ECN 725 (SLN 25509) **SYLLABUS** **Dr. S.C. (Min) Ahn**
Econometrics I **Spring 2007**

Unusual circumstances may result in the need to cancel a class. In such cases, this class will be OFFICIALLY CANCELED ONLY when the Department of Economics letterhead "CANCELED CLASS" form is posted and the DEPARTMENT OF ECONOMICS DATE STAMP is used. Any other form of notification should be ignored.

Office: BAC 679
Phone: 480-965-6574
Email: miniahn@asu.edu

Office Hours:
TTh 11:00am - 12:00pm
and by appointment

1. GENERAL DESCRIPTION

The goal of the course is to acquaint students with basic econometric theories and techniques. Our philosophy is that students require a solid background in theory in order to conduct quality applications. Students may expect that roughly 70% of class materials are about theories, and 30% is about applications.

2. CLASS

BAC 323, TTh, 9:15 - 10:30 am.

3. TEXTBOOK

1) Required:
Greene, ECONOMETRIC ANALYSIS, 5th ed (Prentice)

The book contains some typos. To identify those, visit http://pages.stern.nyu.edu/~wgreene/Text/econometricanalysis.htm.

2) Optional:

Stock and Watson, INTRODUCTION TO ECONOMETRICS, 2nd ed (Addison Wesley)
Wooldridge, ECONOMETRICS ANALYSIS OF CROSS SECTION AND PANEL DATA (MIT Press)
Schmidt, ECONOMETRICS (Marcel Dekker)
Mittelhammer, MATHEMATICAL STATISTICS FOR ECONOMICS AND BUSINESS (Springer).
Davidson, et al, ESTIMATION AND INFERENCE IN ECONOMETRICS (Oxford)
Hamilton, TIME SERIES ANALYSIS (Princeton)

White, ASYMPTOTIC THEORY FOR ECONOMETRICIANS (Academic Press)
Amemiya, ADVANCED ECONOMETRICS (Harvard Press)
HANDBOOK OF ECONOMETRICS I - III, eds Griliches and Intriligator (North-Holland)
HANDBOOK OF ECONOMETRICS IV, eds Engle and McFadden (North-Holland)

3. COURSE OUTLINE

The schedule listed below is just an estimate. Adjustments, if necessary, may happen during the semester. Throughout the semester I will assume that you are familiar with basic algebra and calculus. I strongly encourage you to review them from the beginning of the semester. The following references would be useful:

Greene, Appendix A; Stock, Ch. 2-3; Davidson, Ch. 1; Handbook, I, Ch. 1;

I will also assume that you are familiar with basic probability and statistic theories. But my lecture will occasionally introduce or review some important probability or statistic theories whenever they are needed. The following references would be useful:

Greene, Appendices B-C; Wooldridge, Ch. 2-3; Mittelhammer, Ch. 1-7; Davidson, Ch. 1; Schmidt, Appendix; Amemiya, Ch. 3; Zellner, Handbook, I, Ch. 2; Engle, Handbook, II, Ch. 13.

I strongly encourage you to review the above materials at the beginning of the semester.

[1] Linear Regression under Ideal Conditions
Greene, Ch. 1-3, 4.1-4.8, 4.10, Ch. 5.1-5.3, Ch. 6, Ch. 7.4, Ch. 17, Appendix D; Wooldridge, Ch. 1-4; Stock, Ch. 4-7, 17-18; Mittelhammer, Ch. 8-10; Davidson, Ch. 1-5, Ch. 15; Schmidt, Ch. 1, 2.2, 2.4, 3.2, 3.3; Amemiya, Ch. 1, 2.3.

[2] Multicollinearity and Missing Observations
Greene, Ch. 4.9; Schmidt, Ch. 2.3.

[3] Dummy Variables, Nonlinear Variables and Specification
Greene, Ch. 8; Stock, Ch. 8; White, Econometrica, 1982.

