

STAT 471/871 Winter 2005  
Syllabus

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**Week 1**

Friday, January 7

Introduction and overview

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**Week 2**

Monday, January 10

Wednesday, January 12

Friday, January 14

1.1 Examples; 1.2 Objectives of Time Series Analysis

1.3 Some Simple Time Series Models

1.4 Stationary Models and the ACF

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**Week 3**

Monday, January 17

Wednesday, January 19

Friday, January 21

1.5.1 Estimation and Elimination of Trend

1.5.2 Estimation and Elimination of Trend and Seasonality

1.6 Testing the Estimated Noise Sequence

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**Week 4**

Monday, January 24

Wednesday, January 26

Friday, January 28

Assign #1 Due

2.1 Basic Properties of Stationary Processes

2.2 Linear Processes

2.3 Introduction to ARMA Processes

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**Week 5**

Monday, January 31

Wednesday, February 2

Friday, February 4

2.4 Properties of the Sample Mean and the ACF

2.5 Forecasting Stationary Time Series

2.5 Forecasting Stationary Time Series (continued)

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**Week 6**

Monday, February 7

Wednesday, February 9

Friday, February 11

Assign #2 Due

2.6 The Wold Decomposition and EXERCISES

3.1 ARMA( $p, q$ ) Processes

3.2 The ACF and PACF of an ARMA( $p, q$ ) Process

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**Week 7**

Monday, February 14

Wednesday, February 16

Friday, February 18

Assign #3 Due

3.3 Forecasting ARMA Processes

5.1.1 Yule-Walker Estimation; 5.1.2 Burg's Algorithm

5.1.3 Innovations Algorithm; 5.1.4 Hannan-Rissanen Algorithm

**Week 8**

Monday, February 21 NO CLASS  
Wednesday, February 23 NO CLASS  
Friday, February 25 NO CLASS

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**Week 9**

Monday, February 28 5.2 Maximum Likelihood Estimation  
Wednesday, March 2 5.3 Diagnostic Checking  
Friday, March 4 5.4 Forecasting

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**Week 10**

Monday, March 7 5.5 Order Selection  
Wednesday, March 9 6.1 ARIMA Models for Nonstationary Time Series  
Friday, March 11 Assign #4 Due 6.2 Identification Techniques

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**Week 11**

Monday, March 14 6.3 Unit Roots in Time Series Models  
Wednesday, March 16 6.4 Forecasting ARIMA Model  
Friday, March 18 6.5 Seasonal ARIMA Models

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**Week 12**

Monday, March 21 6.6 Regression with ARMA Errors  
Wednesday, March 23 NO CLASS (SSP)  
Friday, March 25 NO CLASS

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**Week 13**

Monday, March 28 Assign #5 Due Introduction to Complex Analysis  
Wednesday, March 30 Introduction to Fourier Analysis  
Friday, April 1 4.1 Spectral Densities

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**Week 14**

Monday, April 4 4.2 The Periodogram  
Wednesday, April 6 4.3 Time Invariant Linear Filters  
Friday, April 8 4.4 The Spectral Density of an ARMA Process

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**Week 15**

Monday, April 11 Spectral Analysis of Stationary Time Series  
Wednesday, April 13 Assign #6 Due Course Evaluations; Distribution of Final Exam

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