

Time Series Econometrics

Economics 672 - Spring 2007

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Office Hours:
M&W: 10:00-11:00
T&R : 3:30-5:00

Course Description

Macroeconomics is the study of the determination and movement of economy-wide averages and aggregates. For example, common macroeconomic variables include real gdp, the consumer price index, and the unemployment rate. The typical macroeconomic model attempts to explain how these variables move over time. As a result of the nature of macroeconomics, most of the data confronted by these models is time series data. In this course we develop the basic ideas used to analyze time series data.

Course Materials

The text for this class is the second edition of *Applied Econometrics Time Series* by Walter Enders

Course Grade

Your course grade will be determined by two exams and homeworks. Each exam will be given a weight of 35% and the average homework grade will be given the remaining 30% weight. The first exam will be around the fifth week of the semester and the final exam will be around the tenth week of class.

Course Outline

Introduction

- i. reviews
- ii. stylized facts of macro-variables

Difference Equations (Enders ch. 1)

- i. introduction
- ii. first-order difference equations
- iii. solution and stability
- iv. second-order difference equations
- v. solution and stability
- vi. applications

ARMA Models (Enders ch. 2)

- i. introduction
- ii. inversion
- iii. autocorrelation function
- iv. partial autocorrelation function
- v. model selection
- vi. forecasting

Unit Roots (Enders ch. 4)

- i. Dickey-Fuller tests
- ii. augmented D-F tests
- iii. applying D-F tests

Multivariate Time Series Models (Enders ch. 5)

- i. Granger causality
- ii. multivariate regressions
- iii. vector autoregressions
 - structural form
 - standard form
 - estimation and identification
 - impulse response functions
 - variance decomposition
- iv. structural vars

Cointegration (Enders ch. 6)

- i. the meaning of cointegration
- ii. the implications of cointegration
- iii. testing for cointegration