OVERVIEW

This course is intended for advanced (2nd year) graduate students in economics. The aim is to cover a range of important topics in modern econometric theory. The focus is on the construction, analysis, and theory of linear and nonlinear models with stationary (usually iid) data, using asymptotic nethods. The course will not cover bayesian or time series topics. Students are assumed to have already had training in calculus, probability, statistics, matrix algebra, and linear regression models.

Most of the material in this course will come from the following sources:

(G)   Greene, W. H. (1997), "Econometric Analysis," 3rd edition, Prentice Hall. Abbreviated G in the syllabus below.

(L)   Lee, M.J. (1996) "Methods of Moments and Semiparametric Econometrics for Limited Dependent Variables Models." Abbreviated L below.

(S)   Serfling, R.J., (1980) "Approximation Theorems of Mathematical Statistics," Wiley. Abbreviated S below.

The following four chapters are from Engle, R.F. and D. L. McFadden (1994) "Handbook of Econometrics, vol. IV," North-Holland:

(NM)   "Large Sample Estimation and Hypothesis Testing," by Newey, W.K., and McFadden, D., Chapter 36. This chapter is abbreviated NM below.

(HL)   "Applied Nonparametric Methods," by Hardle, W. and Linton, O., Chapter 38. This chapter is abbreviated HL below.

(H)   "Methodology and Theory for the Bootstrap," by Hall, P., Chapter 39. This chapter is abbreviated H below.

(P)   "Estimation of Semiparametric Models," by Powell, J., Chapter 41. This chapter is abbreviated P below.

For the most part, the Greene readings below are for background/review.

GRADING

Midterm: 45%, Final: 45%, homework and class participation: 10%.

SYLLABUS - Readings are listed in order of importance

1. Properties of Estimators, Asymptotic Theory
S 1, 2 G 4.1-4.4, L 2.6

2. Linear Models - OLS and GLS Estimation
G 6, 11.1-11.4, 12, L 2.1-2.2

3. Consistency
NM 2-2.3, 2.7

4. Maximum Likelihood Estimation
G 4.5, 6.8, 11.3-11.4, NM 2.4, 3.0-3.2, L 4.1-4.3

5. Nonlinear Least Squares
G 10, L 6.1-6.4

6. The Generalized Method of Moments
G. 11.5-11.6, NM 2.5, 3.3, L. 2.1-2.6, 6

7. Hypothesis Testing - generalizing Wald, LM, and LR tests for GMM.
NM 9, G 4.9, 6.8, 7, L 2.7, 3.4, 4.2

8. The Bootstrap and other Resampling Techniques
H 1-6

9. Least Absolute Deviations, Quantile, and Extremum Estimators
NM 2.8, 7, L 2.9, 3.1, 3.2

10. Two Step Estimators, Generated Regressors, and Nuisance Parameters
NM 6, L 3.3

11. Latent Variable, Index, and Limited Dependent Variable Models
G 19, 20, and skim P 3, will cover that more deeply later.

12. Nonparametric Density Estimation
HL 1,2, L 7

12. Nonparametric Regression
HL 3,4,5, L 8

13. Semiparametric Estimation
HL 6, P 1, NM 8

14. Semiparametric Estimators for Latent Variable, Index, and Limited Dependent
Variable Models
P 3, L 9, 10

Time permitting:
15. Hypothesis Tests Based on Semiparametric and Nonparametric Methods