

OVERVIEW

The goal of this course is to provide an understanding of econometric theory and the resulting practical tools for econometric model building, focusing on the traditional linear regression model and its many extensions. Portions of the course will cover topics students have seen before, but these will be covered in greater depth. After taking this course, students should be able to:

1. Choose appropriate models and estimators for given economic applications.
2. Interpret resulting model estimates.
3. Diagnose problems with models and know how to remedy them.
4. Possess a sufficient grounding in econometric theory to begin advanced work in the field.

The textbook for this course is by Greene, W. H., "Econometric Analysis," 4th or 5th edition, Prentice Hall (note that editions 3 and earlier are inadequate for content and contain some serious errors). The following syllabus give 5th edition chapters, with 4th edition chapters in parentheses for those students using the 4th edition.

SYLLABUS

1. Regression vs correlation and causes.
2. Matrix algebra and the geometry of OLS. G Appendix A (2)
3. Finite Sample and Asymptotic Properties of Estimators. G Appendices C,D (4)
4. Classical regression. G 4,5 (6,9).
5. Specification issues: multicollinearity, coefficient interpretation, dummies. G 7,8 (6,8).
6. Maximum likelihood estimation G 17 (4)
7. Inference, hypothesis tests. G 6 (7).
8. GLS, non-iid errors (autocorrelation and heteroscedasticity) G 10,11,12 (11,12,13).
9. Dynamic and time series models G 19,20 (17,18).
10. IV and 2SLS estimation, endogeneity and simultaneity. G 5,14,15 (9,15,16).
11. Nonlinear models, alternatives to MLE: NLS, MM, and GMM estimators. G 9,10 (10,11).
12. Binary choice and other discrete dependent variable models. G 21 (19)
13. Censoring and other limited dependent variable models. G 22 (20).
14. Panel Data models. G 13 (14).

Other books you may find useful for additional reading are:

Amemiya, T. (1985) Advanced Econometrics.
Spanos, A., (1990) Statistical Foundations of Econometric Modeling.
Mittelhammer, R.C., G.G. Judge, and D.J. Miller, (2000) Econometric Foundations.

GRADING: midterm: 50%, Final: 50%.