EC 508. Econometrics. Professor R Lucas. Fall 2022
Monday and Wednesday 10.10-11.25
ROOM KCB 104

Office hours

Room 500, 264 Bay State Rd.
Monday 11.45-1.45.
Wednesday 8.30-9.30.
First come, first served. Please organize your questions to take no more than 20 minutes in order to allow others to follow.

Friday discussion sections will be organized by the TA only as needed.

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 19th.**
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.

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

Midterm examination	35%
Final examination	50%
Class participation	15%

Stata. ACCESS TO STATA SOFTWARE IS REQUIRED TO COMPLETE THE PROBLEM SETS. SUBSTITUTION OF ANOTHER STATISTICAL SOFTWARE IS NOT ACCEPTABLE**.** GET STARTED IMMEDIATELY ON ESTABLISHING YOUR ACCESS TO STATA: IT WILL BE REQUIRED FOR THE FIRST PROBLEM SET.

Some of you may already have access to Stata from prior courses. If not, Boston University has a "gradplan" for purchasing Stata at discounted prices. To explore this, go to:
https://www.stata.com/order/new/edu/profplus/student-pricing/
Stata BE is perfectly sufficient for this course.
Stata is also available in the Economics Department computer lab.

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.

Topics and Readings

Text: The required textbook for this course is D.N. Gujarati, *Basic Econometrics*.
This book is available at the Barnes and Noble BU Bookstore

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