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Office hours: Wednesdays 2:00-3:00 in 218D (SE1) and by appointment.

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U218A: Advanced Research Methods

Thursdays 6:00-8:50 PM, HH 257

Course description

The purpose of this course is to provide a broad but rigorous introduction to econometrics techniques useful in applied economics with applications to policy analysis.

This course is mostly self-contained, although it uses matrix algebra and statistics at an elementary level to simplify the treatment of important ideas. Regular assignments will give you a chance to apply the tools you learned; some will require using STATA on a PC.

In addition to the textbooks, additional readings will be made available in class to illustrate the usefulness and the applicability of the tools introduced.

By the end of the quarter, you will have a good understanding of the usefulness and limitations of powerful econometrics models, including OLS, GLS, Panel Data, and discrete choice models. You will also know where to look if you want to learn more.

Course evaluation:

• Six homework assignments (worth 10% each):	60%
• In-class participation:	10%
• Final exam	30%
<i>Total</i>	<i>100%</i>

Required texts:

- J. M. Wooldridge, 2002. *Introductory Econometrics – A Modern Approach*, 2nd edition South-Western College Publishing.
- P. Kennedy, 2001. *A Guide to Econometrics*, 4th edition, The MIT Press, Cambridge, Massachusetts.

Recommended text:

- D. N. Gujarati, 2003. *Basic Econometrics*, 4th edition, McGraw Hill.

Reference:

- W. H. Greene, 2002. *Econometric Analysis*, 5th edition, Prentice Hall.
- R. Davidson, J. G. Mackinnon, 2004. *Econometric Theory and Methods*, Oxford University Press.

Tentative Course Outline

1. Introduction; review of OLS - Wooldridge: Chap. 1-2.
Fundamentals of probability theory; review of matrix algebra. Wooldridge: Appendix A-B.
2. Multilinear regression: estimation - Wooldridge: Chap. 3
The linear regression model in matrix form – Wooldridge: Appendix E1-E2.
Kennedy: Chap. 1-3.
3. Multilinear regression: inference and asymptotics - Wooldridge: Chap. 4-5.
Kennedy: Chap. 4.
4. Multilinear regression: various issues & binary variable models - Wooldridge: Chap. 6-7.
Specification issues – Kennedy: Chap. 5-7.
5. Multilinear regression: violating assumptions (heteroskedasticity...) –
Wooldridge: Chap. 8-9. Kennedy: Chap. 8 & 11.
6. Panel data methods – Wooldridge: Chap. 13-14.
7. Instrumental variables and two stage least squares – Wooldridge: Chap. 15.
Kennedy: Chap. 9.
8. Simultaneous equation models – Wooldridge: Chap. 16. Kennedy: Chap. 10.
9. Limited dependent variable models & sample selection correction –
Wooldridge: Chap. 17. Kennedy: Chap. 16.
10. Spatial econometrics – Anselin (distributed in class).