

**Economics 241C
Econometric Theory**

Course Overview and Objectives:

This is the third course of a three course sequence in first-year graduate econometrics. Students are expected to have taken Economics 241A and 241B and to be familiar with the material in those courses. This course will be organized in two parts.

The first part of the course will present the basic concepts of asymptotic econometric theory. The objective of this section will be to provide the students with the tools necessary to derive the large sample properties of extremum estimators within a general framework. The results will then be applied to commonly used estimators, including least squares, maximum likelihood, and generalized method of moments.

The second part of the course will focus on nonlinear cross-sectional econometric models, including limited dependent variables models, selection models, and panel data models. We may also cover additional topics, like asymptotic efficiency, quantile regression, the bootstrap, nonparametric estimation, two-step estimation, duration models, etc.

There will be a final exam (held during the examination period) and 5 problem sets (only the 4 best will count). The problem sets will include both theoretical and data analysis exercises. Students are expected to learn the basics of MATLAB to complete the problem sets. The final grade will be determined as follows: final exam 60% and problem sets 40%. Students can work in groups of 2-3 students (1 copy per group). Late problem sets will not be graded.

Class Time:

Tuesday and Thursday, 3:30- 4:45, NH 2111

Home Page:

<http://www.econ.ucsb.edu/~olivier/econ241c/econ241c.html>

Office Hours:

Wednesday 2:00 - 3:30

Required Article:

Newey, W.K., and D. McFadden: "Large Sample Estimation and Hypothesis Testing," Handbook of Econometrics, Volume 4. (available from the class webpage)

Recommended Textbooks:

J. Wooldridge: *Econometric Analysis of Cross Sections and Panel Data*, 2002, MIT Press

C. Cameron and P. Trivedi: *Microeconometrics: Methods and Applications*, 2005, Cambridge University Press

F. Hayashi: *Econometrics*, 2000, Princeton University Press

Course Outline

Below is a tentative outline of the topics we will cover.
Additional readings may be assigned as the quarter progresses

I. Introduction and Review of Finite Sample Theory

II. Review of Limit Theorems for Sequences of Random Variables and Large Sample Results

Readings: Woolridge Chapter 3

III. Large Sample Properties of the OLS Estimator and Related Inference

Readings: Wooldridge Chapter 4

IV. Hypothesis Testing in Large Samples

Readings: Wooldridge Chapter 4

V. Large Sample Properties of Extremum Estimators and Related Inference:

Readings: Newey and McFadden article,
Wooldridge Chapters 12-14

VI. Qualitative Response Models, Censored Regression Models, and Selection Models

Readings: Wooldridge Chapters 15-17

VII. Linear and Nonlinear Instrumental Variables Estimation and Inference

Readings: Wooldridge Chapter 5

VIII. Linear Panel Data Models

Readings: Wooldridge Chapter 10