

Note: The original is on Blackboard – the content below has been copy-pasted from there.

Syllabus

Overview

Aims and Scope

The aim of this course is to survey the major asset theories, tools and results in portfolio choice and asset pricing. Although modern finance is a highly mathematical field, we will use mathematics only to enhance our understanding -- - 'the major hurdles in Finance are conceptual rather than mathematical' (John Cochrane). Most of the course will focus on "classic" asset pricing, which is the foundation for any finance course that you might take here at UofT or anywhere else. As this class is intended to be a survey course, I want you to get "the big picture", both conceptually and with respect to applicable tools. I also want you to be able to understand the gist of academic research papers. We will not go through institutional details, I leave this for your securities courses (CSC). You are expected to read the business section of at least one major newspaper (Wall Street Journal, Financial Times, The Globe and Mail, etc.).

Exams

There is a final exam, but there is no midterm.

Quizzes

I will hold a large number of unannounced pop-quizzes. Their purpose is to ensure that you will keep studying the course material throughout the term (as opposed to cramming for midterms and finals). These quizzes will last anywhere from 5-30 minutes. Each quiz can cover material that has been taught up to that quiz and they may also touch upon important market events. They can occur at any time during class, and their total number will not be pre-announced. The questions don't have equal weight, and their total weight can only be determined by the end of the term. No make-up test will be offered for any quiz. Your best 80% of answers will count towards 40% of the class grade.

Use of laptops etc. during exams

You are allowed to use any electronic device and any software to answer quizzes or the final exam (including laptops, ipads, cell phones, or pocket calculators). You are also allowed to prepare code or Excel spread sheets. However, **you must switch off all wireless antennas during quizzes and exams**. If the antenna is on and I detect this, it will automatically be considered an academic offence; if this happens during a quiz, your offence will be treated as if you cheated on the entire 40% of the quizzes.

Term Project

For the length of the term you will be working on a graded investment project. This project consists of 4 parts. First, establishing the initial strategy (2%). Second, applying knowledge of portfolio theory to your investment strategy (12%). Third, assessing your investment strategy using tools from asset pricing (12%). Fourth, presenting your results to your peers (4%). Each assignment must be submitted in electronic form. With the details of the assignment you will be issued the grading instructions that I give to the TA.

Grading Policy

Final: 30%, Quizzes: 40%, Term Project: 30%.

General Policies

Appeals: If you appeal to re-grade one of the problems or exam questions, I will re-grade the *entire* problem set/exam. Note that this may (and in the past usually has) lead to a lower overall grade. Your complaint has to be in writing and you must give a detailed outline as to why and where you think that the assessment is inaccurate.

Missing a Quiz: There are no "make-up"-tests - missed quizzes will count towards the 20% that do not count towards your final mark.

Not handing in an assignment. If you miss the deadline for an assignment, you should contact me immediately. The rule is that your score gets reduced by 5% per late day – scores can become negative.

Plagiarism is a severe academic offense. Please note the following disclaimer

"Students agree that by taking this course all required papers may be subject to submission for textual similarity review to Turnitin.com for the detection of plagiarism. All submitted papers will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. The terms that apply to the University's use of the Turnitin.com service are described on the Turnitin.com web site."

By submitting a problem set you certify that you have read and understood the university's policies on plagiarism. Please also consult the university's website on academic writing: <http://www.utoronto.ca/writing/plagsep.html>. If I detect plagiarism, I will go through the standard process for academic misconduct.

Private appointments will be generally not be granted unless there are extraordinary circumstances.

Email Policy I will try to answer emails by the end of the next business day. Email queries about class material that require lengthy answers will receive the following answer: "Please see me during my office hours."

Literature

There are many excellent finance books available, but most are either geared towards an MBA/undergrad or towards a doctoral audience – there is currently no adequate textbook on the market for the master's level. (See also Princeton's Markus Brunnermeier's comments on his Master's level course.) I have collected material from several sources and I cannot in good conscience provide a unique textbook recommendation. Here are my recommendations as based on the topics that are covered. For some topics, I will also ask you to read the original literature.

These papers will be listed on Blackboard as we go.

Basics:

Use either

- Thoms Copeland and Fred Weston: *Financial Theory and Corporate Policy*, Addison-Wesley. Hereafter: CW. or
- Bodie, Kane, Marcus, Perrkakis, Ryan: *Investments*, 2006, McGraw-Hill.

