Instructor: Inga Maslova  
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Web Page: Blackboard

Schedule: MW 05:20pm – 06:35pm in HRST 210

Office Hours: TBA on Blackboard via Collaborate, or by appointment in Gray Hall 213

Prerequisites: STAT-515 or STAT-520 or permission of instructor. In exceptional cases, the prerequisites may be waived, but you are expected to have a good background in general statistics and regression. If you are concerned about your preparation, please come see me.

Course Description: An introduction to the time-dependent data. The analysis includes modeling, estimation, and testing; alternating between the time domain; using autoregressive and moving average models and the frequency domain; and using spectral analysis. This course is designed to be useful for graduate level students in finance, economics, physical, biological and social sciences and graduate students in statistics. In addition to classical methods of time series regression, ARIMA models, spectral analysis and state-space models, the class will cover modern techniques which include categorical time series analysis, long memory series, nonlinear models, resampling techniques, GARCH models, stochastic volatility, wavelets methods.


Grades: Grades will be based on performance in homework assignments and class labs (40%); one midterm exam (20%), a take-home final exam (30%), and paper summary (10%).

Homework: Homework will be assigned every 1 to 2 weeks, and is due 1 week later. The purpose of the written homework in this course is to develop skills in understanding and communicating the ideas of data analysis. Additionally, there will be in-class labs during the semester. These will generally require some computer work and a write-up. The value of each assignment/lab will be roughly proportional to its importance and the amount of work involved. Assignments will be posted on Blackboard. You are welcome to discuss homework problems with the instructor and other students in the class but all work turned in should be your own and reflect your understanding of the material. Direct copying of assignments or solutions will not be tolerated!

All homework will be due at the end of the day (midnight) on the due date. The grade for the homework will be reduced by 10% for every working day it is late after that, to a minimum of 30% of the original grade.

Midterm: There will be one in-class midterm exam. It is going to be closed book, closed notes that will count for 20% of your grade.

Final Exam: At the end of the semester there will be a take-home final exam. This will count for 30% of your grade.

Paper summary: At the end of the semester you will read and summarize a scientific paper from a peer review journal. You should find a paper where time series analysis is performed. The summary and the original paper should be submitted in PDF format via Blackboard.

Software: We will learn R during this course. This software is free and can be downloaded at http://www.r-project.org.

Special Needs: If a student has a disability that will likely require some accommodation by the instructor, the student must contact the Office of Student Services, preferably during the first week of the course. Note: the student is responsible for contacting the Office of Student Services for specific services.

Disclaimer: The instructor reserves the right to alter anything about this course (but she probably won’t).