



## PPHA 42510 APPLIED FINANCIAL MANAGEMENT

Spring 2022

**Professor:** Thomas Coleman, [tcoleman@uchicago.edu](mailto:tcoleman@uchicago.edu)  
Office hour: TBD

**TAs:**

Jose Betancourt, [jlbetancourt@uchicago.edu](mailto:jlbetancourt@uchicago.edu)  
Ran Cheng, [rancheng@uchicago.edu](mailto:rancheng@uchicago.edu)  
Shengyu Li, [shengyu1@uchicago.edu](mailto:shengyu1@uchicago.edu)  
Adriana Martella, [amartella@uchicago.edu](mailto:amartella@uchicago.edu)  
Ruyang (Sherry) Shao, [ruyangs@uchicago.edu](mailto:ruyangs@uchicago.edu)

**Lecture time:**

Section 1: Mon & Wed 9:00am -10:20am  
Section 2: Mon & Wed 10:30am-11:50pm

**TA sessions:**

TBD

### 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 seven or eight 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.

**TEXTBOOK: Brealey, Myers, Allen**

- Brealey, Richard, Stewart Myers, and Franklin Allen. 2019. *Principles of Corporate Finance*. 13th edition. New York, NY: McGraw-Hill Education. ISBN: 978-1-260-01390-0. (You want *Principals*, NOT *Fundamentals of Corporate Finance*)
- I am using chapters 2, 3, 4, 7, 8, 13, 23, 24 from the book. There are two ways you can get this:
  - **Custom Book:** I created a custom electronic book with those chapters:
    - Buy for \$54.78. Go to <https://www.mheducation.com/highered/custom/product/9781307696639.html>
    - Add the book to the cart and pay using a credit card or access code
    - Follow on screen instructions to check out.
  - **Standard Textbook:** Rent or buy the full textbook – the 13<sup>th</sup> or the 12<sup>th</sup> edition (either edition is fine – or the 11<sup>th</sup> if you can find it)

- Amazon.com [https://www.amazon.com/Principles-Corporate-Finance-Richard-Brealey-ebook/dp/B07MDXGBNC/ref=sr\\_1\\_1](https://www.amazon.com/Principles-Corporate-Finance-Richard-Brealey-ebook/dp/B07MDXGBNC/ref=sr_1_1) (rent or buy e-book)
- <https://www.mheducation.com/highered/product/principles-corporate-finance-brealey-myers/M9781260013900.html> (rent \$55)
  - Either my custom book or the full textbook is fine – the full textbook gives you more information (more than just the chapters I assign) but buying it is expensive.

**ADDITIONAL READINGS:** 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 \$9.99 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>
- Android app: it looks like the excellent “PowerOne Financial Calculator” from Infinity Softworks is still on Google Play (a newer version is available for Apple but I like the older version). If not try the 10B emulator from “In A Day Development”.

## 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. Work on the problems – it is the best way to learn the material and pass this course.

## 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.

You are expected to attend classes in person but if you cannot you will find the recordings on Canvas, under “Zoom- University of Chicago Main Account”. The Zoom links are listed in Canvas – the link is different for Section 1 and Section 2, but the link for each Section remains the same throughout the quarter.

## 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. MIDTERM
- IX. 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
- X. 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
- XI. Price of Risk II - Contribution, Beta, CAPM
  - A. Risk Premium - Overall Portfolio (“Market” Portfolio)
  - B. Sharpe, Separation, and Capital Market Line
  - C. Contribution & Beta
- XII. Introduction to Derivatives - Swaps
  - A. What are Derivatives?
  - B. Floating Rate Bonds
  - C. Interest Rate Swaps
- XIII. Derivatives - Futures and Options
  - A. Futures
  - B. Risk-neutral Valuation, Options, and Callable Bonds
- XIV. Chicago Muni Swaps

**Summary Outline** – textbook chapters: You can find chapters in *either* the Custom Textbook (ISBN 9781307696639) labeled *Cust or* in the full textbook by Brealey, Myers, Allen (ISBN 9781260013900) labeled *BMA* . You are not reading both *Cust* and *BMA*, just one or the other.

