APEC 8212: Econometric Analysis II

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Course Description:

This course is a continuation of Apec 8211. It will provide deeper coverage of some of the topics covered in Apec 8211 (heteroscedasticity, measurement error and maximum likelihood estimation) and will introduce many new topics (instrumental variables, panel data, simultaneous equation estimation, bootstrap methods, limited dependent variable models, density estimation, semi-parametric estimation, econometrics of program evaluation, time series analysis and hazard models). The focus will be on empirical work rather than on theoretical topics. Students should have completed Apec 8211 or an equivalent course.

There are two required textbooks and three optional books for this course:


Grading:

There will be homework, a midterm, and a final. Their weight in the final grade will be:

Homework: 30%
Mid-Term: 30%
Final: 40%  **You must take the final at the scheduled time (Saturday May 17, 8:00 a.m.)!**

Computer Assignments:

Much of the homework will involve econometric estimation. The software used will be Stata, which has been ordered for student use by the Department of Applied Economics.
Lectures:

In addition to readings from Greene, Enders, Wooldridge, and Hamilton, there will also be many other readings. All will be available in Waite Library (and elsewhere, if requested).

“Advanced readings” are marked by an asterisk. These are optional and given for anyone interested in further reading. They are not on reserve but are in the University libraries.

1. Introduction + Conditional Expectations and Related Concepts (January 22).

   Readings: Wooldridge, Chapters 1 and 2

2. Review of Basic Asymptotic Theory (January 24, 3:00 the 1st of 2 lectures on a Friday).

   Readings: Wooldridge, Chapter 3
   Review Greene, Appendix D

3. Review of Single Equation Linear Model and OLS Estimation (January 27)

   Readings: Wooldridge, Chapter 4.

4. Instrumental Variable Methods (January 29 and February 3)

   Readings: Wooldridge, Chapters 5 and 6
   Review Greene, Chapter 12, Sections 1-4
5. Systems of Regression Equations & Simultaneous Equation Models (February 5, 10 and 12)

Readings: Wooldridge, Chapters 7, 8 and 9.

6. Panel Data (February 17 and 19)

Readings: Wooldridge, Chapters 10 and 11,
Review Greene, Chapter 9
Deaton pp.105-111.
*Mátyás and Sevestre. 1996. The Econometrics of Panel Data. (2nd ed.).

7. M-Estimation (nonlinear estimation) (February 24)

Readings: Wooldridge, Chapter 12.
8.  Maximum Likelihood Estimation (February 26)

Readings: Wooldridge, Chapter 13.
Review Greene, Chapter 16.

9.  General Method of Moments Approach (March 3)

Readings: Wooldridge, Chapter 14.
Greene, Chapter 15.
* Davidson and MacKinnon, Chapter 17.

10. Limited Dependent Variable Models (March 5, 10 and 24)

Maximum Likelihood Estimation and Probit and Logit.
Readings: Wooldridge, Chapter 15 (sections 1 – 6)
Review Greene, Chapter 23 (sections 1 – 4)

Ordered Probits and Logits, Multinomial Probits and Logits
Readings: Wooldridge, Chapter 15 (sections 9 and 10)

Specification Tests, Endogenous Regressors and Panel Data
Readings: Wooldridge, Chapter 16

Tobits and Sample Selection Models
Readings: Wooldridge, Chapters 17 and 19
Deaton, pp.86-92.

Midterm: Wednesday, March 12

Spring Break: March 11-17.
11. Hazard Models (March 14) [Optional Lecture at Friday recitation time]

Readings: Wooldridge, Chapter 20.

12. Robust Estimation – Bootstrap and Related Methods (March 26)

Readings: Cameron and Trivedi, Chapter 11.
Deaton pp.58-61.

13. Density Estimation and Semi-parametric Econometrics (March 28 (Friday) and 31)

Density Estimation
Readings: Cameron and Trivedi, Chapter 9, Sections 1-3.
Deaton pp. 169-181.

General Methods of Nonparametric and Semiparametric Econometrics
Readings: Cameron and Trivedi, 9.4-9.7, Deaton, pp.191-199.
* Ichimura and Todd. 2007. “Implementing Nonparametric and Semiparametric Estimators”, in *Handbook of Econometrics,* vol. 6B.

Application to Index Models and Selection Models
Readings: Wooldridge, Chapter 15 (subsections 7.5 and 8.6)
14. Econometrics of Program Evaluation (April 2 and 7)

Wooldridge, Chapter 21.

15. Time Series Econometrics (April 9, 14, 16, 21, 23, 28, 30 and May 5 and 7)

Difference Equations (April 9 and 14)
Reading: Enders, Chapter 1.
* Hamilton, Chapters 1 and 2

Stationary Time Series Models (April 16 and 21)
Readings: Enders Chapter 2
* Hamilton, Chapter 3

Estimation of Time Series Models (April 23)
Readings: Hamilton, Chapters 5 and 14

Modeling Economic Time Series (April 28)
Readings: Enders Chapter 3
* Hamilton. 1994. Chapter 21

Unit Roots (April 30)
Readings: Enders Chapter 4
* Hamilton. 1994. Chapter 15

Introduction to Vector Autoregression (May 5)
Readings: Enders Chapter 5 (sections 1 – 5)
* Hamilton. 1994. Chapters 10 and 11

Introduction to Cointegration (May 7)
Readings: Enders Chapter 6 (sections 1 – 7)
* Hamilton. 1994. Chapters 19 and 20