

# MSx FINANCE

Fall 2017

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## **SYLLABUS**

### **OBJECTIVE**

This course covers the foundations of finance with an emphasis on financial-decision making. We will discuss many of the major financial decisions made by corporations and investors. Essential in most of these decisions is the process of valuation, the discussion of which will be an important emphasis of the course. Topics include criteria for making investment decisions, valuation of financial assets and liabilities, relations between risk and return, market efficiency, capital structure choice, payout policy, the effective use and valuation of derivative securities, such as options and convertible securities), real options, and risk management. The course is rigorous, but practical. Our goal is to understand general principles and then apply them in practically important scenarios.

Finance is a challenging topic – indeed, finance professors believe (rightly) that finance is the most challenging topic taught in business schools ☺. Although challenging, this course will be fun and in particular will consist of fun games – that may help you understand the tricks of finance better than solid textbooks. Welcome to finance fun!

### **FORMAT AND TEACHING METHODS**

There will be a reading assignment for each session as well as a case or other problems to prepare for some sessions. You should be prepared for each session by doing the reading and working on the assigned case or problems. Cold calling will be used.

### **STUDENTS RESPONSIBILITIES**

For GSB Audience only.

### **GROUP ASSIGNMENTS AND WORK**

For GSB Audience only.

### **TEXTBOOK, COURSE FOLDER, MATERIALS, AND READINGS**

The textbook for this course is

*Corporate Finance*, by Jonathan Berk and Peter DeMarzo, Fourth Edition, published by Pearson.

Other required readings are included in the syllabus or will be made available during the course.

If you are interested in some entertaining supplementary reading on financial markets, the following books can be of interest. The first is an informative book about the origins of modern finance:

*Capital Ideas: The Improbable Origins of Modern Wall Street*, by Peter L. Bernstein, 2005 Wiley edition.

The second is a well-known and enjoyable book that takes a pragmatic look at investing in the stock market:

*A Random Walk Down Wall Street*, by Burton G. Malkiel, 2007, 9<sup>th</sup> W.W. Norton & Company edition

### **COURSE ETIQUETTE**

For GSB Audience only.

### **TAs, FA, and REVIEW SESSIONS**

For GSB Audience only.

### **GRADING**

For GSB Audience only.

### **EXAMS**

For GSB Audience only.

## Session by Session Plan:

Please note that some cases and materials can be updated/changed. The new versions will be posted online and highlighted in class.

### Session 1:

#### Financial Decision-Making in Action or Why Do We Need Finance

##### **Background Reading:**

Chapter 2: Introduction to Financial Statement Analysis (2.1-2.4)

##### **Read:**

Chapter 4: The Time Value of Money

Chapter 8: Fundamentals of Capital Budgeting (8.1-8.2)

### Session 2:

#### Financial Analysis I: Golden Rules of Capital Budgeting

##### **Read:**

Chapter 3: Financial Decision Making and the Law of One Price (3.1-3.3)

Chapter 8: Fundamentals of Capital Budgeting (8.3-8.5)

##### **Prepare:**

Case: *Fancy Wines, Inc.*

### Session 3:

#### Financial Analysis II: Interest Rates and Return on Investment

##### **Read:**

Chapter 5: Interest Rates

Chapter 7: Investment Decision Rules (7.1-7.3)

### Session 4:

#### Interest Rates and Bond Valuation: How Bond Markets Tick

##### **Read:**

Chapter 3: Financial Decision Making and the Law of One Price (3.4-3.5)

