Economics 1123
Introduction to Econometrics: Syllabus

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Office hours:	Wednesdays 4-5 and by appointment
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Class time and room:	MW 9-10:15, Sever 113

COURSE DESCRIPTION

Economics 1123 introduces students to multiple regression and related methods for analyzing data in economics and associated disciplines. Topics include: multiple regression, regression with discrete random variables, instrumental variables regression, analysis of random experiments and quasi-experiments, large and nonstandard (e.g. textual) data sets, and regression with time series data. Students will learn how to conduct and critique empirical studies. The course emphasizes empirical applications; the mathematical theory of econometrics will be introduced only as needed and will not be a central focus. Students seeking a treatment of econometric theory with a higher level of mathematics should take Economics 1126. *Prerequisite*: Statistics 104 or equivalent.

TEXTBOOK, READINGS, AND CLASS LECTURE OVERHEADS

The textbook is J.H. Stock and M.W. Watson, *Introduction to Econometrics* (4th edition), Addison-Wesley, 2015. (*Note*: earlier editions and all international editions printed in English are acceptable). Two optional books are J.M. Wooldridge, *Introductory Econometrics*, South-Western College Publishing and J. Angrist and S. Pischke, *Mostly Harmless Econometrics*. Wooldridge covers the same material with a somewhat more mathematical treatment. Angrist and Pischke provides good intuition for the methods used for causal inference.

PROBLEM SETS

There will be weekly computer-based problem sets. The course statistical software is STATA, which is available for download from FAS IT. Problem sets and data will be posted on the course Web page. Please hand in your homework assignments at the beginning of class the day they are due. Assignments handed in after this, but before answers are posted will be marked down by 50%. Answers will be posted on the course Web site immediately after the class following the day that the assignments are due (e.g. due Monday, post Wednesday). Assignments handed in after that will receive no credit.

Students are encouraged to work in groups on their problem sets, but each student must write up his or her answers separately. **The maximum group size is 3**. Please list the name(s) of those with whom you worked on your assignment. Please append your STATA "log" files to your assignments.

GRADING

Problem Sets: 30%; Midterm Exam: 25%; Final Exam: 45%. In computing your total problem set grade, the lowest grade out of problem sets 1-7, 9 and 10 will be dropped; the grade on problem set 8 cannot be dropped and counts double. For both exams, you will be permitted to bring in a single (two-sided) 8½x11 sheet of notes and a calculator; no textbooks, computers, cell phones, etc. The spring and fall semesters of this course are graded using the same curve.

CLASS SCHEDULE

Class no.	Date		Topic	Readings: SW Ch. #	Problem Sets: Posted	Problem Sets: Due
1	4-Sep	Wed	Review of probability & statistics	2, 3		
2	9-Sep	Mon	Bivariate regression & multiple regression I	4, 5	PS#1	
3	11-Sep	Wed	Multiple regression II: OVB, F-statistics	6, 7		
4	16-Sep	Mon	Nonlinear models I	8	PS#2	PS#1
5	18-Sep	Wed	Nonlinear models II	8		
6	23-Sep	Mon	Nonlinear models III	8	PS#3	PS#2
7	25-Sep	Wed	Potential outcomes, control variables, CMI	Appendix 13.3		
8	30-Sep	Mon	Binary dependent variables I	11	PS#4	PS#3
9	2-Oct	Wed	Binary dependent variables II	11		
10	7-Oct	Mon	Panel data I	10	PS#5	PS#4
11	9-Oct	Wed	Panel data II	10		
	14-Oct	Mon	*No class – Columbus Day*			PS#5
12	16-Oct	Wed	Internal & external validity	9		
	21-Oct	Mon	**Midterm Exam** (coverage through Lect. 11)			
13	23-Oct	Wed	Instrumental variables regression I	12		
14	28-Oct	Mon	Instrumental variables regression II	12	PS#6	
15	30-Oct	Wed	Instrumental variables regression III	12		
16	4-Nov	Mon	Instrumental variables regression IV	13.1, 13.6	PS#7	PS#6
17	6-Nov	Wed	Program evaluation I	13		
18	11-Nov	Mon	Program evaluation II	13	PS#8	PS#7
19	13-Nov	Wed	Principles of prediction; big data I	14		
20	18-Nov	Mon	Big data II	14	PS#9	PS#8
21	20-Nov	Wed	Forecasting I	15		
22	25-Nov	Mon	Forecasting II & Dynamic causal effects I	15, 16	PS#10	PS#9
	27-Nov	Wed	*No class – Thanksgiving*			
23	2-Dec	Mon	Dynamic causal effects II	16		
	4-Dec	Wed	*No class – reading period*			PS#10

Last revised August 16, 2019