Department of Economics **Spring 2010**
University of California **J. Powell**

ECONOMICS 240B
Introduction to Statistics and Econometrics

This is the second semester of the core sequence in econometrics (a.k.a. quantitative methods), which develops the procedures used for empirical implementation and validation of economic relationships. Successful completion of Economics 240A or a comparable graduate-level course (e.g., Statistics 200B) is a prerequisite.

The grade for the course will be based upon (approximately) biweekly problem sets (30%) and two in-class midterm exams (35% each). The first midterm exam will be given in class on March 15, and the second is scheduled for April 28; no comprehensive final exam will be given. Any time conflicts should be discussed with the instructors well before the exam date.

The required text for this half of the course will be *An Introduction to Classical Econometric Theory* by Paul Ruud ; as supplemental texts, *A Course in Econometrics* by Arthur Goldberger and *Econometrics* by F. Hayashi may be useful, and lecture notes for many of the topics covered will be posted on the course website. Some of the problem sets will require use of statistical packages on the Econometric Microcomputer Laboratory (EML); details will be given in the discussion sections.

COURSE OUTLINE, Revised

Weeks	Topic	Readings
1-2	Asymptotic Theory of Least Squares	Ruud, Ch. 13, Section 16.6.
3	Time Series Models	Ruud, Ch. 25
4-6	Generalized Least Squares, Seemingly Unrelated Regressions, Heteroskedasticity, Serial Correlation, Panel Data.	Ruud, Sec. 26.2, Ch 18, 19, 22
7	Instrumental Variables Estimation	Ruud, Ch. 20.
8	Generalized Method of Moments	Ruud, Ch. 21,.
9-10	Maximum Likelihood Estimation, Computation. and Testing	Ruud, Ch. 13-17.
11-13	Limited Dependent Variable Models	Ruud, Ch. 27, 28.

LECTURE PLAN, Revised

Jan. 20: Review of Classical Least Squares

Jan. 25: Introduction to Asymptotic Theory; Limit and Slutsky Theorems

Jan. 27: Asymptotics of Best Linear Predictor Estimator

Feb. 1: Time Series Models

Feb. 3: Estimation of Time Series Models

Feb. 8: Aitken's GLS; Zellner's Seemingly Unrelated Regression Model

Feb. 10: Models and Consequences of Heteroskedasticity

Feb. 15: (President's Day Holiday)

Feb. 17: Testing and Corrections for Heteroskedasticity

Feb. 22: Models and Consequences of Serial Correlation

Feb. 24: Testing and Corrections for Serial Correlation

Mar. 1: Panel Data Models

Mar. 3: Correlated Regressors and Instrumental Variables

Mar. 8: Two-Stage Least Squares; Generalized Instrumental Variables Estimation

Mar. 10: Midterm Review; Introduction to Extremum Estimation

Mar. 15: (First Midterm Exam)

Mar. 17: Nonlinear Least Squares and Generalized Method of Moments

Mar.22: (Spring Break)

Mar.24: (Spring Break)

Mar.29: Maximum Likelihood: Setup and Consistency

Mar.31: Maximum Likelihood: Asymptotic Distribution and Efficiency

Apr. 5: Maximum Likelihood: Computational Methods

Apr. 7: Likelihood-Based Hypothesis Tests

Apr. 12: Limited Dependent Variable Models; Binary and Ordered Response

Apr. 14: Multinomial Response Models

Apr. 19: Censored and Truncated Regression Models

Apr. 21: Selection and Disequilibrium Models

Apr. 26: Midterm Review; Preview of Econ 241

Apr. 28: (Second Midterm Exam)