

STAT GR5261/GU4261 STATISTICAL METHODS FOR FINANCE
SPRING 2023

Friday 10:10am-12:40pm Location: 309 Havemeyer Hall

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Teaching Assistant: Richard Groenewald

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Prerequisites: Familiarity with probability theory and statistical inference and linear regression, some knowledge of multivariate analysis and some matrix algebra.

Grading: Your final grade will be based on one in class exams, take home assignments (HWs) and a final project. Homework will be assigned every week and collected a week later. Late assignments will not be accepted and they will result automatically in a zero but the lowest score on the homework assignments will be dropped. The exam will count for 40% of the final grade. The Hws and the final project will each count for 30% of the final grade .

Textbook (required):

Statistics and Data Analysis for Financial Engineering with R examples by Ruppert, David, Matteson. New York: Springer.

Reference books (optional):

Statistical Models and Methods for Financial Markets by T.L. Lai and H. Xing, New York: Springer.

Statistics and Finance: An Introduction by David Ruppert, New York, Springer

Outline of the course (the material will not be covered in this order)

1. Chapter 1: Introduction
2. Chapter 2: Returns
3. Chapter 3: Fixed Income
4. Chapter 4: Exploratory Data Analysis
5. Chapters 5: Modeling Univariate Distributions
6. Chapter 6: Resampling
7. Chapter 7: Multivariate Statistical Models
8. Chapter 8: Copulas
9. Chapter:16: Portfolio Selection
10. Chapter 9 & 17 : Regression: Basics and The Capital Asset Pricing Model

11. Chapter 18: Factor Model and Principal Component Analysis

12. Chapters 19: Risk Management

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