Chapter 6: Valuing Bonds

##### **Prepare:**

Assignment: *Bond Valuation*

### Session 5:

#### Let's Reap What We Saw: How Not to Be Duped

##### **Prepare:**

Case: *Should you pay cash for a new car?*

**Group assignment to hand in:**

Case: *Should you pay cash for a new car?*

**ASSIGNMENT: GROUP SOLUTION TO BE SUBMITTED ONLINE NO LATER THAN 1 PM ON THE DAY OF THIS CLASS.**

**Session 6:**  
**Valuing the Firm**

**Read:**  
Chapter 9: Valuing Stocks

**Session 7:**  
**Risk and the Cost of Capital**

**Read:**  
Chapter 10: Capital Markets and the Pricing of Risk

**Session 8:**  
**What Finance Tells You about Portfolio Choice**

**Read:**  
Chapter 11: Optimal Portfolio Choice and the CAPM

**Session 9:**  
**Estimating the Cost of Capital**

**Read:**  
Chapter 12: Estimating the Cost of Capital

**Prepare:**  
Case: *Cost of Capital at Ameritrade*

**Session 10:**  
**Let's Reap What We Saw: Overview Case and Strategic Financial Decision-Making**

**Prepare:**  
Case: *Airbus A3XX*

**Group Assignment to hand in:**  
Case: *Airbus A3XX*

**ASSIGNMENT: GROUP SOLUTION TO BE SUBMITTED ONLINE NO LATER THAN 1 PM ON THE DAY OF THIS CLASS.**

**Session 11:**  
**How Do Firms Fund Investment**

**Read:**

Chapter 14: Capital Structure in a Perfect Market

**Session 12:**  
**Valuation with Taxes**

**Read:**

Chapter 15: Debt and Taxes

Chapter 18: Capital Budgeting and Valuation with Leverage (18.1-18.3)

**Session 13:**  
**Leverage and Financial Distress**

**Read:**

Chapter 16: Financial Distress, Managerial Incentives, and Information

Chapter 17: Payout Policy

**Session 14:**  
**Let's Rip What We Saw: Overview Case and Strategic Corporate Financial Policy**

**Prepare:**

Case: *Debt Policy at UST*

**Group assignment to hand in:**

Case: *Debt Policy at UST*

**ASSIGNMENT: GROUP SOLUTION TO BE SUBMITTED ONLINE NO LATER THAN  
1 PM ON THE DAY OF THIS CLASS.**

**Session 15:**  
**Futures, Forwards, and Options**

**Read:**

Chapter 20: Financial Options

Chapter 30: Risk Management (30.2)

**Session 16:**  
**The Beauty of Option Pricing**

**Read:**

Chapter 21: Option Valuation

**Session 17:**  
**Options in Real Life**

**Read:**

Chapter 22: Real Options

**Prepare:**

Case: *Arundel Partners*

**Session 18:**  
**Behavioral Finance: Judgment and Biases**

**Read:**  
Relax!

**Session 19:**  
**Let's Rip What We Saw: Application to Venture Capital**

**Read:**  
Materials will be shared before the class

**Session 20:**  
**What Is Missing In The Picture?**

**Read:**  
Relax!

We will discuss (important) topics and issues we have not covered in this introductory course

## **FANCY WINES, INC.**

### **Questions**

1. What are the key costs and benefits of the project?
2. Set up the cash flow spreadsheet and show how you get free cash flow.
3. What is the net present value?
4. You are Mr. Jonathan Walker: Would you recommend the Board that the company should proceed with investment opportunity based on your NPV analysis?
5. How does your decision change if discount rate changes to 10%? 14%? What if the starting price per bottle is \$55 not \$60? What happens if taxes increase to 42%?

## SHOULD YOU PAY CASH FOR A NEW CAR (LA Times)

Consider the LA Times article: “Should You Pay Cash for a New Car?” Assume, based on the information given in article that the cost of car is \$8,239.05, that the loan is given for 48 months at 14.2% APR, and that the savings rate is 8% APR. Note that this loan, as most consumer loans (mortgages, car loans), has equal payments over the life of the loan.

### Questions

1. What is the monthly payment Keppel will need to make on his car loan?
2. What is the “Total Interest Paid” (total payments minus the price) on the loan?
3. How much interest will he earn on his savings?
4. What is Sperling’s Rule? What is the right decision? Why?



## BOND VALUATION ASSIGNMENT

**CASE 1:** Consider the US Treasury note 2-Year Treasury Note with \$100 million face value, paying 2% coupon rate (in semi-annual payments). It was issued on September 30, 2008 and matures on Sept 30, 2010. It was sold for \$99.775954 (per \$100 face value) on September 30, 2008.

### Questions:

1. Draw a diagram showing the cash flows you should expect to receive from this security if you bought it on September 30, 2008
2. What was the yield to maturity of this note (assuming a semi-annual convention) on that day?
3. Did this note trade at premium, discount, or at par on that day?
4. If the price of the note increases to 100.025, what is the yield to maturity of the note?
5. What is the yield of this note when it is traded at par?

**CASE 2:** The table below gives the yields to maturity (annualized rate) of zero-coupon Treasury securities

Year	1	2	3	4
YTM (%)	3.306	3.975	5.156	5.737

### Questions:

1. What is the price of the Treasury bond that pays 10% annual coupon in each year 1 through 4 and the principal of \$1,000 in year 4?
2. What is the yield to maturity of this security?
3. If the market price of this security is \$1,137.50, could you make an arbitrage trade? If yes, then specify the details?

