

B8306 – Capital Markets and Investments Fall 2019 Syllabus

Updated: July 10, 2019

I CONTACT INFORMATION AND CLASS TIMES

	Name	Email	Office location	Office hours
Professor	Harry Mamaysky	hm2646@columbia.edu	Uris 803	By appointment
TAs	TBD	TBD		TBD
	TBD	TBD		TBD

Section	001	002
Class time	MW 10:45am-12:15pm	MW 12:30pm-2:00pm
Location	WJW 208	WJW 208
Optional review session	TBD in Uris TBD	

II DESCRIPTION

This course has three goals:

1. To introduce the principles of investing from an applied perspective. Leading applications include personal and professional portfolio management, risk management, and security valuation.
2. To introduce the following concepts:
 - i. arbitrage,
 - ii. the term structure of interest rates,
 - iii. duration and immunization,
 - iv. portfolio choice and diversification,
 - v. equilibrium asset pricing (the CAPM),
 - vi. systematic and idiosyncratic risk,
 - vii. performance evaluation,
 - viii. market efficiency,
 - ix. factor investing,
 - x. pricing and hedging options.
3. To provide sufficient background knowledge for students seeking an overview of capital markets and an introduction to advanced finance courses.

CONNECTION TO OTHER COURSES

Capital Markets uses and builds upon the basic valuation tools developed in Corporate Finance, such as arbitrage, time value of money, understanding risk-return trade-offs, the CAPM, and asset valuation.

Capital Markets uses many concepts from Statistics, such as random variables, probability distributions, regression and hypothesis testing. Particularly in the portfolio choice section, the course uses optimization methods and modeling tools from Business Analytics.

GUEST SPEAKER

As in prior years, we will have a guest speaker come give a talk to the class. The guest speaker is a practitioner working in the investing field. Attendance is required.

III MATERIALS

Textbook. Recommended textbooks can be purchased at the Columbia University Bookstore and are on reserve in Watson library:

- *Investments* by Bodie, Kane, and Marcus (hereafter BKM), 9th, 10th or 11th edition
- *Investments, Student Solutions Manual* by Bruce Swenson, 9th, 10th or 11th edition.

Course notes. Notes will be distributed in each class, and will be available on Canvas.

Additional readings. Relevant articles from industry, academia, and the popular press will be provided throughout the course.

Supplementary material. In the past, students have asked for supplementary references for some of the material covered in the course. The book *Capital Markets and Investments* by Siddhartha Dastidar (an adjunct professor at Columbia) is not as detailed as BKM but closely tracks our course material and may be a useful reference.

The following textbooks, which are *not required*, offer more detail on some of the topics we cover in class.

There are 2 textbooks which get into more detail on the fixed income portion of the course:

- *Fixed Income Securities: Tools for Today's Markets*, by Bruce Tuckman
- *Fixed Income Markets and Their Derivatives*, by Suresh Sundaresan

For the options part of the course, take a look at the all-time classic introductory book on options:

- *Options, Futures and Other Derivatives*, by John Hull

All 3 books deal with pretty advanced topics, but the introductory parts are quite good, and they are full of really great institutional detail on how these markets actually work.

IV GRADING, ASSIGNMENTS, AND EXAMS

The course grade will be based on cases, problem sets, class participation, an in-class midterm and an in-class final exam. The components of the grade are as follows:

Cases	15%
Problem sets	25%
Class participation and weekly quizzes	15%
Midterm exam	20%
Final exam	25%

ASSIGNMENTS

Groups. Cases and problem sets should be done in **groups of 3 members** (MBA assignment type A). Students are responsible for organizing these groups and should add all group members to one of the Assignment Groups on Canvas. While you are encouraged to talk to other groups when working on cases and problem sets, the answers you hand in should be your own. I don't want to see two groups handing in identical analyses. Furthermore, you are *not allowed* to copy answers from prior years' case and problem set solutions.

Cases. There will be four case assignments, though the first is intended as a review and will not be graded. Each case will be distributed at least one class in advance and due by 10:45am on the due date. Cases and solutions will be available on Canvas. Because case solutions are discussed in class, late cases will not be accepted.

Problem sets. There will be six problem sets, though the first is intended as a review and will not be graded. Each problem set will be distributed one week in advance and will be due by 11:59pm on the due date. Problem sets and solutions will be available on Canvas.

Grading of cases and problem sets. Cases and problem sets will be graded on a 1–10 scale.

CLASS PARTICIPATION

Class participation and core culture. We will have regular class discussions about course material – active participation in these is encouraged and will contribute to your participation grade. You will also gain points by regularly attending class, by being prepared, and by being a good classmate.

