University of Southern California Econ 511 Econometric Methods Spring, 2012–2013

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1 Who May/Should Take This Course?

This course is the second semester of the two-semester sequence of econometric theory for the first year economics Ph.D. students. It covers the powerful statistical tools, which often appear in the modern econometric literature. The course materials are highly mathematical, and the emphasis is on understanding rather than on "cookbook" applications.

2 Lectures, Discussion Session, etc.

	Day & Time	Place
Lectures	Mondays and Wednesdays, 12:00pm–1:50pm	KAP, 148
Office Hours		
Professor Sakata	Mondays, $2:00 \text{pm} - 3:00 \text{pm}$	KAP 306D
Kyoungeun Kim (TA)	Tuesdays, 11:00am–noon	KAP 363

Students will receive various information via e-mail and the course web site. The URL of the course web page is:

http://ssakata.sdf.org/#courses

3 Course Work

The course work will consist of a series of ungraded problem sets, a midterm exam, and a final exam.

3.1 Problem Sets

Students should solve each problem set and turn in their work by the specified due date. Also, students should study the solution to each problem set carefully, regardless of their performances in the problem set.

Some of the problem sets will involve statistical computation using MATLAB. USC has a campus-wide site license for MATLAB. Visit

http://www.usc.edu/its/matlab/index.html

to learn how to install MATLAB on your computer.

3.2 Exams

The midterm exam will be given in class on Wednesday, March 7. The date, time, and place of the final exam will be announced by the university.

If a student finds a problem in the grading of an exam, he should immediately contact the teaching assistant. The deadline for the regrading request is one week from the day the graded exams are made available to the class, regardless of when the student actually receives it.

4 Grade

The course grade weights the midterm exam by 0.40 and the final exam by 0.60.

5 Textbook

The lecture notes, which will be provided through the course web page, will serve as the course textbook. Students may find the following books useful or interesting, but they are not required.

- A. Ronald Gallant, An Introduction to Econometric Theory. Princeton University Press, 1997.
- James Davidson, Stochastic Limit Theory—An Introduction for Econometricians. Oxford University Press, 1994.
- Halbert White, Asymptotic Theory for Econometricians, Revised Edition. Academic Press, 2000.
- Jan R. Magnus and Heinz Neudecker, Matrix Differential Calculus with Applications in Statistics and Econometrics. Wiley, 1988.

6 Course Outline

- I. Basics in Probability Theory (2.5 lectures)
- II. Stochastic Limit Theory (2 lectures)
- III. Principles in Estimation (1.5 lectures)
- IV. MSE-Best Prediction (2 lectures)
- V. Ordinary Least Squares Estimator (3.5 lectures)
- VI. Statistical Inference on Population Regression Coefficients (3 lectures)
- VII. Specification Tests and Weighted Least Squares Estimation (3 lectures)
- VIII. Test of Conditional Homoskedasticity (1 lecture)
 - IX. Regression Systems (2.5 lectures)
 - X. Endogeneity Problem and Instrumental Variables Estimation (3 lectures)
 - XI. Simultaneous Equations Systems (2 lectures)
- XII. Quasi-Maximum Likelihood Estimation with I.I.D. Observations (1 lecture)
- XIII. Binary Choice Model and Its Estimation (1 lecture)