Economics 5161
Applied Econometrics
Spring 2010
TTh: 11:30-1:00, Seigle Hall 206

Syllabus

"If applied econometrics were easy, theorists would do it." – Angrist and Pischke, *Mostly Harmless Econometrics*

Course Description

Introduction to econometrics as it is applied in microeconomics and macroeconomics (modular). Emphasis is on hands-on implementation of the models covered in the course. Topics related to the analysis of microeconomic data include cross-section and panel data linear models and robust inference; instrumental variables estimation; simultaneous equation models; models for discrete choice; and truncation, censoring and sample selection models. Topics related to the analysis of macroeconomic data include linear time series models; practical issues with likelihood-based inference; forecasting; structural identification based on timing restrictions; and computational methods for hypothesis testing.

Prerequisites

Econ 512 (Intro to Econometrics) is the prerequisite for this course.

Grading

The course has two modules. Your course grade is based on an average of your grade in each module.

Microeconomics Module	50%
Macroeconomics Module	50%

You will be assigned numerical scores on your homework assignments and take-home exams. Your scores will be converted to an overall percentage grade. The letter grade for the course will be determined by converting your percentage score according to the following letter grade distribution:

A+ 95-100%	B+ 80-84%	C+ 67-69%	D+ 57-59%	F 0-49%
A 90-94%	B 75-79%	C 63-66%	D 53-56%	
A- 85-89%	B- 70-74%	C- 60-62%	D- 50-52%	

Macroeconomics Module

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Requirements

There will be weekly homework assignments and a take-home exam at the end of the module. The weights in determining the grade for the macroeconomics module are given as follows:

Homework Assignments	40%
Take-Home Exam	60%

Readings

The required readings for the macroeconomics portion of the course are collected in a reading package that is available for purchase ($11, exact change required) from the main office of the Economics Department (Seigle Hall 307). The readings (listed under topics below) include journal articles and chapters from the following textbooks:

Introduction to Econometrics, by James Stock and Mark Watson, 2003.

Econometric Theory and Methods, by Russell Davidson and James G. MacKinnon, Oxford University Press, 2004.

Time Series Analysis, by James D. Hamilton, Princeton University Press, 1994.

Bayesian Econometrics, by Gary Koop, Wiley & Sons, 2003

Introduction to Bayesian Econometrics, by Edward Greenberg, Cambridge University Press, 2007.

Topics

1. Time Series
   - Macroeconomic Data
   - Serial Correlation
   - Trends and Breaks
   - Methodology

(Readings: Stock and Watson, Ch. 12; Hansen, 2001; Hoover, 2001; Sims, 1996)

2. Models
   - ARMA Processes
   - Seasonality
   - ARCH
   - VARs

(Readings: Stock and Watson, Ch. 12; Davidson and MacKinnon, Ch. 13)

3. Inferences
- Classical
    - Maximum Likelihood Estimation
    - The Kalman Filter
    - Numerical Optimization
    - Hypothesis Tests and Confidence Intervals
    - Bootstrap Methods
- Bayesian*
    - Priors and Posteriors*
    - Model Comparison*
    - Posterior Simulation*

(Readings: Hamilton, Ch. 5; MacKinnon, 2006; Koop, Chs. 1-2; Greenberg, Ch. 7)

4. Forecasting
- Loss Functions
- Forecast Evaluation

(Readings: Hamilton, Ch. 4; Elliott and Timmermann, 2004; Diebold and Mariano, 1995)

5. Structural Analysis
- Granger Causality
- Cointegration
- Impulse Response Functions
- Timing Restrictions
- Identification through Heteroskedasticity*

(Readings: Diebold, 1998; Granger, 2004; Stock and Watson, 14.4, 2001; Hamilton, 11.6; Blanchard and Quah, 1989; Gravelle, Kichian, and Morley, 2006)

**time permitting*