

SLOAN SCHOOL OF MANAGEMENT  
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

Eben Lazarus

Spring 2023

**15.401 Managerial Finance, Sections C&D**

Syllabus: March 17, 2023

This course covers the fundamentals of modern financial analysis. The course is organized around three themes: (i) valuing an asset, project, or firm, (ii) raising capital, and (iii) managing risk. Topics include personal, firm, and social investment decisions, startup financing, risk analysis, and an introduction to security analysis and asset management. This course is a prerequisite for all other electives offered by the Finance Group.

## Registration

Sections C and D are for **Sloan MBA students and Sloan Fellows**. Undergraduates, non-MBA graduate students, and cross-registered students should register for Section A or B unless permission has been granted to register for C or D. For any issues with registration, please get in touch with course administrative assistant Mounir Djidel ([djidel\\_m@mit.edu](mailto:djidelm@mit.edu)).

## Class Schedule

Each section meets for lecture twice weekly:

- **Section C:** Monday/Wednesday, 10:00–11:30AM, E52-164.
- **Section D:** Monday/Wednesday, 1:00–2:30PM, E51-145.

All lectures run on MIT time.

## TAs: Recitations and Office Hours

The TAs will hold weekly recitations to review class material and go over practice problems. Recitation attendance is not required, but it is strongly encouraged and key to learning how to approach problem sets, cases, and exams. Note that there will only be **one recitation** per week.

- **TAs:** Ignacio Diez de Rivera ([id1@mit.edu](mailto:id1@mit.edu)) and Clarice Leaman ([cleaman@mit.edu](mailto:cleaman@mit.edu)).
- **Recitation:** Friday, 10:00–11:00AM, Zoom (<https://mit.zoom.us/j/94232315820>).
- **Office hours:** Tuesday, 12:00–1:00PM, E51-214, or by appointment.

## My Office Hours

Wednesday, 4:30–5:30PM, E62-633, or by appointment ([elazarus@mit.edu](mailto:elazarus@mit.edu)). If you'd like to meet on Zoom rather than in my office, please email me.

## Course Website

**Course Canvas site:** <https://canvas.mit.edu/courses/20058>.

All teaching materials, problem sets, lecture questions, and course announcements will be posted on the Canvas site. For case materials, see the sidebar labeled Study.Net Materials.

While the Canvas site is the main course site, we'll also be using Piazza as a class discussion forum. You can post questions there (anonymously if preferred), and our teaching team will respond as soon as we can. Students are also encouraged to respond to each other. You can access Piazza through the main course Canvas site, or using the following link: [https://piazza.com/mit/spring2023/15401\\_cd\\_sp23](https://piazza.com/mit/spring2023/15401_cd_sp23).

## Administrative Assistant

Abdel-Mounir Djidel: E62-571, [djidel\\_m@mit.edu](mailto:djidel_m@mit.edu). Please get in touch with Mounir with any administrative or logistical questions about the course.

## MBA Tutoring Program

The MBA Program Office (as part of the Core Tutoring Program) offers peer tutoring for MBA students looking for extra support in understanding the course materials, and will cover the cost of up to 8 total hours of tutoring for each MBA student in 15.401. Non-MBA students should consult their program office for available tutoring resources. To find a tutor, please visit: <https://mysloan.mit.edu/Programs/mba/Academic/tutoring/Pages/default.aspx>. For additional information, contact Kelly Nixon at [knixon@mit.edu](mailto:knixon@mit.edu).

## Course Requirements and Grading

Course requirements include regular attendance and participation in class, short lecture questions, three problem sets, four case write-ups, and the midterm and final exams. The following weights will be used to determine each student's overall course grade:

10%	Class participation
30%	Short lecture questions, problem sets, and case study write-ups
20%	Midterm exam
40%	Final exam

The open-book in-class midterm exam will be held on **Wednesday, March 15**. The open-book three-hour final exam will be held on **Monday, May 22 at 9:00AM (E51, 3<sup>rd</sup> floor)**. Please reserve these dates and schedule your interviews and travel plans accordingly.

## Class Participation and In-Class Expectations

Participation is an essential part of the course. Active discussions are expected throughout the term, with particular emphasis on participation during case discussions. Deeper

conceptual questions and comments during lecture will also be particularly rewarded in participation grades, but please don't hesitate to interrupt me with clarifying questions.

I understand that you have lives outside of class, but unless you have an approved accommodation, I will enforce that you not use devices during class. I'll distribute lecture slides at the beginning of class to facilitate following along without a computer.

## Lecture Questions, Problem Sets, and Cases

You may work on these assignments in groups of up to **four people**. Each student should submit their own responses to lecture questions and problem sets, while cases can be submitted jointly as a group. Late assignments will not be accepted.