[4] Measurement Error, Proxy Variables and Endogenous Regressors
Greene, Ch. 5.4-5.7; Wooldridge, Ch. 5; Stock, Ch. 12; Schmidt, Ch. 3.4; Davidson, Ch. 8; Hausman, Econometrica, 1978; Hausman, Handbook, II, Ch. 7; Holly, Econometrica, 1982; Ruud, Econometric Review, 1984; Staiger and Stock, Econometrica, 1997; Donald and Newey, Econometrica, 2001; Chao and Swanson, Econometrica, 2005, Biddle and Hamermesh, Journal of Political Economy, 1990; Angrist and Krueger, Quarterly Journal of Economics, 1991.

[5] Nonlinear Models
Greene, Ch. 9; Davidson, Ch. 6.

[6] Maximum Likelihood Estimation
Greene, Ch. 17; Hamilton, Ch. 5; Wooldridge, Ch. 13.1-13.7.

[7] Nonspherical Disturbances and Generalized Least Squares
Greene, Ch. 10; Schmidt, Ch. 2.5; Davidson, Ch. 7.1-7.4; Amemiya, 6.1-6.2.

[8] Heteroskedasticity
Greene, Ch. 11.1-11.7; Davidson, Ch. 7.5; Amemiya, 6.5; Breusch and Pagan, Econometrica, 1979; Koenker, Journal of Econometrics, 1981; White, Econometrica, 1980; Cragg, Econometrica, 1983; Amemiya, Econometrica, 1983; Robinson, Econometrica, 1987.

[9] Autocorrelation
Greene, Ch.12; Davidson, Ch. 7.6-7.9; Amemiya, 6.3; Hamilton, Ch. 10; Newey and West, Econometrica, 1987; Andrews, Econometrica, 1991; Andrews and Monahan, Econometrica, 1993.

[10] Seemingly Unrelated Regression Models and VAR
Greene, Ch. 14, Ch. 19.6; Hamilton, Ch. 11.

5. Computer Lab

There will be 12 computer lab sessions (roughly once a week, one evening) during the semester. The dates for the sessions will be determined in the first week of the semester. There will be some computer programming assignments. The grades for these assignments are "Pass" and "Fail". If you earn the Fail grade from the computer sessions, no credit will be given to the four assignments explained below.

6. GRADE

(1) Quizzes: There will be 10-12 pop-up quizzes during the semester. They count 25% of the course grade. For the quizzes, you may bring hand-written notes. I recommend you to make one sheet (letter-size and double sided) of **hand-written** notes on each lecture. The number of the note sheets you can bring for a quiz equals to the number of lectures before the quiz day.

(2) Four assignments: They count 10% of your final grade. The assignments are intended to encourage group discussion. <u>You may work in teams of up to three on each assignment</u>. The assignments will require knowledge of some computer software such as EVIEWS and GAUSS. The assignments will require knowledge of computer software (Eviews and Gauss). A maximum grade of C will be awarded to those students who choose <u>NOT</u> to complete all four homework assignments.

(3) Mid-term exam: You will take one mid-term exam in the class on Tuesday, March 20 (during the regular class hour). It will count 30% of your final grade. For the exam, you can bring the hand-written notes you have prepared for quizzes and (only) a book of your choice.

(4) Final exam: 35% of your grade will depend on the final exam, which you will take on Thursday, May 3, from 7:40 to 9:30 am. This exam is comprehensive. For the exam, you can bring the hand-written notes you have prepared for quizzes and (only) a book of your choice.

(5) The historical grade distribution for this course is 10-20%: A, 60-75%: B, and 10-15%: C.

(6) Make-up exams: They will not be given to you except under the most extraordinary circumstances.

7. SOME CLASS ETIQUETTES

- Do not leave the classroom during regular class hours without prior notice.
- Please try not to be late for class. Your final grade, when your overall performance is on a borderline, can be influence by "how often you are late" as well as how often you are absent.