STA 4853
Time Series and Forecasting Methods
Spring 2016

Lectures: Monday and Wednesday 2:00–3:15 in Room HCB 205.

Instructor:

Fred W. Huffer

Room 209C OSB

Office hours: Monday 12:30–1:30 and Wednesday 3:30–4:30
(or by appointment)

e-mail address: `huffer@stat.fsu.edu`
(Put "STA 4853" somewhere in the subject line of all messages to me.)

Teaching Assistant:

Yang Yu

y.yu@stat.fsu.edu

Office hour: 10:00-11:00am on Wednesday
in Room 204 OSB (Frank Wilcoxon Memorial Room)

Text: None

Course Objectives:

This course discusses time series models including autoregressive models, moving-average models, general ARIMA models, dynamic regression models, and (time permitting) ARCH/GARCH models, and spectral analysis. These models have been widely applied to data in many fields. You will learn how to build time series models and how to apply the models to real world problems.

This course will use SAS as the computing environment, but no prior experience with SAS is assumed. We will use SAS Studio, which is available over the web via any browser. But if you have convenient access to SAS in some other way, you are free to use it. A class enrollment link will be e-mailed to you soon.

Prerequisites:

STA2122, STA2171, QMB 3200 or equivalent. Some general knowledge of computer use. Familiarity with the basic ideas of statistics and probability including sample mean, sample standard deviation, expected value, variance, the normal distribution, and independence. Some prior exposure to covariance, correlation, and simple and multiple regression is useful, but not mandatory (since these topics will be discussed in lecture).

Topics:
- Covariance, Correlation, Independence
- Regression
- ARIMA models
- Model identification
- Model checking
- Estimation and forecasting
- Regression models with ARMA errors and lagged inputs
- Rational distributed lag models
- Intervention analysis
- Intervention and outlier Detection
- ARCH/GARCH models (time permitting)
- Spectral analysis (time permitting)

Grading Policy:

There will be two in-class tests (a mid-term and a final) which each count for 25% of the grade. Regular homework assignments will make up the remaining 50% of the grade.

The grade cutoffs will be 93.0% for A, 90.0% for A–, 87.0% for B+, 83.0% for B, 80.0% for B–, 77.0% for C+, 73.0% for C, 70.0% for C–, 60.0% for D. These may be subject to **downward** adjustment.

The final exam is **not** cumulative, but only covers the second half of the course. Tests will **not** require writing SAS programs or commands, but may require interpretation of SAS output, and understanding of the SAS syntax for specifying ARIMA and transfer function models.

Test Dates (tentative):

Test #1 on Monday, February 29 from 2:00–3:15 (in HCB 205)
Test #2 on Thursday, April 28 from 12:30–2:30 (in HCB 205)

Web Page:

Handouts, homeworks, and examples will be posted at:
http://stat.fsu.edu/~huffer/mordor/timeseries

> This address must be typed completely; you cannot get there by clicking on a series of links. The posted files are pdf files and require Acrobat Reader to read and print them.

University Attendance Policy:

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

Academic Honor Policy:

The Florida State University Academic Honor Policy outlines the University.s expectations for the integrity of students. academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and ...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy.)

Americans With Disabilities Act:

Students with disabilities needing academic accommodation should:

(1) register with and provide documentation to the Student Disability Resource Center; and

(2) bring a letter to the instructor indicating the need for accommodation and what type. This should be done during the first week of class.

This syllabus and other class materials are available in alternative format upon request.

For more information about services available to FSU students with disabilities, contact the:

Student Disability Resource Center
874 Traditions Way
108 Student Services Building
Florida State University
Tallahassee, FL 32306-4167
(850) 644-9566 (voice)
(850) 644-8504 (TDD)
sdrc@admin.fsu.edu
http://www.disabilitycenter.fsu.edu/