## **AIRBUS A3XX**

### **Case Questions**

1. Why is Airbus interested in building the A3XX? What are its objectives?
2. How many aircraft does Airbus need to sell in order to break even on the investment? Is this number greater or smaller than your estimate of total demand for very large aircraft (VLA) over the next 20 years?
  - a. Hint: Consider all capital providers as a single entity and calculate the break-even return to them collectively. To calculate the break-even number of planes, calculate the present value of the required investment and compare it to the present value of a growing perpetuity of cash flow from planes sales beginning in 2008.
3. What is the NPV? What is your decision based on the NPV analysis?
4. What are the most important assumptions you made to obtain NPV? Which assumptions are less reasonable?
5. As Boeing, how would you respond to this situation? How does your answer depend on what you think Airbus is likely to do?
6. You are the Airbus CEO. Should Airbus commit to building the A3XX? How many orders should Airbus have before committing to develop the plane?

## **COST OF CAPITAL AT AMERITRADE**

### **Questions**

1. What are Ameritrade's primary sources of revenue?
2. How risky are these cash flows? How are they related to the stock market?
3. How can the CAPM be used to estimate the cost of capital for a real investment decision?
4. What is the estimate of the risk-free rate that should be employed in calculating the cost of capital for Ameritrade?
5. What is the estimate of the market risk premium that should be employed in calculating the cost of capital for Ameritrade?
6. What do we use for beta?
7. What comparable firms do you recommend as the appropriate benchmarks for evaluating the risk of Ameritrade's planned advertising and technology investments?
8. How to estimate the asset betas of comparables?
9. What is the cost of capital?

## **NIKE**

Make sure you carefully explain your solution.

### **Questions**

1. Do you agree with Joanna Cohen's WACC calculation? Why or Why not? Provide as many reasons as possible.
2. If you do not agree with Joanna's analysis, calculate your own WACC for Nike. Justify all your assumptions.
3. What should Kimi Ford recommend regarding an investment in Nike?

## DEBT POLICY AT UST

Your job is to analyze the effect of leverage on UST, and to propose a recapitalization plan (or not). Throughout, ignore the effect of personal taxes as well as make other assumptions that you consider reasonable. Please list and justify all the assumptions that you make.

Note that this is a “soft” case: there is no one correct solution and your group should do your best to provide insightful and reasonable analysis of the situation. Grading will take into account your analysis and justification of your decisions and assumptions.

### Questions:

1. How well is UST doing?
2. What are the main sources of risk for UST cash flows?
3. Is the current capital structure of UST a good one? If yes, what are its main benefits? If not, why not? What might explain why UST has such a capital structure?
4. From the standpoint of credit analysts and potential bondholders, what are factors of importance when analyzing UST? What credit rating would you assign for a moderate addition of debt? (Note: Total interest expense on existing debt is \$7.3 million.)
5. Analyze the effects of \$0.5 billion and \$1.0 billion in new debt and concurrent share repurchase (and subtraction of equity). What happens to Earnings per share (EPS) in case of addition to debt? Why?
6. Summarize the likely costs and benefits of leveraging UST. Articulate and defend an “optimal” capital structure for UST. Should UST undertake a major recapitalization of the company?

## ARUNDEL PARTNERS

### Questions

1. Why do the principals of Arundel Partners think they can make profits buying movie sequel rights?
2. Comment on the proposed deal structure. For instance, why do they want to buy a portfolio of rights in advance rather than negotiating film-by-film? Does it make any difference to the value of the options if Arundel buys options from just one studio or from several? Would it make any difference to their value if Arundel were a large corporation rather than a small partnership?
3. Estimate the per-film value of a portfolio of sequel rights using several approaches, specifying the assumptions underlying each of them. Assume throughout that the nominal risk-free rate is 6% per annum.
  - a. First, simply compute the value the portfolio (i.e., at the time Arundel pays for the rights) using the traditional NPV approach, ignoring embedded options. Based on this method, how much should Arundel be willing to pay per sequel right?
  - b. Second, modify the NPV approach to try and account for the embedded option(s), explaining the nature of the option(s) you focus on. What is the implied value per right?
  - c. Third, use the Black-Scholes model, thinking carefully about the inputs. What is the implied value per right?
4. Is the selling of packages of sequel rights a good way to finance film production? What are its main pros and cons? What problems or disagreements would you expect Arundel and a major studio to encounter? What contractual terms and provisions would you suggest Arundel insist upon?
5. You are:
  - a. A partner in Arundel Partners: What contract will you offer to the movie studios
  - b. The CEO of a large movie studio. Are you ready to take Arundel's offer?