

Econometrics II (G31.2101)  
Spring 1999  
Professor C. Flinn

*Schedule:*

Lecture:	Tuesday 12:05-2:05	Room 315
Lab:	Thursday 6:10-8:10	Room 825

*Office Hours:*

Wednesday 11-1, Room 318  
or by appointment (998-8925 or flinnc@fasecon.econ.nyu.edu)

*Objectives:*

The primary goal of the course is to familiarize students with basic econometric theory and to emphasize the role that economic theory plays in the specification and testing of econometric models and in the interpretation of empirical results. After discussing estimation and testing in the context of linear (in the parameters) models, we will spend the remainder of the course examining the estimation and testing of nonlinear models. There are few general results regarding identification once we leave the comfortable world of linear estimation, so the second part of the course will be devoted to the analysis of some prominent examples of nonlinear estimation problems. To some extent, all applications will be developed beginning from well-defined choice-theoretic or equilibrium frameworks.

By the end of the course, students should be familiar with most of the theoretical and pragmatic issues which arise in the estimation of single-equation models and models composed of systems in which simultaneity is not (explicitly) an issue. Each week, students will be required to complete homework assignments, which sometimes will involve the performance of computational exercises using the matrix-programming language GAUSS and data sets which will be available on the department's server and/or my web site. In this way, we hope to equip students with some of the practical skills necessary to perform convincing and sophisticated empirical research.

*Prerequisites:*

Econometrics I (G31.2100) or consent of instructor.

*Course Requirements and Grading:*

There will be two examinations: a midterm and a final. The midterm exam will be given in class and the final examination will be given during the final examination period.

Students will also be required to complete weekly homework assignments which will be distributed and collected on Tuesdays. The homework exercises will be graded

and returned in the following lab session. The average homework score, computed after dropping the **two** lowest weekly grades, will partially determine the student's final grade in the course. **No late homework assignments will be accepted.** Any homework not completed will be assigned a grade of 0.

In determining the final course grade we will use the following weighting scheme:

Homework Grade Average:	.15
Midterm Exam	.40
Final Exam	.45

*Texts:*

Amemiya, Takeshi. *Advanced Econometrics*. Cambridge, MA: Harvard University Press, 1985.

Goldberger, Arthur. *A Course in Econometrics*. Cambridge, MA: Harvard University Press, 1991.

I believe that students will find that these two texts complement each other. Goldberger presents a rather intuitive and unified approach to econometric theory and practice which is useful for looking at the "big picture." While the technical level of the book is not nearly as high as Amemiya's, many of the arguments made are deceptively subtle. Amemiya's book may be the single best reference work for econometric theory available on the market, though it is undeniably terse and difficult in spots. We will also use it extensively in the "topics" section of the course.

While students will mainly be responsible for material found in these textbooks, we will also draw on a few journal articles when we discuss applications and chapters from textbooks on order statistics and duration analysis for source material on these subjects.

*Lecture Schedule:*

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Reading</u>
1	1/19	The Specification and Estimation of Economic Models; Review of the Standard Linear Model	M,L,A1.1-1.31, G15-16
2	1/26	Linear Model Estimation (continued): Hypothesis Testing; Linear Prediction	A1.32-1.43,A1.51-1.52,A1.6,G19-22
3	2/2	Large Sample Theory; Asymptotic Properties of Extremum Estimators	A3,A4.1-4.2,A4.4-4.5.1,G9,T
4	2/9	Linear Models with non-i.i.d. Disturbances: Single Equation, Cross-Sectional	A6.1-6.2,A6.5, G27,W
5	2/16	Linear Models with non-i.i.d. Disturbances: Single Equation, Time Series	A5,A6.3,G28,NW
6	2/23	Linear Models with non-i.i.d. Disturbances: Multiple Equations	A6.4,A6.6-6.7, G30,P
7	3/2	Panel Data	A6.6-6.7,C1,H1
8	3/9	<b>Midterm Exam</b>	
9	3/23	Introduction to Discrete Choice Modeling	A9.1-9.2,G29,DM
10	3/30	Discrete Choice Models (continued)	A9.3-9.4,C2,C3,H2
11	4/6	Duration Analysis	A11,KP
12	4/13	Order Statistics and Estimation	ABN,FH,LOV
13	4/20	Censored and Truncated Dependent Variables	A10.1-10.5
14	4/28	Estimation of Models with Censoring or Truncation in Choice-Based Samples	A9.5,A10.6-10.10, MM,WW

## References

(A) Amemiya

(ABN) Arnold, Balakrishnan, and Nagaraja. Chapters 1,2,7,8 in *A First Course in Order Statistics*. New York: John Wiley, 1992.

(C1) Chamberlain, G. "Panel Data." Chapter 22 in *Handbook of Econometrics, Volume 2*, Griliches and Intriligator, eds. Amsterdam: North-Holland, 1986.

(C2) Chamberlain, G. "Analysis of Covariance with Qualitative Data." *Review of Economic Studies* (1980): 225-238.

(C3) Cosslett, S. "Distribution-Free Maximum Likelihood Estimation of the Binary Choice Model." *Econometrica* 51 (1983): 765-782.

(DM) Domenich and McFadden. Chapters 4 and 5 in *Urban Travel Demand*. Amsterdam: North-Holland, 1973.

(FH) Flinn, C. and J. Heckman. "New Methods for Analyzing Structural Models of Labor Force Dynamics." *Journal of Econometrics* (1982): 114-142.

(G) Goldberger

(H1) Hausman, J. "Specification Tests in Econometrics." *Econometrica* 46 (1978): 1251-1272.

(H2) Heckman, J. "Simple Statistical Models for Discrete Panel Data Developed and Applied to Test the Hypothesis of True State Dependence against the Hypothesis of Spurious State Dependence." *Annales de l'insee* 30-31 (1978): 227-270.

(KP) Kalbfleisch, J. and R. Prentice. Chapters 1,2,4,5,7 in *The Statistical Analysis of Failure Time Data*. New York: Wiley, 1980.

(LOV) Laffont, Ossard, and Vuong. "Econometrics of First-Price Auctions." *Econometrica* (1995): 953-980.

(L) Lucas, Robert. "Econometric Policy Evaluation: A Critique." In *The Phillips Curve and Labor Markets*, K. Brunner and A. Meltzer, eds., pp. 19-46. Amsterdam: North-Holland, 1976. [Also reprinted in Lucas,R.. *Studies in Business-Cycle Theory*. Cambridge, MA: MIT Press, 1981.]

(M) Marshack, J. "Economic Measurements for Policy and Prediction." In *Studies in Econometric Method*, Hood and Koopmans, eds., 1953.

(MM) Manski, C. and D. McFadden. "Alternative Estimators and Sample Designs for Discrete Choice Analysis." In *Structural Analysis of Discrete Data*, Manski and McFadden, eds. Cambridge, MA: MIT Press, 1981.

(NW) Newey, W. and K. West. "A Simple, Positive Semidefinite, Heteroskedasticity and Autocorrelation Consistent Covariance Matrix," *Econometrica* 55 (1987), 703-708.

(P) Phlips, L. Chapters 2-4 in *Applied Consumption Analysis, Second Edition*. North-Holland, 1983.

(T) Theil, H. Chapter 8 in *Principles of Econometrics*. New York: John Wiley, 1973.

(W) White, H. "A Heteroskedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroskedasticity." *Econometrica* 48 (1980).

(WW) Wales and Woodland. "Sample Selectivity and the Estimation of Labor Supply Functions." *International Economic Review* (1980): 437-468.