

**Professor:** Dr. Thomas Fisher

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**Office Hours:** MW 11:00-11:30  
Th 9:30-10:30 and by appointment

**Personal Website:** <http://www.users.miamioh.edu/fishert4/>

**Class Materials:** Notes. Occasionally your textbook will be handy. Laptops are needed on Fridays.

**Textbook:** Time Series Analysis: With Applications in R by Cryer and Chan

**References:** [Forecasting: Principles and Practice](#) by Hyndman and Athanasopoulos

**Bulletin** Introduction to quantitative prediction techniques using historical time series.

**Description:** Involves extensive use of interactive computing facilities in developing forecasting models and considers problems in design and updating of computerized forecasting systems. Cross-listed with CSE.

**Topic Outline:** Basics of Time Series: trends, seasons, errors; Ideas of forecasting models; Time Series Regression; Serial correlation & modeling of Serial correlation: Autoregressive-Moving Average Models; Spectral Analysis; Nonstationary models: ARIMA, ARCH/GARCH, long memory processes.

**Exams:** A midterm and cumulative final exam (more weight on second half of class) will be given. Each exam will consist of an in-class and take-home portion. Planned dates:  
Midterm - Wednesday, October 10 (in-class), October 10-12 (take-home)  
Final - Wednesday, December 12, 10:15-12:15 (in-class)

**Homework:** Homework will be given throughout the semester and will count for a substantial portion of your final grade. I expect to assign roughly 7 or 8 homework assignments during the semester. The homeworks will cover both theoretical and application perspectives of the covered material. STA 583 can expect an extra homework problem or two per assignment.

**Lab Assignments:** On Friday we will meet in UPH314, a SCALE-UP classroom that is conducive to interactive learning. Occasionally we will have an in-class assignment during labs. **\*NOTE\*** Absolutely no food or drink is allowed in the SCALE-UP room.

**Data Analysis Project:** A semester long project will be assigned in the next few weeks which involves a full data analysis of some interesting time series datasets. There will be several milestones/grades comprising this project.

**Reading Project:** A short literature review project will be assigned roughly midway through the semester. This *project* will consist of reading a (relatively) recent published journal article and writing a short review.

**Attendance:** The pace of this class is such that it will not be advisable to miss any sessions. If you know you will be absent, please inform me in advance. When you are absent, it will be your responsibility to contact another student for the notes and announcements. While attendance does not factor into your grade, I may take attendance for my own records. You are expected to be an active participant for the

entire 55-minute class. Indications that this is not happening include sleeping, surfing the web or instant messaging on your laptop, text-messaging on your cell-phone, studying for another class, etc. Please turn your cell phone to silent before class. Students are expected to wait quietly for 15 minutes after class is scheduled to begin. If I have not yet appeared the students are free to leave.

**Letters of Accommodation:** If you have a letter stating specific testing accommodations to which you are entitled, please come by my office to discuss the accommodations that you will need and to give me a copy of the letter. Even if you do not anticipate using any accommodations, it is a good idea to turn in the letter as soon as possible. Please note that unless I have at least one week's notice I will be unable to provide any accommodation on an exam

**Prerequisites:** Probability Course: STA 401/501 (or equivalent; e.g., STA 664)  
Modeling Course: *STA 363, STA 463/563, STA 672, or ISA 291*

**Student Code of Conduct:** Any violations of Academic Integrity within the Student Handbook will not be tolerated. This includes cheating, plagiarism, storing information in a calculator, sabotage of another's work and disrupting class. See the [Handbook](#) for a complete listing of the student code of conduct. All violations will be handled in accordance with established procedures and policies concerning student academic responsibility. See the [Bulletin](#) for additional details:

**Final Grades:** At the conclusion of the semester, final grades will be compiled using:

Source	Amounts
Homework	30%
Lab Assignments	5%
Data Analysis Project	20%
Lit Review project	5%
Midterm	20%
Final Exam	20%
<b>Total</b>	<b>100%</b>

Grades will be assigned based on:

[98, 100)	A+	[92, 98)	A	[90, 92)	A-
[88, 90)	B+	[82, 88)	B	[80, 82)	B-
[78, 80)	C+	[72, 78)	C	[70, 72)	C-
[68, 70)	D+	[62, 68)	D	[60, 62)	D-
		[0, 60)	F		