STAT 626: Time Series Analysis, Syllabus—Summer 1997

M-T-TH-F, 2:00–3:15, Blocker 161

Professor H. Joseph Newton, Room 447 Blocker, 845–3141, Office Hours 1:00-2:00 PM Daily

Prerequisites

Knowledge of random variables, moments, distribution theory, maximum likelihood estimation, and regression analysis (using matrices) such as covered in STAT 601 is assumed; complex numbers and trigonometry.

Course Materials

The text for the course is a reprint of "TIMESLAB: A Time Series Analysis Laboratory," written by the instructor and originally published by Wadsworth & Brooks/Cole. It is available from Certified Copy Company, 1911 Texas Ave, South (across Texas Ave from El Chico). Copies of the program called TIMESLAB described in the text will be distributed in class.

Determining the Course Grade

- Two in-class, closed-book exams and a final project each worth 20%; Homework (primarily analyzing real time series) worth total of 40%.
- We will not have a final exam.
- The last day of class will be thursday, August 7, at which time the final projects are due.

Course Outline

Date	Number	Topic	Book Section
June 16	1	Introduction, Correlogram, Partial Correlogram	1.1–1.4.2
June 17	2	Introduction to TIMESLAB	Appendix B
June 19	3	Periodogram	1.4
June 20	4	Periodogram	1.4
June 23	5	Transforming Data	1.5
June 24	6	Transforming Data	1.5
June 26	7	Simple Forecasting	1.6
June 27	8	Difference Equations	1.6
June 30	9	Theory of Covariance Stationary Time Series	2.1, 2.2
July 1	10	Exam 1: Covers Chapter 1	
July 3	11	Linear Filters	2.3
July 4		Holiday	
July 7		No Class	
July 8	12	Prediction Theory	2.4
July 10	13	Randon Walks, ARMA Processes	2.5
July 11	14	ARMA Processes	2.5
July 14	15	Properties of Descriptive Statistics	3.1
July 15	16	Tests for White Noise	3.2
July 17	17	Window Spectral Estimation	3.3

July 18	18	Estimating and Identifying ARMA Models	3.4, 3.5
July 21	19	Exam 2: Covers Through Section 3.3	
July 22		Last Day to Q drop	
July 22	20	Box-Jenkins Forecasting	3.6
July 24	21	Box-Jenkins Forecasting	3.6
July 25	22	Other Modeling Strategies	3.7
July 28	23	Searching for Periodicities	3.8, 3.9
July 29	24	Introduction to Bivariate Series	4.1
July 31	25	Coherence, Phase, Gain	4.1
August 1	26	More on Bivariate Series	
August 4	27	Final Project Reports	4.2
August 5	28	More Final Project Reports	
August 7	29	Last Day	