



EC228.04

Econometric Methods

Tuesday-Thursday 1:30, Lyons 202

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Office Hours: T-Th 4:30–5:30 p.m. and by appointment

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Course Description: This is a basic course in econometrics that provides tools for understanding and doing empirical research. Students will learn the basic theory and get experience working with data. This course builds on statistics, but unlike statistics, econometrics is concerned with relationships between variables rather than analysis of just one variable. We will learn how to construct simple econometric models, estimate and interpret the parameters of those models.

Prerequisites: Calculus and statistics (Econ 1151 or equivalent).

Text: *Introduction to Econometrics*, 3rd Edition, by James H. Stock and Mark W. Watson (Addison-Wesley, 2011).

Software: Computer software will be needed for some problem sets and the project. We will be using Stata, a package that is versatile, powerful and popular. Stata is available for both Windows and the Mac. More information about software is available in a separate handout.

Grading: The course grade is based on the following:

Midterm (in class, Thursday, October 19)	20 percent
Final Exam (Thursday, December 14, 9:00–11:00 a.m.)	35 percent
Research Paper (due December 7, beginning of class)	25 percent
Problem Sets (seven in all, due at the beginning of class)	10 percent
Lab	10 percent

No make up or early exams will be given. Students should check their schedules to make sure that no conflicts occur on these exam dates.

Reading: A tentative reading schedule is outlined on pages 2 and 3. Reading averages less than 10 pages per class, but it's dense and takes time to comprehend. Sticking to the schedule keeps you concurrent or ahead of the lectures.

Classes: The lecture will begin precisely at the beginning of the scheduled class time. *All students should arrive at least 3 minutes early, so that we can start (and end) on time. All electronic devices must be stowed during class.*

Schedule

Date	Reading	Main Topic	Things Due
August 29	—	Introduction	—
August 31	Ch. 1	Least squares regression	Completed math diagnostic test due
September 5	Ch. 2	Basic probability	Paper—submit Names for group
September 7	Ch. 3	Basic statistics	Problem set #1
September 12	Ch. 4, sec. 4.1, 4.2	Two-variable model	—
September 14	Ch. 4, sec. 4.3-4.5	R-squared, Hypothesis testing	Problem set #2
September 19	Ch. 4, app. 4.2; Ch. 5, sec. 5.1, 5.2, 5.5	Properties of the simple model	Paper—submit topic (one page)
September 21	Ch. 6, sec. 6.1, 6.2	Multiple regression	Problem set #3
September 26	Ch. 6, sec. 6.3, 6.4	Hypothesis testing, Corrected R-squared	—
September 28	Ch. 6, sec. 6.5, 6.6, 6.7	Multicollinearity	Problem set #4
October 3	Ch. 5, section 5.3; Ch. 8, sec. 8.1-8.4	Non-linear functional forms, Dummy variables	—
October 5	Ch. 6, app. 6.1	Omitted variable bias	Paper—submit 1st progress report (2-3 pages)
October 10	Ch. 7, sec. 7.1-7.3	Joint hypothesis tests	—
October 12	Ch. 7, sec. 7.4-7.7	Model specification	Problem set #5
October 17	—	Review	—
October 19*	—	MIDTERM*	—

Schedule, continued

Date	Reading	Main Topic	Things Due
October 24	Ch. 13, sec. 13.1-13.2	Potential Outcomes Selection Bias Causality	—
October 26	Ch. 5, sec. 5.4 Ch. 14, sec. 14.2	Heteroskedasticity Autocorrelation	—
October 31	Ch. 9, sec. 9.1-9.3	Internal/external validity Misspecification	Problem set #6
November 2	Ch. 9, sec. 9.4-9.7	Measurement error Simultaneous causality	Paper-submit 2nd progress report (4-5 pages)
November 7	Ch. 12, sec. 12.1, 12.2	Instrumental variables (IV) Two-stage least squares	—
November 9	Ch. 12, sec. 12.3, 12.4	IV assumptions	—
November 14	Ch. 12, sec. 12.5, 12.6	Instrument validity	—
November 16	Ch. 10	Panel data	—
November 21	Ch. 11	Binary choice	Problem set #7
November 28	Ch. 13, sec. 13.4	Differences-in- differences, Regression discontinuity	Paper-submit summary of preliminary findings
November 30	Ch. 13, sec. 13.5, 13.6	Natural experiments	—
December 5	—	Review	—
December 7*	—	Review	PAPER DUE AT START OF CLASS
December 14*	—	FINAL, 9:00–11:00 a.m.	—