Week/Lect	Date	Topic	Text/Notes
1		<b>Introduction:</b> Two big ideas: TVM & uncertainty. <b>Bond Markets:</b> Digression on Gov't Debt <b>TVM &amp; Bonds:</b> PV, FV, Discounting	Cust Ch 1  Cust Ch 2, 3 BMA Ch 2, 3
2		<b>Bonds:</b> Quotes, Yield, clean vs dirty price <b>Securitization:</b>	Cust Ch 3, 9 BMA Ch 3, 24
3		<b>PV for uncertain CFs:</b> Expected utility framework, risk-adjusted discounting, certainty equivalent <b>Risk Premium in Practice:</b> Bankruptcy, default, credit ratings, credit spreads	Cust Ch 5, 8 BMA Ch 7, 23
4		<b>Bond Sensitivity, Hedging, Predicted P&amp;L:</b> Duration, BPV, DV01 <b>Corporate Bonds:</b>	Cust Ch 3, 9 BMA Ch 3, 24
5		<b>Introducing Equities:</b> <b>How Corporations Issue Equities:</b> <b>Valuation of Equities:</b>	Cust Ch 4 BMA Ch 4 (Ch 15)
5 Midterm			
6		<b>Efficient Markets:</b> “Perfect” markets, “Efficient” markets, Miller & Modigliani	Cust Ch 7 BMA Ch 13 (Ch 14)
7		<b>Price of Risk I:</b> Overall Portfolio & Sharpe	Cust Ch 5, 6
8		<b>Price of Risk II:</b> Contribution, Beta, CAPM	BMA Ch 7, 8
9		<b>Derivatives:</b> Swaps <b>Derivatives:</b> Futures and Options	(BMA Ch 20, 21)
		<b>Chicago Muni Swaps:</b>	
Final week			

## TEXTBOOK ALTERNATIVES:

You can use either

- *BMA* – the Full Textbook Brealey, Myers, Allen textbook *Principles of Corporate Finance*. 13th edition. ISBN: 9781260013900. Earlier editions also good. Available to rent or buy from Amazon ([https://www.amazon.com/Principles-Corporate-Finance-Richard-Brealey-ebook/dp/B07MDXGBNC/ref=sr\\_1\\_1](https://www.amazon.com/Principles-Corporate-Finance-Richard-Brealey-ebook/dp/B07MDXGBNC/ref=sr_1_1)) or McGraw Hill (<https://www.mheducation.com/highered/product/principles-corporate-finance-brealey-myers/M9781260013900.html>)
- *Cust* –the custom e-book that I produced with selected chapters from BMA, that you can buy at a lower price (ISBN 9781307696639 at <https://www.mheducation.com/highered/custom/product/9781307696639.html>)

Here is a guide to the chapters in the full textbook and the custom e-book

Chapter Title	BMA: Full Textbook	Cust: Custom ebook
Financial Instruments, Financial Markets, and Financial Institutions (from Cecchetti & Schoenholtz <i>Money, Banking, and Financial Markets</i> )	NA	1
How to Calculate Present Values	2	2
Valuing Bonds	3	3
The Value of Common Stocks	4	4
Introduction to Risk and Return	7	5
Portfolio Theory and the Capital Asset Pricing Model	8	6
Efficient Market and Behavioral Finance	13	7
Credit Risk and the Value of Corporate Debt	23	8
The Many Different Kinds of Debt	24	9

## **Diversity and Inclusion**

The Harris School welcomes, values, and respects students, faculty, and staff from a wide range of backgrounds and experiences, and we believe that rigorous inquiry and effective public policy problem-solving requires the expression and understanding of diverse viewpoints, experiences, and traditions. The University and the Harris School have developed distinct but overlapping principles and guidelines to ensure that we remain a place where difficult issues are discussed with kindness and respect for all.

The University's policies are available below. Specifically, the University identifies the freedom of expression as being "vital to our shared goal of the pursuit of knowledge, as is the right of all members of the community to explore new ideas and learn from one another. To preserve an environment of spirited and open debate, we should all have the opportunity to contribute to intellectual exchanges and participate fully in the life of the University."

The Harris School's commitments to lively, principled, and respectful engagement are available below: "Consistent with the University of Chicago's commitment to open discourse and free expression, Harris encourages members of the leadership, faculty, student body, and administrative staff to respect and engage with others of differing backgrounds or perspectives, even when the ideas or insights shared may be viewed as unpopular or controversial." We foster thought-provoking discourse by encouraging community members not only to speak freely about all issues but also to listen carefully and respectfully to the views of others.

