

STA 5856 Time Series and Forecasting Methods

Spring 2023

Course Information

Class Meeting Place: 110 OSB
Class Meeting Time: T Th 9:45 - 11:00am (Lecture)

Instructor: Dr. Wei Wu

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Office Hours: T Th 11:00-11:30am

Teaching Assistant: Yue Mu

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Office: 104E OSB
Office Hours: W 2-3pm

Textbook (Optional): *Forecasting with Dynamic Regression Models*, by Alan Pankratz (1991).

Course Objectives: This course discusses a class of linear time series models that include autoregressive models, moving-average models, ARIMA models, and dynamic regression models. The models have been widely applied to data in many fields of social, biological and physical sciences. 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.**

Prerequisite: STA2122, STA2171, QMB 3200 or equivalent. Knowledge of PC or the Unix System used by the university computing network. Familiarity with the basic ideas of statistics and probability, including sample mean, standard deviation, expected value, variance, independence, covariance, correlation, normal distribution and multiple regression.

Topics

- ARIMA Models (including AR, MA, ARMA models): model identification, model checking, estimation and forecasting
- Dynamic Regression Models (including rational distributed lag models and intervention analysis)
- ARCH/GARCH Models
- Spectral Analysis

Grading: Homework (40%), Exam 1 (20%), Exam 2 (20%), Exam 3 (20%).

Course Policy

- **Classroom policies:**
 - You are **encouraged** to attend all classes
 - Come to the class on time
 - Be quiet
- **Homeworks:** The homework problems will be assigned biweekly. The homework must be neatly written, preferably typed. You can work with other students, but each student must independently finish his own solutions. **No late homework!**
- **Exams:** There will be three exams in this class. The schedule is to be announced.
- **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://dof.fsu.edu/honorpolicy.htm>.)
- **Students with disabilities:** 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.

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

Student Disability Resource Center
97 Woodward Avenue, South
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/>