



## PPHA 42510 APPLIED FINANCIAL MANAGEMENT Spring 2019

Professor: Thomas Coleman, [tcoleman@uchicago.edu](mailto:tcoleman@uchicago.edu)

### **COURSE SUMMARY**

This course will cover topics in investments – securities and financial markets. The goal is to de-mystify financial markets – bonds, equities, derivatives – and to provide you with the tools and the practical knowledge to solve problems and understand financial decision-making. There is no formal pre-requisite but it would be useful to have some prior exposure to finance, NPV calculations, and financial markets – for example a finance course as an undergraduate or studying for the CFA exams. (Booth courses BUS 35001 (Introductory Finance) or BUS 35200 (Corporate Finance) will give background you need. BUS 25000 (Investments) will have some duplication with this course.)

The first eight or nine weeks will cover the basics of investments and securities markets – bonds, equities, derivatives, portfolio theory and risk. The final week or two I hope we will cover some special topics: municipal markets (focusing on municipal swaps) and quantitative risk management.

The focus for the course will be practical, building on the instructors' extensive practical experience in the derivatives markets and hedge fund management. We will learn how these instruments really work and how the tools are actually used in the markets.

**TEXTS: The main material for the course is what I cover in class, in lectures.** I will usually post slides before the class. There are two “texts”:

- *Investments* by Zvi Bodie, Alex Kane, Alan J. Marcus .
- Additional essays on Canvas (my “Practical Guide to Bonds and Swaps”; “Risk-Adjusted Discounting”; “Forward Curves and Discounting”)

### **CALCULATOR**

You will need a calculator throughout the course. I strongly recommend the HP 17BII+. Choices:

- The actual calculator, on-line at Amazon for somewhere between \$30 & \$90. Very retro.
- iPhone and iPad app: RLM Software has an excellent \$4.99 HP 17BII+ app: Search for "rlm-17BII" or "r.l.m software" in the App Store. Also <http://www.rlmttools.com/iPhone/17BII/Detail.html>
- A good for iPhone and Android, \$4.99 Power One Finance Pro Calculator by Infinity Softworks

### **PROBLEMS**

Problems will be assigned and due about every one-and-a-half weeks. The problems will be more like business school case studies than standard problem sets. As in business school case studies, you should form study groups to solve and write-up the problems. Study groups must be no more than four persons.

Each study group should work together on solving the problem, and should hand in a single write-up of the solution. Everyone in a study group will get the same grade for the problem. If you work on the problems and understand them, you should pass the exams; if you do not work on the problems, you will probably not pass the exams.

### **GRADING**

There will be a midterm and final exam. The weighting will be approximately 20% for the problems, 35% for the midterm, and 45% for the final. The final will be cumulative, i.e. cover the entire course.

## TOPIC OUTLINE

Pre-Course Reading Assignment: HP Calculator Introduction - Practical Guide to Bonds & Swaps

- I. Introduction & Big Ideas
  - A. Only Two Big Ideas in Finance – PV and Uncertainty
  - B. Introduction to Asset Classes & Securities
- II. TVM & Bonds: PV, FV, Discounting
  - A. Unpacking the Budget Line 1: PV, FV, Discounting
  - B. Working with PV, FV, Discounting
  - C. Bonds - CFs, Quotes, & PV
- III. Bond Markets
  - A. Bond Market - Size and Variety
  - B. Real & Nominal Rates
  - C. Money Markets
  - D. Clean vs Dirty price
  - E. Securitization
- IV. PV for Uncertain Cash Flows
  - A. Uncertainty versus Risk (notes, ch 2 of “Practical Guide to Risk Mgmt”)
  - B. Problem - We Don’t Know How to PV Uncertain CFs (notes)
  - C. PV for Uncertain CFs: Utility and Certainty Equivalent
- V. Risk Premium & Risk-Adjusted Discounting in Practice
  - A. Risk-Adjusted Discounting in Practice
  - B. Risk-Neutral Valuation: Adjust Probabilities - Introduction to Options
  - C. Corporate Bonds (Sharpe 14.6)
- VI. Bond Sensitivity, Hedging, & Predicted P&L: Duration, BPV, DV01
  - A. Why We Use Yield Instead of Price (notes)
  - B. BPV, DV01, & Duration (notes)
- VII. Equities – Introduction, Valuation, and Debt vs Equity Financing
  - A. How Corporations Issue Equities
  - B. Valuation of Equities - Dividends & Discounting
- VIII. Capital Structure (Debt vs Equity) in “Perfect” & “Imperfect” Markets
  - A. What are Perfect Capital Markets? What are Efficient Markets?
  - B. First View - Modigliani & Miller Prop 1 - Capital Structure Irrelevance (BMA Ch 17)
  - C. Further (2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup>) views: Why Capital structure may be Important:
    - 1. Interest Deductible (Debt); Financial Distress (Bankruptcy & Equity); Asymmetric Information (Debt)
  - D. Final Synthesis
- IX. MIDTERM
- X. Introduction to Derivatives - Swaps
  - A. What are Derivatives?
  - B. Floating Rate Bonds
  - C. Interest Rate Swaps
- XI. Derivatives - Futures and Options
  - A. Futures
  - B. Risk-neutral Valuation, Options, and Callable Bonds
- XII. Chicago Muni Swaps
- XIII. Price of Risk I - Overall Portfolio & Sharpe
  - A. We Need Theory for Risk Premium
  - B. Digression on Leverage and Sharpe Ratio
  - C. Portfolios and Diversification
- XIV. Price of Risk II - Contribution, Beta, CAPM
  - A. Risk Premium - Overall Portfolio (“Market” Portfolio)
  - B. Sharpe, Separation, and Capital Market Line
  - C. Contribution & Beta