Course Information

Economics 8828 is the first of two courses in the field of econometrics offered by the Department of Economics. Course material will emphasize methods of estimation in cross-section and panel data sets, and the practical application of these methods. Topics include but may not be restricted to: regression diagnostics/robust regression, limited and discrete dependent variables and sample selection, panel data, and errors in variables. Throughout, students are expected to be able to write computer programs (suggested language: GAUSS, available either as microcomputer software or on Rastro) to implement the tests and estimators studied in the course.

Each member of the class will choose one topic to pursue in depth, resulting in an original, empirical research paper. The last two weeks of the course may be devoted to student presentations of their chosen topic. There will be periodic problem sets and a final exam (no midterm). Course grade will be determined from the paper, problem sets, final exam, and lecture participation.

Readings will be taken from the following books and journals. All are available from the library. The single best general source is the text by Greene. For limited and discrete dependent variable models (II below) the monograph by Maddala is recommended.

Books:

Journals:

1One potential source of data we will explore is the Journal of Applied Econometrics’ file transfer protocol (FTP) archive site, a repository for data used in articles published in that journal.
General topics to be covered:

I. Regression diagnostics/robust regression (weeks 1-2).
   1. The Frisch-Waugh-Lovell Theorem
   2. Influential observations and leverage
   3. Robust estimation
      *Problem set #1: Investigating a data set*

II. Limited and discrete dependent variables (weeks 3-9).
   1. Probit and logit
   2. Tobit
      *Problem set #2: The value of information on the dependent variable*
   3. Sample selection models
      *Problem set #3: Estimating the market wage rate*
   4. Duration data
   3. Multiple equation models
      *Problem set #4: Conservation program participation and energy savings*

III. Panel data (weeks 10-11)
   1. Notation and basic estimation
   2. Fixed and random effects
      *Problem set #5: Monthly models of energy savings*
   3. Instrumental variables

IV. Errors-in-variables (weeks 12-13).
   1. The errors-in-variables (EVM) model
   2. Instrumental variables estimation
   3. Estimation with repeated measurement
      *Problem set #6: Using engineering estimates in conservation models*