

Syllabus
Advanced Econometrics II – ECN 8120
(T/Th 11:00-12:15)

Fall 2011
Sanford 204

Prof. Atkinson
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I. GENERAL: The course will cover a number of important maximum likelihood models: Simulation-based methods (mainly from CT, defined below); qualitative and limited dependent variables with cross-section data, and panel data with discrete response, censoring, and sample selection (mainly from W, defined below); failure-time models; and count data models. The last two topics will be covered briefly due to time constraints. However the more-extensive coverage in CT is excellent and highly recommended.

1. Grades: There will be 3 projects in the course and a final. The grade will be derived as follows: 40% projects and 60% final. Habitually, one or two students do very well answering questions that I ask in class and figuring problems out on the spot, but do poorly on the exams. Class participation can add up to 10 extra points to your final grade. You will not receive a deduction for not participating.
2. Projects: PROJECTS CAN BE TURNED IN THE DAY THAT THEY ARE DUE EITHER IN CLASS OR BROUGHT TO MY OFFICE BY 4:30 THAT DAY. AFTER THAT, THE PROJECTS ARE DEEMED LATE AND ARE NOT ACCEPTED. There are no exceptions other than an official excuse—serious illness or a serious family matter. For the former I require a note from your doctor and for the latter a letter from the Dean of Students. While you can work jointly on understanding the projects, all code for the projects must be unique to the individual. Do not turn in the same code as someone else in the class or someone who has taken the class previously. You must write the code yourself using unique variable names and comment statements. Otherwise, zero credit will be given. ALL PROJECTS MUST BE DONE USING TSP. NO EXCEPTIONS.
3. Attendance: Do not come late to class. More than two or three minutes late after class begins counts as an absence. You have two absences from class without loss of grade. For each additional absence without a doctor's or other official excuse from the Dean, I will deduct one-half of a letter grade from your final grade. If I deem that your absences are chronic, I will drop you from the class without warning; this could occur at any time during the semester. Do not leave class to answer your cell phone, do not surf the web on you laptop, and do not read email in class. If you do this, you will be dropped from the class. For certain classes I will allow you to bring laptops to class for specific purposes. Otherwise, laptops cannot be turned on and used during class.
4. Academic Honesty: As a UGA student, you have agreed to abide by the University's academic honesty policy, "A Culture of Honesty," and the Student Honor Code. All academic work must meet the standards described in "A Culture of Honesty" found at www.uga.edu/honesty. Lack of knowledge of the academic honesty policy is not a reasonable explanation for a violation. Questions related to course assignments and the academic honesty policy should be directed to the instructor.

II. OFFICE HOURS: 503 Brooks Hall, T/Th 12:30-2:00 and 3:30-4:30. Also by appt. All projects and related materials are on the course web site found by going to Terry College → Economics → Atkinson → 8120.

III. PRINCIPLE TEXTS:

1. Wooldridge, J. *Econometric Analysis of Cross-Section and Panel Data*, Boston: MIT Press, 2010. (henceforth, W)
2. TSP 5.0 User's Guide and Reference Manual. All projects must be done in TSP.

IV. OTHER GOOD REFERENCE TEXTS:

1. Pindyck and Rubinfeld, *Econometric Models and Economic Forecasts*, McGraw-Hill, 1981.
2. Maddala, *Limited-dependent and Qualitative Variables in Econometrics*, Cambridge, 1982.
3. Kmenta, *Elements of Econometrics*, 1986, 2nd edition, MacMillan.
4. Goldfeld and Quandt, *Nonlinear Methods in Econometrics*, North-Holland, 1972.
5. Leamer, *Specification Searches*, John Wiley, 1981.
6. Zellner, *An Introduction to Bayesian Inference in Econometrics*, John Wiley, 1971
7. Manski and McFadden, *Structural Analysis of Discrete Data*, Cambridge, Mass: MIT Press, 1981.
8. Chow, Gregory, *Econometrics*, New York: McGraw-Hill, 1983
9. Johnston, J. *Econometric Methods*, 3rd edition, New York: McGraw-Hill, 1986.
10. Judge, et al., *Introduction to the Theory and Practice of Econometrics*, 2nd ed., New York: John Wiley, 1988.
11. Fomby, T. B., R. C. Hill, and S. R. Johnson, *Advanced Econometric Methods*, Springer-Verlag, 1984.
12. Judge et al., *The Theory and Practice of Econometrics*, 2nd ed., New York: John Wiley, 1985.
13. Hsiao, Cheng, *Analysis of Panel Data*, New York; Cambridge University Press, 2nd edition, 2003.
14. Horowitz, J., *Semi-Parametric Methods in Econometrics*, Springer-Verlag, 1998.
15. Lawless, G., *Statistical Models and Methods for Lifetime Data*, New York: Wiley, 1982.
16. *Handbook of Econometrics*, vol. I-III, Z. Griliches and M. Intrilligator eds., New York: North-Holland, 1983.
17. Schmidt, Peter, *Econometrics*, New York: Marcel Dekker, 1976.
18. Press et al., *Numerical Recipes*, New York: Cambridge, 1987.

