

**SLOAN SCHOOL OF MANAGEMENT
MASSACHUSETTS INSTITUTE OF TECHNOLOGY**

Andrew W. Lo

Fall 2018

15.401 Managerial Finance

This course covers the fundamentals of modern financial analysis that are essential to any manager, entrepreneur, investor, or other business professional. This course is organized around three themes: (i) valuing a company, (ii) raising capital, and (iii) managing risk. Topics include personal and corporate investment decisions, startup financing, risk analysis, and an introduction to security analysis and asset management. This course is a prerequisite for all other finance electives offered by the MIT Sloan Finance Group.

Class Schedule

The class meets twice per week: MW 2:30pm to 4:00pm, E62-276.

Recitations

The TA, Zied Ben Chaouch ziedbc@mit.edu, will hold recitations where class material will be reviewed and additional applications and exercises presented. **Recitation sessions will take place on Tuesdays 4:00pm to 5:00pm, room E51-151.**

Course Website: <https://mit.instructure.com/courses/753>

Office Hours

Prof. Lo and Zied Ben Chaouch will hold regular office hours, and the times and locations will be announced on the course website.

Tutoring

Extra help is available through the Core Tutoring Program:

(<https://mysloan.mit.edu/Programs/mba/Academic/tutoring/coretutoring/Pages/default.aspx>)

Administrative Assistant

Crystal Myler, E62-611, (617) 715-4840, cmyley@mit.edu.

Course Requirements and Grading

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

5%	Class Participation
25%	Short Questions, Problem Sets, and Case Study Write-Ups
25%	Midterm Exam
45%	Final Exam

The closed-book in-class midterm exam will be on October 29th, and the closed-book final exam will be given on the MIT-scheduled final exam date (week of December 17 to 21, precise date not yet assigned)—please reserve these dates and schedule your interviews and travel plans accordingly.

Course Materials

- **Class Notes and Recitation Notes.** Notes will be available on the course website. They contain material not found in Brealey, Myers, and Allen, and provide alternate perspectives on the major themes of the course.
- **Problem Sets and Case Assignments.** Problem sets and case assignments will be available on the course website
- **Online courses** (e.g., Excel, PowerPoint, Financial and Valuation Modeling, Interview Prep, etc.) are available through www.wallstreetprep.com.

Additional Readings (not required)

Recommended Textbook: R. Brealey, S. Myers, and F. Allen (BMA), *Principles of Corporate Finance*, 12th edition, Irwin/McGraw Hill, 2017.

Z. Bodie, A. Kane, and A. Marcus (BKM), *Investments*, 11th edition, Irwin/McGraw Hill, 2017.

- BKM focus exclusively on capital markets. They provide a more rigorous and thorough analysis of investments than Brealey, Myers, and Allen.

B. Malkiel, *A Random Walk Down Wall Street*, 2015.

- This best-selling introduction to investing is now in its 11th edition and is as popular as ever because of its entertaining style and sage advice. This is a great way to ease into financial markets, particularly for those who are not financially inclined.

P. Bernstein, *Capital Ideas*, Free Press, 2005.

- Bernstein was one of the most well-respected and influential practitioners in the financial industry, and the founding editor of the *Journal of Portfolio Management*. This is a lively and beautifully written account of the most important ideas in academic finance, many of which were developed at MIT in the 1960's and 1970's.

Staying Up to Date

You are encouraged to follow financial and macroeconomic news in the *Financial Times*, *Wall Street Journal*, or *The Economist*.

Exams

The midterm and final exams will test your understanding of the key class concepts. They do not test your ability to memorize or to use your calculator; instead, they probe your deeper understanding of the material. As a result, they may be more challenging than the exams you are used to. To prepare for these exams, you should review the slides together with your own class notes, the required readings, the problem sets, the sample exams, and preferably the suggested readings. The final exam is cumulative.

You will be allowed one double-sided page of notes at the midterm exam and two double-sided pages of notes at the final exam. The sheets must be no larger than 8.5"×11". There are no restrictions on the contents, other than they have to be readable with the naked eye (no microfiche allowed!).

If you must miss an exam, you will be required to make it up after the semester is over. No laptops, Palm pilots, iPhones, Blackberries etc. are allowed during the exam.

Students can request their graded final exams after the end of the semester.

Short Questions, Problem Sets, and Cases

Short questions or problem sets will be posted before each class and administered online. There will be four problem sets and four cases over the course of the semester. Short questions, problem sets and cases are due at the beginning of class—late assignments will not be accepted. You also need to acknowledge any help you received in your work. The exam questions will have the same format as the problem sets.

Sloan Values

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 read the document *Classroom Values in Practice* which is available on the course website.

Course Schedule

This is an approximate schedule for the course; some material may take longer or shorter to cover than the time allotted.