These two texts are undergraduate textbooks in finance. They cover basic topics nicely. Both, especially CW, also give decent introductions to more advanced topics.

Bond Pricing

- Elton, Gruber, Brown, Goetzmann: *Modern Portfolio Theory and Investment Analysis*, 2003, Wiley. Hereafter: Elton
A really nice text that has plenty of examples.
- David Luenberger: *Investment Science*, 1998, Oxford University Press. Hereafter: Luenberger.
- This book is below the level of this course, but it is useful for several topics, including bond pricing, portfolio theory and CAPM. It is aimed at students who have a math-oriented first degree.

Risk Management

Basic concepts are explained in Elton; advanced topics will be covered with original work.

Portfolio Theory, CAPM, and APT

Basics can be studied from Luenberger, Elton, CW. Our approach will be based on matrix algebra and this is best explained in:

- Campbell, Lo and MacKinley: *The Econometrics of Financial Markets*, 1998, Princeton University Press. Hereafter: CLM. Focuses mainly on empirics; sets up theoretical concepts so that they can be empirically tested; very comprehensive. Useful source to learn about empirical methods; it should be your first reference text when tackling the empirical problem sets.

General Equilibrium Theory

- Basics are explained in CW
- Darrell Duffie: *Dynamic Asset Pricing Theory*, 2001, Princeton University Press. Hereafter: Duffie. My lecture on this topic is based on the first chapters of Duffie.

Consumption Based Asset Pricing

- John Cochrane: *Asset Pricing*, 2001, Princeton University Press. Hereafter: JC. An excellent book which also covers a great deal of empirical methods.

Financial Market Trading (which we may not cover)

- Joel Hasbrouck: *Empirical Market Microstructure* (Subtitle: The Institutions, Economics, Econometrics of Securities Trading), 2007, Oxford University Press.
- Larry Harris: *Trading and Exchanges: Market Microstructure for Practitioners*, 2003, Oxford University Press. This book is a nice read about trading terminology and mechanisms, but does not include the models that we discuss in class. If you do your internship in trading you may want to get this book. However, market structure changes as I am writing this syllabus, and thus there is no text that can be fully up-to-date.

Course Structure

The details of the course structure and of the topics covered will be displayed on the Blackboard system. A tentative outline is already available.

In general, we will deal with two big questions: first, what determines economic agents' investment decisions, and second, how are financial assets priced, given agents' investment decisions. We will also discuss the role of information in portfolio choice and asset pricing. As subfields of finance, we will then cover the following topics:

- Individuals investment decisions under uncertainty and over time.
- Portfolio theory and asset pricing, in particular, general equilibrium theory and the Capital Asset Pricing model.
- Arbitrage Pricing Theory and Consumption Based Asset Pricing.
- Efficient capital markets and asset pricing with asymmetric information.
- Basics of financial market trading.

This translates into the following tentative schedule for our lectures:

Topic 1: Basics, Net Present Value, Internal Rate of Return CW Ch. 1,2. Luen Ch. 2.

Topic 2: Bond pricing, the yield curve, term structure of interest rates. Luen Ch. 3-5. Elton Ch. 20, 21.

Topic 3: Risk management: Utility, choice under uncertainty, expected utility, prospect theory, puzzles in choice under uncertainty. Luen Ch. 9, Elton 10, 11 Measuring risk and risk aversion. Intertemporal choice, state-price density. JC Ch. 1-3. Luen Ch. 9.

Topic 4: Asset Allocation and Portfolio Choice; Markowitz's Mutual Fund Theorem. Luen Ch. 6, Elton Ch. 4-9, CLM Ch. 5.

Topic 5: CAPM. Luen Ch. 7-8, Elton Ch. 13-15, CLM Ch. 5,6

Topic 6: General Equilibrium, efficiency, state prices, the law of one price, arbitrage. Luen Ch. 9, Varian: "Principles of Arbitrage", *Journal of Economic Perspectives*, 1987; Duffie Ch. 1.

Topic 7: Arbitrage Pricing Theory and other multi-factor models. Elton Ch. 16, 24.

Topic 8: Consumption Based Asset Pricing, the equity premium puzzle ICAPM JC Ch. 1-9, CLM Ch. 8, Duffie Ch. 2.

Topic 9: Efficient Financial Markets. Elton Ch. 17, CLM Ch. 2, 4.

Topic 10: Organization of Market trading, market maker models, asymmetric information. Hasbrouck, Ch. 1-6.