19. Dhrymes, P., *Econometrics*, New York: Springer-Verlag, 1970.
 20. Greene, W.H. *Econometric Analysis*, MacMillan, 1992.
 21. Goldberger, Arthur, *A Course in Econometrics*, Boston: Harvard U. Press, 1991.
 22. Horowitz, J., *Semi-Parametric Methods in Econometrics*, Springer-Verlag, 1998.
 23. Johnston and Dinardo, *Econometric Methods*, 4th ed. , New York: McGraw-Hill, 1997.
 24. Davidson and MacKinnon (DM) *Econometric Theory and Methods*, Oxford, 2003.
 25. Rudd, P., *Classic Econometric Theory*, Oxford, 2000.
 26. Myoung-jae Lee, *Methods of Moments and Semiparametric Econometrics for Limited Dependent Variable Models*, New York: Springer, 1996.
 27. Myoung-jae Lee, *Panel Data Econometrics*, New York: Academic Press, 2002.
 28. Hayashi, Fumio, *Econometrics*, Princeton: Princeton Univ. Press, 2000.
 29. An excellent new text by Kenneth Train on Discrete Choice Simulation is on-line at <http://elsa.berkeley.edu/books/train1201.pdf>. It is called *Discrete Choice Methods with Simulation* and has been published by Cambridge U. Press in 2003.
 30. Gourieroux, *Econometrics of Qualitative Dependent Variables*, Cambridge, 2000.
 31. Cameron and Trivedi, *Microeconometrics*, Cambridge, 2005. (henceforth, CT)
- V. COMMENTARY ON REFERENCE TEXTS: The Davidson and MacKinnon text is a good up-to-date text. Amemiya's *Intro* text is very good but terse. The problems are excellent. Amemiya's JEL review article, Maddala's text, and the Wooldridge text (the latter of which are required for course) are excellent for limited dependent and qualitative variables. Also ch. 20 & 21 in Greene are good. The text by Judge (1988) is not as exhaustive as Judge (1985) but is more readable. The Fomby-Hill-Johnson text is similar. Chow's text is also good for special topics. The texts by Pindyck and Rubinfeld and by Kmenta are good for a simpler treatment of many topics. Goldfeld and Quandt is excellent for non-linear models and algorithms. Johnston is very good for a matrix algebra review. Hsiao's book on panel data is also very good. Read the TSP manual for a good presentation of most of the algorithms that they use. The Myoung-jae Lee book (1996) is very good for a method of moments treatment of the standard linear model and limited dependent variable models plus semiparametric estimation. The Horowitz text is good but technical for non-parametrics. Rudd's text is useful for a reference, but highly technical and difficult. The Myoung-jae Lee book (2002) is very good for panel data treatments and is a useful supplement to Wooldridge. Hayashi (2000) and Wooldridge rate as clearly the best textbooks. While Hayashi is much more involved with time series econometrics, try to read both on relevant topics. The Train (2002) text is excellent on numerical methods and discrete choice modelling.

VI. PREREQUISITES

1. Econometrics – 8070 and 8080.
2. You should also know calculus, matrix algebra, and mathematical statistics

through material covered in a good math stat text.

VII. COURSE OUTLINE (subject to change)

All dates for exams and homeworks are tentative except for final. The course syllabus is a general plan for the course; deviations announced to the class by the instructor will be necessary.

Week	Starts	Topic
1-5		TOPIC #1: SIMULATION-BASED METHODS CT (Cameron-Trevidi), Ch. 11-13 Monte Carlo, Bootstrap handout on web site
6-9		TOPIC #2: QUALITATIVE AND LIMITED DEPENDENT VARIABLES Includes logit, probit, tobit, censoring, truncation, and ordered probit W, Ch. 15-16 CT, Ch. 14-15 Train (2002): GEV models: pp. 87-106 Mixed Logit: pp. 153-68. G.S. Maddala, "Disequilibrium, Self-Selection, and Switching Models," <i>Handbook of Econometrics</i> , III, Ch. 28 D. L. McFadden, "Econometric Analysis of Qualitative Response Models," <i>Handbook of Econometrics</i> , II, Ch. 24 For applications of many of these methods, see Manski, C. F. and D. McFadden, <i>Structural Analysis of Discrete Data</i> , Cambridge, Mass: MIT Press, 1981 For a Gibbs Sampling approach to estimating the multinomial probit see R. McCulloch and P. Rossi, "An Exact Likelihood Analysis of the Multinomial Probit Model," <i>Journal of Econometrics</i> , Vol. 64, No. 1-2, pp. 207-240, 1994. For a Monte Carlo analysis of MLE estimators of qualitative and limited dependent variables in the presence of fixed effects see:

W. Greene, "The behaviour of the maximum likelihood estimator of limited dependent variable models in the presence of fixed effects", *The Econometrics Journal* 7, pp. 98-119, 2004.

W, chs. 17-19

Takeshi Amemiya, "Qualitative Response Models: A Survey," *Journal of Economic Literature*, 19, 1483-1536.

Computing Estimated Standard Errors

1) The delta method

2) As an alternative to the delta method:

Krinsky, I. and A. L. Robb (1986),

On Approximating the Statistical Properties of Elasticities, *Review of Economics and Statistics* 68, 715-719.

3) Correcting 2-step estimated standard errors:

K. Murphy and R. Topel, "Estimation and inference in two-step econometric models", *Journal of Business and Economic Statistics*, 3, pg. 88-97, 1985.

PROJECT #1 DUE

10/28-FALL BREAK (F)

11-14

TOPIC #3: SAMPLE SELECTION, ATTRITION, QUALITATIVE PANEL DATA

W, Ch. 17

CT, Ch. 16

PROJECT #2 DUE

15

TOPIC #4: COUNT DATA,
11/21-11/25-THANKSGIVING BREAK

W, ch. 19

CT, ch. 20

16-17

TOPIC #5: TRANSITION DATA: SURVIVAL ANALYSIS

W, ch. 20

CT, ch. 17-19

Lawless, 272-343.

Nick Kiefer, "Economic Duration Data and Hazard Functions," *Journal of Economic Literature*, 26, 646-79.

PROJECT #3 DUE

12/1, Th

LAST DAY OF CLASSES

FINAL EXAM -Th 12/8, 12:00-3:00