- Lecture questions (e.g., LQ 1.1) will be posted before each class and administered online, to be submitted on Canvas **before the following lecture**. You are encouraged to do them as soon as you finish the lecture. Most LQs will be short review problems.
- There will be three assigned problem sets (e.g., PS 1) emphasizing practical implementations of course concepts. Problem sets are similar to exam questions, with the exception that problem sets may contain questions requiring Excel. The problem sets are typically due at **10:00PM on Sundays** via Canvas.
- There will be three assigned case study write-ups, each due at the start of class before we discuss the case. If you work with a group, you can all submit the same write-up, but please note who you worked with on your write-up. Case materials can be accessed on Canvas, in the sidebar labeled Study.Net Materials. I'll give further guidance on the form of the case write-ups before the first one is due.

## Exams

- The midterm and final exams do not test your ability to memorize or to use your calculator; instead, they probe your deeper understanding of the material. To prepare for the exams, you should review the slides together with your own class notes, the problem sets, and the sample exams. The final exam is cumulative.
- Exams are open book, but no laptops, smartphones, tables, etc. are allowed unless necessary as an approved accommodation. Aside from this, there are no restrictions on the notes you may bring to the exam. We recommend reviewing the course material in detail before the exam, as you will not generally have time to comb through all your lecture notes to find the relevant material for the exam questions.
- You must bring a dedicated calculator to the exam. Any scientific or graphing calculator is acceptable.
- Students can request to see their graded final exams after the end of the semester.
- If you have an approved disability accommodation, please let us know at least two weeks in advance of exams so that we can make arrangements.

## Additional Readings

We'll post optional additional readings on the course Canvas site to complement the material covered in lecture. We also encourage you to follow financial and macroeconomic news; MIT Libraries provide free access to the *Financial Times* and *Wall Street Journal*, among others. I also particularly like Matt Levine's free [newsletter](#) at *Bloomberg*. In addition to these resources, you may want to consult the following texts:

1. **Recommended Textbook:** R. Brealey, S. Myers, and F. Allen, *Principles of Corporate Finance*, 12<sup>th</sup> or 13<sup>th</sup> edition.
2. Z. Bodie, A. Kane, and A. Marcus, *Investments*, 10<sup>th</sup> or 11<sup>th</sup> edition. (This book focuses on capital markets, with a more thorough analysis of investments than the main text.)
3. B. Malkiel, *A Random Walk Down Wall Street*, 2019. (A good introduction to some basic ideas in investing.)

The course materials are meant to be self-contained, so the textbooks are not required. But they often provide detailed explanations for concepts covered in class, and can be a useful reference for anything you're finding challenging or would like to know more about.

## Covid Protocols

If you're not feeling well or if you've tested positive for Covid, do not come to class. Please let me and the TAs know you'll be missing lecture, and you'll be excused from class and given access to a lecture recording on the course site. These lecture recordings will not in general be made available: other than for excused absences, the class is fully in-person.

## Course Values, Environment, and Accommodations

You are responsible for upholding Sloan's code of conduct, which mandates zero tolerance for cheating and plagiarism. For more details on Sloan's academic policies, please see the "Student Resources" page on the course site.

Just as you're required to follow the course requirements and code of conduct, I'm responsible for ensuring a healthy and supportive class environment. If you're facing any difficulties inside or outside of class, please feel free to speak to me, or contact GradSupport (<https://oge.mit.edu/student-support-development/gradsupport/>) or the Sloan Student Life Office. And please let me know if you need (or think you might need) any disability-related accommodations (and if you haven't done so, I encourage you to contact [Student Disability Services](#) as soon as you can).

## Course Schedule

This is an approximate schedule for the course; some material may take more or less time to cover than allotted below. The lecture questions are numbered so that, e.g., LQ 4.2 means Unit 4, Lecture Question 2.

