Finance Theory I
Fall, 2020

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Classroom: Zoom
11:45am

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Finance Theory I introduces the quantitative analysis of the risk and return of risky assets. This analysis of asset pricing lies at the heart of virtually all of financial economics. The development of the material is mathematical, but the main objective is to develop intuition and discover empirical predictions. The design of the course follows the textbook *Principles of Financial Economics* by Stephen F. LeRoy and Jan Werner, Cambridge University Press, second edition 2014. Other reference books are *Theory of Financial Decision Making* by Ingersoll and *Foundations for Financial Economics* by Huang and Litzenberger and *Asset Pricing and Portfolio Choice Theory* by Kerry Back.

The course grade will be based on an in-class final on December 10th and approximately weekly problem sets. I encourage students to work together on the problem sets; however, each student should hand in his or her own analysis. Legibility of the problem sets matters and hence typed solutions, where possible, would be appreciated. The following provides a rough guide to the schedule (numbers in parentheses indicate chapters in LeRoy and Werner).

9/14 Introduction to securities markets and investors (1)
General Equilibrium in securities markets (1)

9/18 Law of One Price, state prices and linear pricing (2)
Linear pricing, examples

9/21 No Arbitrage and the “Fundamental Theorem” (3,4)
State prices and risk neutral probabilities (5)

9/28 Portfolio Restrictions and Bid Ask Spreads (6)
Risk Aversion (9)

10/5 Stochastic dominance—first order
Stochastic dominance—second order (10)

10/12 Optimal portfolios with one risky security (11, 12)
Optimal portfolios with several risky securities (13, 14, 16)
10/26 Pricing kernels (17)
Mean Variance Frontier and classical mean variance analysis (18)

11/9 CAPM (19)
Arbitrage Pricing Theory, APT (20)

11/16 Risk-neutral probabilities and binomial pricing (25)

11/23 Information: Bayes rule, asset pricing with incomplete information, heterogeneous information. Noisy rational expectations models.

11/30 No class: Review session with TA

12/7 Describing information about multiple assets, conditional CAPM and the representative-information investor, price informativeness (27)

Final exam: To be held during exam period. Time tbd.