

SPRING 1999

COURSE OUTLINE

STATISTICS 617

Textbook: Univariate and Multivariate Time Series Methods
by William Wei

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Office Hrs: M 4:00pm-5:15pm and by appt

1. Preliminaries

- (a) Autocorrelation properties of stationary models
- (b) Spectral properties of stationary models
- (c) Sample ACF and PACF

2. Estimation of Stationary and Nonstationary Models (Box-Jenkins Methodology)

Identification, Estimation and Diagnostic Checking

3. Forecasting

4. Seasonal Models

5. Transfer Function Models

6. Spectral Analysis of Time Series Models

7. Asymptotic properties of Maximum Likelihood and Least Squares Estimates

8. Multivariate Time Series Models: Vector ARIMA, Cointegration.

9. Nonlinear Time Series Models: Threshold Autoregressions, Bilinear models

10. Bayesian Estimation of Time Series Models

Grade will be based on a Midterm(30%), Final(30%) and Homework(40%). Students will be required to make presentations as a part of homeworks and exams.

Selected References:

- | | |
|-------------------|--|
| Fuller, Wayne | An Introduction to Statistical Time Series |
| Shumway, Robert | Applied Statistical Time Series Analysis |
| Brockwell-Davis | Time Series Analysis, Theory and Methods |
| Chatfield, Chris | The Analysis of Time Series |
| Brillinger, David | Time Series: Data Analysis and Theory |
| Pankratz, Alan | Forecasting with Univariate B-J Models |
| Abraham-Ledolter | Statistical Methods for forecasting |