

EC 508. Econometrics. Professor R Lucas. Fall 2018
Monday and Wednesday 10.10-11.25
ROOM MCS B19

Office hours: Monday 12.30-2.20; Wednesday 11.30-12.20. Room 500, 264 Bay State Rd.

Course content

EC508 is an introduction to regression analysis for economists with two objectives:

A basic understanding of econometric theory;

Ability to use Stata software for the various techniques covered.

The course will start with the basic theory of ordinary least squares regression, inference from these estimates, specification and interpretation of multiple regression estimates. Following this, various problems in estimation, both in cross-sectional and time-series data, will be considered, including: collinearity, heteroscedasticity, autocorrelation and errors in measurement. Other topics to be covered include dependent dummy variables, distributed lags, panel estimation, estimation of simultaneous systems and time series analysis.

Preparation

Math: Matrix algebra will not be used. However, students will be expected to be comfortable using basic algebra (such as polynomials, summation notation and logarithms) and some differential calculus (including partial derivatives and first-order conditions for minimization).

Statistics: A brief review will be offered, but students should be familiar with the normal distribution, t-statistics and F-statistics and their use in hypothesis testing.

Economics: Familiarity with basic micro and macroeconomics will be assumed.

Stata: No prior knowledge of the Stata software is assumed.

Requirements

The requirements for this course are fourfold: a midterm examination, a final examination, a series of problem sets and class participation.

Examinations.

The mid-term examination will be held during class time on **Wednesday, October 24th**.

The final examination is cumulative; date and time to be announced by the Registrar.

Both examinations are required. The only excuses for missing an exam are serious illness or a family emergency. No make-up exam will be set for the midterm. Instead, students unable to attend the midterm examination for a legitimate reason will receive a course grade determined by performance on the final examination. Students entitled to extra

time on examinations should inform Professor Lucas of this in the first two weeks of classes.

The examinations will be based entirely on class content.

Problem sets.

Printed solutions to all problem sets will be collected during class time on the dates announced; unfortunately digital and late solutions cannot be processed. Failure to hand in **ALL** solutions on time will result in a reduction in the final grade. Otherwise problem set solutions will not count toward the grade.

Class participation includes:

Attending every class (unless excused), arriving on time, and contributing to class discussions/question time (which will be at the beginning of each class).

Grading.

The grade for the course is determined entirely by your examination results and class participation, subject to completion of all problem sets.

The mid-term examination represents 35 percent of the total grade;

The final examination contributes 55 percent of the grade.

Class participation is the remaining 10 percent of the grade.

Stata.

Access to Stata software is required to complete the problem sets.

Access is available either through the Economics Department/IED computer lab or by purchasing Stata (available at student prices through a BU Gradplan).

See <http://www.stata.com/order/new/edu/gradplans/student-pricing/>

Note that Small Stata will not suffice though Stata/IC is perfectly adequate.

Text: The required textbook for this course is:

D.N. Gujarati, *Basic Econometrics*.

This book is available at the Barnes and Noble BU Bookstore

Academic conduct

You need to read the CAS Academic Conduct Code, which you can pick up in room CAS B3. I will report cases of suspected academic misconduct to the Dean's Office. Confirmed cases of misconduct will result in a failing grade on the exam or assignment.

Topics and Readings

September	5	Organization meeting
	10	Chapter 1: Nature of Regression Analysis and Chapter 2: Some Basic Ideas
	12	An introduction to Stata
	17	Chapter 3 (including appendix): The Problem of Estimation
	19	Chapter 4: Classical Normal Linear Regression Model
	24	Chapter 5: Interval Estimation and Hypothesis Testing
	26	Chapter 6: Specification and Interpretation
	October	1
3		Chapter 8: The Problem of Inference
9		Chapter 9: Dummy Variables
10		Chapter 10: Multicollinearity
15		Chapter 11: Heteroscedasticity
17		Chapter 12: Autocorrelation
22		Review
24		Midterm Examination
November	29	Chapter 13: Specification and Measurement error
	31	Chapter 13: (continued)
	5	Chapter 15: Dependent Dummy Variables
	7	Chapter 15: (continued)
	12	Chapter 16: Panel Data
	14	Chapter 17: Distributed Lags
	19	Chapter 18: Simultaneous Equation Models
December	26	Chapter 19: Identification
	28	Chapter 20: Estimating Simultaneous Equation Models
	3	Chapter 20: (continued)
	5	Chapter 21: Time Series
	10	Chapter 21: (continued)
12	Review	