	
24	Friday, Nov. 30	Introduction to time series analysis	Ch. 14	
25	Tuesday, Dec. 4	Introduction to time series analysis	Ch. 14	
26	Friday, Dec. 7	Introduction to time series analysis	Ch. 15	7
27	Tuesday, Dec. 11	Review		