Electronic devices. Please note that cell phones should be set to silent in class. (You will use them for in-class polls). Also it's okay to use laptops to take notes – but they should not be used for online

activities.

Weekly Canvas quizzes. Each week, students must take a short quiz on Canvas between Wednesday at 6pm and the following Monday at 10:45am. Each quiz consists of no more than three review questions based on the week's lectures and readings. Quizzes must be taken individually. Any books, references, computing or calculating equipment may be used. Quiz scores count toward the participation component of your grade. Solutions will be posted soon after quizzes are due. Quizzes are a great way to make sure you understand the key takeaways from the week's lectures.

EXAMS

Any books, references, computing or calculating equipment may be used.

- The midterm exam will be held in class on TBD at TBD.
- The final exam will be held in class on TBD at TBD.

The Office of Student Affairs (OSA) at the business school administers the exams, and they will announce the room assignments. If you need to reschedule either exam, please contact OSA to make the arrangements.

V REVIEW SESSIONS AND OFFICE HOURS

Optional review sessions, led by the course TAs, will be held almost every Friday (see calendar on Canvas) in TBD in Uris TBD. Review sessions will cover no new material, and will emphasize working through problems and answering student questions. In addition to review sessions, there will be regular office hours held by the TAs. You can also schedule a time to see me.

The first review session (TBD in Uris TBD) will be an overview of math and statistics concepts that will be useful for the course.

I will hold two special (optional) review sessions, one each before the midterm and final exam:

- TBD in Uris TBD
- TBD in Uris TBD

VI OUTLINE

*** Course and assignment schedule. *Subject to change.* ***

[DATES ARE NOT YET UPDATED FOR 2019]

Fall 2019	#	Section	Topic	BKM	Assign	Due Date
Wed Sep 05	1	Intro1	Overview, role of markets, stocks versus bonds	1, 2	Case 0	Mon Sep 17
Mon Sep 10			-- No class --			
Wed Sep 12	2	Intro2	What are rates, NPV and no-arbitrage	3, 14		
Mon Sep 17	3	Intro3	Silver Inc, leverage and shorting	3	PS 0	Fri Sep 28
Wed Sep 19			-- No class --			
Mon Sep 24	4	FI1	Bond intro, zeros, coupon bonds, spot rates	14		
Wed Sep 26	5	FI2	Bond yields and term structure	15	PS 1	Fri Oct 05
Mon Oct 01	6	FI3	Term structure and forward rates	5, 15		
Wed Oct 03	7	FI4	Duration and immunization	16	Case 1	Wed Oct 10
Mon Oct 08	8	FI5	Interest rate risk and immunization	16, 14	PS 2	Mon Oct 15
Wed Oct 10	9	FI6	Century Case, credit risk	14		
Mon Oct 15	10	PC1	Credit risk, intro to equities and long-run performance	5, 18		
Wed Oct 17			Midterm Exam -- 3pm			
Wed Oct 24	11	PC2	Valuations	5, 18	PS 3	Fri Nov 02
Mon Oct 29	12	PC3	Portfolio math, optimization and diversification	6, 7		
Wed Oct 31	13	PC4	Mean-variance efficient portfolios and the CAPM	8, 9	PS 4	Mon Nov 12
Wed Nov 07	14	PC5	Using the CAPM	9		
Mon Nov 12	15	PC6	CAPM uses and anomalies	10, 13	Case 2	Tue Nov 20
Wed Nov 14	16	Eff1	Multifactor models and performance evaluation	4, 11, 24		
Mon Nov 19	17		<i>Guest Speaker: TBD</i>			
Mon Nov 26	18	Eff2	Performance evaluation and efficient markets	11		
Wed Nov 28	19	Deriv1	Option introduction and payoffs	20	PS 5	Fri Dec 07
Mon Dec 03	20	Deriv2	Put-call parity and the binomial model	21		
Wed Dec 05	21	Deriv3	Black-Scholes valuation	21	Case 3	Mon Dec 10
Mon Dec 10	22	Deriv4	Options applications	21		
Fri Dec 14			Final Exam -- 3pm			

Key: Intro, FI=Fixed Income, PC=Portfolio Choice, Eff=Performance Evaluation and Market Efficiency, Deriv=Derivate Securities

<u>Assignment</u>	<u>Topic</u>	<u>Assignment</u>	<u>Topic</u>
Case 0	Silver Inc. -- NPV	PS 3	Dividend growth and efficient frontier
PS 0	Compounding, shorting, yields	PS 4	CAPM and L/S portfolios
PS 1	Bond arbitrage and forwards	Case 2	Factor models
Case 1	Century Bond -- duration	PS 5	Option basics and valuation
PS 2	Interest rate and credit risk	Case 3	Option compensation