<u>Lecture</u>	<u>Date</u>	<u>Topic</u>	<u>Assignment Due</u>
1	9/5	Introduction	
2	9/10	Net Present Value 1	Lecture Question
	9/11	<i>Recitation: Net Present Value</i>	
3	9/12	Net Present Value 2	Lecture Question
4	9/17	Capital Budgeting 1	Problem Set 1
	9/18	<i>Recitation: Excel for Finance</i>	
5	9/19	Capital Budgeting 2	Lecture Question
6	9/24	Case 1: Tottenham Hotspur	Case 1 Due; Lecture Question
	9/25	<i>Recitation: Capital Budgeting</i>	
7	9/26	Bonds 1	
8	10/1	Bonds 2	Lecture Question
	10/2	<i>Recitation: Bonds</i>	
9	10/3	Stocks	Problem Set 2
	10/8	Columbus Day – No Class	
	10/9	<i>Columbus Day – No Recitation</i>	
10	10/10	Capital Structure	
	10/11	<i>Recitation: Stocks & Capital Structure (Lecture room TBD)</i>	
11	10/15	Case 2: UST	Case 2
	10/16	<i>Recitation: Midterm Review</i>	
12	10/17	Financing a Startup	
	10/22	SIP Week – No Class	
	10/24	SIP Week – No Class	
13	10/29	In-Class Midterm Exam	
	10/30	<i>Recitation: Midterm Solution</i>	

<u>Lecture</u>	<u>Date</u>	<u>Topic</u>	<u>Assignment Due</u>
14	10/31	Case 3: Strava	Case 3
15	11/5	Diversification 1	
	11/6	<i>Recitation: Diversification</i>	
16	11/7	Diversification 2	Lecture Question
	11/12	Veteran's Day – No Class	
	11/13	<i>Recitation: Diversification</i>	
17	11/14	Risks and Returns 1	Problem Set 3
18	11/19	Risks and Returns 2	Lecture Question
	11/20	<i>Recitation: Risks and Returns</i>	
	11/21	No Class	
19	11/26	Case 4: Ameritrade	Case 4
	11/27	<i>Recitation: Risks & Returns</i>	
20	11/28	Options 1	Lecture Question
21	12/3	Options 2	Lecture Question
	12/4	<i>Recitation: Options</i>	
22	12/5	Options 3	Problem Set 4
23	12/10	Adaptive Markets Hypothesis	
	12/11	<i>Recitation: Options</i>	
24	12/12	The Future of Finance and the Finance of the Future	
	12/xx	Final Exam (please check date with Registrar)	

Course Outline

Electronic copies of the relevant chapters of BLM will be provided during the semester.

INTRODUCTION

9/5	Introduction to Finance and Course Overview	BMA 1
	<ul style="list-style-type: none">▪ Big picture: finance from the user's perspective▪ Fundamental principles of finance	

PART A. VALUING COMPANY

9/10, 9/12	Present Value	BMA 2
	<ul style="list-style-type: none">▪ Online lectures on present value/future value,▪ Applications to mortgages, refinancing, basic▪ Real vs nominal cash flows	
9/17, 9/19	Capital Budgeting	BMA 5-6
	<ul style="list-style-type: none">▪ NPV rule, cash flow calculations, discount rates▪ Alternatives to NPV: payback period, IRR	
9/24	Case 1: Tottenham Hotspur	

PART B. RAISING CAPITAL

9/26, 10/1	Bonds	BMA 3, 23, 24
	<ul style="list-style-type: none">▪ Fixed-income markets▪ Term structure of interest rates▪ Properties of bond prices and market conventions	
10/3	Stocks	BMA 4
	<ul style="list-style-type: none">▪ Equity markets▪ Discounted Cash Flow (DCF) model	
10/10	Capital Structure	BMA 17-18
	<ul style="list-style-type: none">▪ Capital structure▪ Weighted average cost of capital,	
10/15	Case 2: UST	
10/17	Financing a Startup	BMA 15
10/29	Mid-Term Examination (in-class, closed-book)	
10/31	Case 3: Strava	

PART C. MANAGING RISK

11/5, 11/7	Diversification <ul style="list-style-type: none">▪ Systematic and idiosyncratic risks▪ Portfolio optimization	BMA 7
11/14, 11/19	Risks and Returns <ul style="list-style-type: none">▪ Applications of the CAPM▪ Empirical evidence and extensions of the CAPM	BMA 8–9
11/26	Case 4: Ameritrade	
11/28, 12/3, 12/5	Introduction to Derivatives: Options <ul style="list-style-type: none">▪ Basic properties of options (payoff diagrams and Black and Scholes formula, binomial option pricing)▪ Counterparty risk▪ Real Options	BMA 20–21
12/10	The Efficient Markets Hypothesis and Human Behavior <ul style="list-style-type: none">▪ Informational efficiency and market rationality▪ Behavioral anomalies▪ The Adaptive Markets Hypothesis	BMA 13

CONCLUSION

12/12	Parting Words <ul style="list-style-type: none">▪ The future of finance and the finance of the future▪ Ethics and the financial industry▪ Open questions for next courses	
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12/xx	FINAL EXAM (closed-book); <i>please check with Registrar for date</i>
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