University policies: <https://studentmanual.uchicago.edu/university-policies/>

Harris policies: <https://harris.uchicago.edu/about/who-we-are/diversity-inclusion>

## **Title IX Reporting Responsibilities**

Your instructor and TAs for this class are designated as "responsible employees" under the US law known as Title IX. We have a duty to report incidents of sexual harassment, including sexual violence, domestic violence, dating violence, and stalking, or other misconduct to appropriate school officials.

## **Academic Integrity (aka Cheating)**

This is a large and important class for your education here at Harris. We take academic integrity very seriously, and although we have the highest confidence in you as students, we must also remind you that academic integrity and honesty are central to our mission as a school and to each of us as instructors, TAs, and students.

All University of Chicago students are expected to uphold the highest standards of academic integrity and honesty. Among other things, this means that students shall not represent another's work as their own, use un-allowed materials during exams, or otherwise gain unfair academic advantage. From the University's policy (link below): "It is contrary to justice, academic integrity, and to the spirit of intellectual inquiry to submit another's statements or ideas as one's own work. To do so is plagiarism or cheating, offenses punishable under the University's disciplinary system. Because these offenses undercut the distinctive moral and intellectual character of the University, we take them very seriously."

The Harris School's policies are available in the Harris Student Handbook Canvas site. All students suspected of academic dishonesty will be reported to the Harris Dean of Students for investigation and adjudication. The disciplinary process can result in sanctions up to and including suspension or expulsion from the University. In addition to disciplinary sanctions, we reserve the right to impose other sanctions,

up a failing grade for the course for students who have committed academic dishonesty, regardless of performance on elements of the course.

University policies: <https://studentmanual.uchicago.edu/academic-policies/academic-honesty-plagiarism/>

Note, of course, that for problem sets we are asking you to work in groups, and so *in this course* (but not necessarily other courses at Harris) collaborating on problem sets *is not* considered academic dishonesty – we are asking you to collaborate. We do require, however, that each group write up and hand in their own solution and put the group members on the solution set. This is as much for your own benefit as it is for ours – you need to work on the problems and understand the problems if you want to pass the midterm and final, and later classes here at Harris.

## **Disability Accommodations**

The University’s policies regarding students with disabilities are available below. Students who have disability accommodations awarded by the University Student Disability Services Office should inform the Harris Dean of Students office by the end of the first week of class. The Harris Dean of Students Office will work with the student and instructor to coordinate the students’ accommodations implementation.

Harris students are not required to submit their accommodations letter to the instructor. Students from other divisions in the University must submit their accommodations letter to either the instructor or the Harris Dean of Students Office—we recommend submitting it to the Dean of Students office for fastest reply.

Students who do not yet have formal accommodations in place but who feel they need accommodations on a temporary or ongoing basis should contact the Harris Dean of Students Office or Student Disability Services.

University policies: <https://studentmanual.uchicago.edu/university-policies/disability-accommodations/>

## **Student Mental Health and Other Support**

If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, remote counseling services are available. Student Counseling Service (SCS) urges you to attend to your mental wellbeing and to reach out to them for support during these challenging times. All SCS services are covered by the Student Life Fee, and there is no additional cost for students to access their services. See <https://wellness.uchicago.edu/mental-health/student-counseling-service-spring-quarter-faq/>. Students seeking new services/resources can call 773.702.9800 during business hours (Monday–Friday 8:30 a.m.–5 p.m.) and ask to speak with a clinician. Students needing urgent mental health care can speak with clinicians over the phone 24/7 by calling the SCS at 773.702.3625.

The Harris School itself provides both academic and non-academic support services for students. These resources are described (and links provided) via the Canvas site Harris Student Handbook, which all Harris instructors can access.

## **University of Chicago Policy on Lecture Recordings**

By attending course sessions, students acknowledge that:

1. They will not: (i) record, share, or disseminate University of Chicago course sessions, videos, transcripts, audio, or chats; (ii) retain such materials after the end of the course; or (iii) use such materials for any purpose other than in connection with participation in the course.
2. They will not share links to University of Chicago course sessions with any persons not authorized to be in the course session. Sharing course materials with persons authorized to be in the relevant course is permitted. Syllabi, handouts, slides, and other documents may be shared at the discretion of the instructor.
3. Course recordings, content, and materials may be covered by copyrights held by the University, the instructor, or third parties. Any unauthorized use of such recordings or course materials may violate such copyrights.
4. Any violation of this policy will be referred to the Area Dean of Students.