Session	Date	Day	Topic	Assignment
1	2/6	M	Introduction	
2	2/8	W	Net Present Value 1	LQ 1.1 (Due 2/13)
	2/10	F	<i>No Recitation (First Week)</i>	
3	2/13	M	Net Present Value 2	LQ 1.2 (Due 2/15)
4	2/15	W	Capital Budgeting 1	
	2/17	F	Recitation: Net Present Value	PS 1 (Due 2/19)
	2/20	M	<i>No class: Moved to Tuesday</i>	
5	2/21	T	Capital Budgeting 2	
6	2/22	W	Stocks	LQ 3.1 (Due 3/1)
	2/24	F	Recitation: Capital Budgeting	
7	2/27	M	Case: Tottenham Hotspur	Case 1 (Due in Class)
8	3/1	W	Bonds 1	Feedback (Due 3/6)
	3/3	F	Recitation: Stocks & Bonds	PS 2 (Due 3/9)
9	3/6	M	Bonds 2	
10	3/8	W	Capital Structure	LQ 5.1 (Optional)
	3/10	F	Recitation: Capital Structure & Review	
11	3/13	M	Midterm Review	
12	3/15	W	<b>In-Class Midterm Exam</b>	
	3/17	F	<i>No Recitation</i>	
	3/20	M	<i>No Class (SIP Week)</i>	
	3/22	W	<i>No Class (SIP Week)</i>	
	3/24	F	<i>No Recitation (SIP Week)</i>	
	3/27	M	<i>No Class (Spring Break)</i>	
	3/29	W	<i>No Class (Spring Break)</i>	
	3/31	F	<i>No Recitation (Spring Break)</i>	

Session	Date	Day	Topic	Assignment
13	4/3	M	Financing a Startup	LQ 6.1 (Due 4/5)
14	4/5	W	Case: Capital Structure at CPK	<i>(No Write-Up Due)</i>
	4/7	F	Recitation: Midterm Wrap-Up, Startups	
15	4/10	M	Case: Strava	Case 3 (Due in Class)
16	4/12	W	Diversification 1	LQ 7.1 (Due 4/19)
	4/14	F	Recitation: Diversification 1	
	4/17	M	<i>No Class (Patriot's Day)</i>	
17	4/19	W	Diversification 2	LQ 7.2 (Due 4/24)
	4/21	F	Recitation: Diversification 2	
18	4/24	M	Risk and Return 1	LQ 8.1 (Due 4/26)
19	4/26	W	Risk and Return 2	
	4/28	F	Recitation: Risk and Return	PS 3 (Due 4/30)
20	5/1	M	Hedging Basics & Data Exercise	
21	5/3	W	Options 1	LQ 9.1 (Due 5/8)
	5/5	F	Recitation: Options	
22	5/8	M	Options 2	LQ 9.2 (Due 5/12)
23	5/10	W	Case: Cost of Capital at Ameritrade	Case 4 (Due in Class)
	5/12	F	Recitation: Final Review	
24	5/15	M	Final Review	

**The three-hour, open-book final exam will be held Monday, May 22, 9:00AM–12:00PM, on the third floor of Building E51 (specific classroom assignments to be announced).**

## Course Outline

Chapters listed below refer to the main course textbook: Brealey, Myers and Allen (12<sup>th</sup> or 13<sup>th</sup> edition).

### Introduction

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Introduction to Finance and Course Overview (Lecture 1) Chap. 1

- Big picture: finance from the user's perspective (households, businesses, financial markets and institutions).
- Fundamental principles of finance: money today vs. tomorrow, risk aversion, absence of arbitrage, incentives for crowdsourcing and collaboration.

### Part A. Valuing an Asset, a Project, or a Company

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Net Present Value (2 – 3) Chap. 2

- Present value vs. future value, annuities, perpetuities.
- Applications to mortgages, refinancing, basic financial projections for business plans.
- Real vs. nominal cash flows.

Capital Budgeting (4 – 5) Chap. 5, 6

- NPV rule, cash flow, calculations, discount rates.
- Alternatives to NPV: payback period, IRR.

Case: Tottenham Hotspur (7)

## Part B. Raising Capital

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Stocks (6)

Chap. 4

- Equity markets.
- Discounted Cash Flow (DCF) method applied to stock valuation.

Bonds (8 – 9)

Chap. 3, 23, 24

- Fixed-income markets.
- Term structure of interest rates.
- Properties of bond prices and market conventions.

Capital Structure (10)

Chap. 17

- Weighted average cost of capital.

Financing a Start-Up (13)

Chap. 15

Case: CPK (14) & Strava (15)

Midterm Review (11)

**Midterm Exam (in class, open book). Date: Mar. 15.**



## Part C. Managing Risk

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Diversification (16 – 17)

Chap. 7

- Systematic and idiosyncratic risks.
- Portfolio optimization.

Risk and Return (18 – 20)

Chap. 8

- Applications of the CAPM.
- Empirical evidence and extensions of the CAPM.

Options and Hedging (20 – 22)

Chap. 20 – 22, 26

- Hedging basics.
- Basic properties of options: payoff diagrams, Black-Sholes formula, binomial option pricing.
- Real options.

Case: The Cost of Capital at Ameritrade (23)

Empirical Finance & Other Topics (20)

## Conclusion

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Final Review (24)

- Open topics for next courses: optimal capital structure, the price of risk, the cost of derivatives, portfolio management.

**Final Exam (open book). Date: May 22.**