

Math 6397 - Topics in Financial Machine Learning/Analytics in Commodity & Financial Markets

Texts:

Much of the material is drawn from these works:

- *An Introduction to Statistical Learning: with Applications in R* by James, Witten, Hastie, and Tibshirani
- *Advances in Financial Machine Learning* by Lopez de Prado
- *The Econometrics of Financial Markets* by Campbell, Lo, and MacKinlay
- *Data Analysis: A Bayesian Tutorial* by Sivia

Description:

This is an applied data analysis course focusing on financial and economic data. We will cover various kinds of analyses common in the field and, as much as possible, use multiple approaches to each case in order to demonstrate the strengths, weaknesses, and advantages of each technique. This is not intended to be a programming course. There are many examples done in R and you are welcome to use that language. If you are, or aspire to be a strong Python programmer, you are welcome to use that language also. Proficiency in basic probability and linear algebra is assumed. By the end of the course you may find your skills in those areas strengthened as well.

The goals for the course are to familiarize students with common types of economic and financial data, some of the statistical properties of this kind of data which usually involves time series, and to equip everyone with a thorough enough understanding of the techniques available for them to make the best decision on the approach to take in an analysis depending on the nature of the data and the specific purpose of the study.