Economics 8828
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Office hours: T 1:45 - 3:15, W 8:30 - 10:00

Course Information

General: 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 limited to: limited and discrete dependent variables; sample selection models; panel data; and errors in variables. Throughout, students are expected to be able to write computer programs in GAUSS, available either as microcomputer software or on rastro, to implement the estimators and tests studied in the course.

Prerequisites: Economics 7818 and 7828, or equivalent.

Requirements: There will be two lectures weekly, meeting Tuesday and Thursday from 11:00 to 12:15. There will be a midterm exam, Thursday, March 6; a final exam; periodic problem sets; and a term paper.

Each student will choose one topic to pursue in depth, resulting in an original, empirical research paper.¹ The paper requirement may be combined with other courses. Students will give a five to ten minute presentation of their paper proposal in the 9th week of class, and a fifteen minute presentation in the last week of class. Papers are due May 6.

Grading: Grades will be determined approximately as follows:

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<tr>
<th>Component</th>
<th>Percentage</th>
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<tr>
<td>Midterm</td>
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<td>Final exam</td>
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<td>Paper</td>
<td>25%</td>
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<td>Residual:*</td>
<td>15%</td>
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¹This includes problem sets, the quiz, class participation, interaction in office hours, subjective evaluation of exams, etc.

Text: There is no required text. Readings will be taken from the books and journals listed below. All are available from the library. For statistical background, the best source may be Amemiya; for general econometrics, see Greene; for limited and discrete dependent variable models, the monograph by Maddala is recommended.


(B) Belsley, D., E. Kuh, and R. E. Welsch (1980). Regression Diagnostics, New York,

¹One potential source of data is the Journal of Applied Econometrics’ data archive, a repository for data used in articles published in that journal. It is accessible on the Internet.
John Wiley and Sons.


Journals:


General Topics to be Covered:

I. Introduction and Review (weeks 1, 2).
   1. Introduction
   2. Matrix algebra and mathematical statistics

II. Limited and Discrete Dependent Variables (weeks 2-8; all references to Maddala).
   1. Introduction; binary models: probit and logit (ch. 1, 2)

   *Problem Set #1: The Value of Information on the Dependent Variable*

   2. Multiple outcomes: multinomial, nested, generalized, and conditional logit, and random utility models (ch. 3)

   *Problem Set #2: Multinomial vs. Conditional Logit Models*

   3. Multivariate discrete dependent variable models (ch. 5)
   4. Censored and truncated regression models (ch. 6, 7)
   5. Two-stage estimation methods (ch. 8)
   6. Sample selection models and multiple equation models (Maddala ch. 9)

   *Problem Set #3: Program Participation and Energy Conservation*

   Paper proposal presentations (week 9)
III. Errors-in-Variables (weeks 10)
   1. The errors-in-variables model (EVM)
   2. Instrumental variable estimation
   3. Estimation with repeated measurements

   Problem Set #4: Using Engineering Estimates in Conservation Models

IV. Panel Data (weeks 12-13)
   1. Notation and basic estimation
   2. Fixed and random effects
   3. Instrumental variables

   Problem Set #5: Monthly Models of Energy Savings

V. Structural equation estimation (week 14, 15)

   Problem Set #6: ML vs. Minimum Distance Estimation

Paper presentations (week 16)