

Stat 531 / Econ 677 (Winter 2009)

Analysis of Time Series

MW 10:00-11:30; B760 East Hall

Professor: Ed Ionides

Office: 456 West Hall

Phone: 647 5457

E-mail: ionides@umich.edu

Web: www.stat.lsa.umich.edu/~ionides

Office hours: Mon 11:30-12:30; Wed 1:00-2:00.

GSI: Anindya Bhadra

Office hours and R advice: inquire by email

E-mail: tatar@umich.edu

Textbook: R. Shumway and D. Stoffer “Time Series Analysis and its Applications” 2nd edition

Pre-requisites: Stat 426 (Introduction to Theoretical Statistics) or equivalent. For review, see “Mathematical Statistics and Data Analysis” by J. A. Rice. A certain amount of basic linear algebra will be required. For review, see www.sosmath.com/matrix/matrix.html

Syllabus:

This course gives an introduction to time series analysis using time domain methods (ARIMA models, state space models) and frequency domain methods (spectral analysis). The goal is to acquire the theoretical and computational skills required to investigate data collected as a time series. The first half of the course concerns single time series; the second half addresses the relationships between multiple time series.

Grading:

There will be weekly homeworks (30% due Wednesdays, in class), a five-page midterm project analyzing a univariate time series of your choice (15% due Wed 3/4), a midterm exam (25%, in class on Wed 3/11) and a ten-page final project investigating the relationship between two or more time series of your choice (30%, due Tue 4/28). Discussion of homework problems is encouraged, but solutions must be written up individually. Direct copying, from classmates or from other sources such as the internet, is not acceptable.