


Texts

 Wooldridge, Jeffrey M. *Introductory Econometrics: A Modern Approach*. 3rd ed. Mason, OH: Thomson/South-Western, 2006. ISBN: 9780324289787.

 Goldberger, Arthur S. *A Course in Econometrics*. Cambridge, MA: Harvard University Press, 1991. ISBN: 9780674175440.

DeGroot, Morris H., and Mark J. Schervish. *Probability and Statistics*. 3rd ed. Boston, MA: Addison-Wesley, 2001. ISBN: 9780201524888.

Wooldridge is the main text. The material in Goldberger is more advanced and optional. DeGroot and Schervish is a recommended text for statistics review. The lecture notes are unavailable.

The course consists of parts 1 (A, B, and C) and 2 (D, E, F, and G).

TOPIC #	TOPICS	READINGS
A. Review of probability and statistics		
1	Probability and distribution	Lecture note 1: Probability and distribution Lecture note 2: Expectation and moments Wooldridge. Appendix B.
2	Expectation and moments	Goldberger. Chapters 1-7. DeGroot. Chapters 1-5. Burtless, Gary. "Are Targeted Wage Subsidies Harmful? Evidence from a Wage Voucher Experiment." <i>Industrial and Labor Relations Review</i> 39 (October 1985): 105-111.
B. Review of statistical inference		
3	Sampling distributions and inference	Lecture note 3: Sampling distributions and inference Lecture note 4: Approximate [asymptotic] distribution of the sample mean Lecture note 5: Confidence intervals
4	The Central Limit theorem (Asymptotic distribution of the sample mean)	Wooldridge. Appendix C. Goldberger. Chapters 8-10. DeGroot. Chapters 6-8.
5	Confidence intervals	Woodbury, S. A., and R. Spiegelman. "Bonuses to Workers and Employers to Reduce Unemployment: Randomized Trials in Illinois." <i>American Economic Review</i> 77, no. 4 (September 1987): 513-530.
C. Regression basics		
6	Conditional expectation functions, bivariate regression	Lecture note 6: Bivariate regression Lecture notes 7 and 8: Sampling distribution of regression estimates Lecture note 9: Residuals, fitted values, and goodness of fit Wooldridge. Chapters 1-5. Goldberger. Chapters 13-16.
7	Sampling distribution of regression estimates; Gauss-Markov theorem	
8	How Classical assumptions are used; asymptotic distribution of the sample slope	
9	Residuals, fitted values, and goodness of fit	
D. Multivariate regression		
10	Regression, causality, and control; anatomy of multivariate regression coefficients	Lecture note 10: Introduction to multivariate regression Lecture note 11: Multivariate regression (cont.) Lecture note 12a: Using multivariate regression
11	Omitted variables formula, short vs. long regressions	Lecture note 12b: Regression analysis of "Natural Experiments" - the minimum wage controversy
12a	Dummy variables and interactions; testing linear restrictions using F-tests	Wooldridge. Chapters 6-7 and 19. Goldberger. Chapters 17-24. Krueger, A. "How Computers Have Changed the Wage Structure: Evidence from Micro Data." <i>Quarterly Journal of Economics</i> 108, no. 1 (February 1993): 33-60.

TOPIC #	TOPICS	READINGS
		DiNardo, J., and J. S. Pischke. "The Returns to Computer Use Revisited: Have Pencils Changed the Wage Structure Too?" <i>The Quarterly Journal of Economics</i> 112, no. 1 (February 1997): 291-303.
		Krueger, A., and S. B. Dale. "Estimating the Payoff to Attending a More Selective College: An Application of Selection on Observables and Unobservables." <i>The Quarterly Journal of Economics</i> 117 (November 2002): 1491-1529.
12b	Regression analysis of natural experiments, differences-in-differences	Buy at Amazon Card, David E., and Alan B. Krueger. <i>Myth and Measurement: The New Economics of the Minimum Wage</i> . Princeton, NJ: Princeton University Press, 1995, chapters 1 to 4. ISBN: 9780691048239.
E. Inference problems - heteroscedasticity and autocorrelation		
13a	Heteroscedasticity, consequences of; weighted least squares; the linear probability model	Lecture note 13a: Heteroscedasticity, linear probability models Lecture note 13b: Serial correlation Wooldridge. Chapters 8 and 12.
13b	Serial correlation in time series, consequences of; quasi-differencing; common-factor restriction; Durbin-Watson test for serial correlation	Goldberger. Chapters 27-28. Buy at Amazon Freeman, R., and A. Castillo-Freeman. "When the Minimum Wage Really Bites: The Effect of the US-Level Minimum on Puerto Rico." In <i>Immigration and the Work Force: Economic Consequences for the United States and Source Areas</i> . Edited by G. Borjas and R. Freeman. Chicago, IL: University of Chicago Press, 1992. ISBN: 9780226066332. Graddy, K. "Testing for Imperfect Competition at the Fulton Fish Market." <i>RAND Journal of Economics</i> 26, no. 1 (Spring 1995): 75-92.
F. Instrumental variables, simultaneous equations models, measurement error		
14a	Using IV to solve omitted-variables problems	Lecture note 14: Instrumental variables for omitted-variables problems Wooldridge. Chapter 15. Goldberger. Chapter 31. Angrist, J. "Lifetime Earnings and the Vietnam Era Draft Lottery: Evidence from Social Security Administrative Records." <i>American Economic Review</i> 80, no. 3 (June 1990): 313-336.
14b	Measurement error (Time-permitting)	Angrist, J., and A. Krueger. "Does Compulsory School Attendance Affect Schooling and Earnings?" <i>Quarterly Journal of Economics</i> 106, no. 4 (November 1991): 979-1014. Angrist, J., and W. E. Evans. "Children and Their Parents' Labor Supply: Evidence from Exogenous Variation in Family Size." <i>American Economic Review</i> 88 (June 1998): 450-477. Lecture note 14b: IV and measurement error Ashenfelter, O., and A. Krueger. "Estimates of the Economic Returns to Schooling from a New Sample of Twins." <i>American Economic Review</i> 84, no. 5 (December 1994): 1157-1174.
14c	Regression-discontinuity designs (Time-permitting)	Lecture note 14c: Regression-discontinuity Angrist, J., and V. Lavy. "Using Maimonides Rule to estimate the Effects of Class Size on Scholastic Achievement." <i>Quarterly Journal of Economics</i> 114, no. 2 (May 1999): 533-575.
G. Simultaneous equation models		
15	Simultaneous equations models I <ul style="list-style-type: none"> The use of structural models Simultaneous equations bias The identification problem The structure and the reduced form Indirect least squares 	Lecture note 15: Simultaneous equations models - motivation and identification Lecture note 16: Simultaneous equations models - estimation Wooldridge. Chapter 16. Goldberger. Chapters 32-34. Angrist, J., G. Imbens, and K. Graddy. "The Interpretation of Instrumental Variables Estimators in Simultaneous Equations Models with an Application to the Demand for Fish." <i>Review of Economic Studies</i> 67, no. 3 (July 2000): 499-527.

TOPIC #	TOPICS	READINGS
16	<div>Simultaneous equations models II</div> <ul style="list-style-type: none">• IV for the SEM• Two-stage least squares• Sampling variance of 2SLS estimates	