**Capital Markets – B7306-001-20171**

**Spring 2018**

**Saturdays**

**Uris 142**

**PROFESSOR MARK ZURACK and PROFESSOR MICHAELA PAGEL**

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**REQUIRED COURSE MATERIAL**

Investments

*Zvi Bodie, Alex Kane, and Alan J. Marcus, eleventh edition* (BKM)

Selected Readings are on electronic reserve and accessible through the Study.net (SN) and Library Reserves (LR) tabs in Canvas. The Yale case and GM case can be accessed by control clicking in the electronic version of the syllabus or single clicking in the Canvas folder class description where the case titles are referenced under the Readings heading. The article on Options Strategies can be accessed by clicking the Canvas “Files” tab and then clicking on the “D. Miscellaneous” folder.

**CONNECTION WITH THE CORE**

Capital Markets and Investments builds on knowledge from the Corporate Finance, Managerial Statistics, and Decision Models courses to understand asset valuation and investment decisions. Capital markets uses and builds upon the basic valuation tools developed in Corporate Finance such as arbitrage valuation, time value of money, understanding risk-return tradeoffs, the CAPM, and asset valuation. In analyzing various markets and assets, Capital Markets uses a large amount of material from Statistics, including the following: statistical modeling, random variables and distributions, parameter estimators, hypothesis testing, and regression. Optimization methods and stochastic modeling tools from Decision Models are also widely used, especially in portfolio construction and risk control. There are also some connections, though to a lesser degree, with Global Economic Environment especially in the Fixed Income Unit in discussing bond markets and the role of central banks and monetary policy.

**COURSE DESCRIPTION AND OBJECTIVES**

This course has two purposes: (1) To introduce the principles of asset valuation from an applied perspective, and (2) To introduce different techniques to manage investment portfolios. It is designed to provide you sufficient background to understand current events in Global Markets, take more advanced Markets classes in the school, as well as give you a framework to manage your own assets.

The course breaks down into four areas:

Asset Allocation – Reviews different quantitative techniques used to measure returns and risk. Compares long term behavior of different asset classes and how investors allocate their wealth across Asset Classes.

Equity Markets – Covers theory on valuing individual stocks as well as constructing stock portfolios. We also touch on the different forms of both active and passive investing.

Fixed Income Markets – Teaches basic bond valuation focusing on the term structure of interest rates as well as notion of forward rates as well as the evaluation of credit and call risk.

Derivatives Markets – The valuation and use of futures and options markets are introduced.

The materials will be delivered through a combination of lectures, guest speakers, case studies and readings.

**ASSIGNMENTS**

**All assignments must be completed in writing with hard copies handed in before class.** Some assignments will be Type A, some Type B.

For Type A assignments, each student must participate in a group discussion regarding the assignment before submission and review and if needed edit the final submission. **Collaboration across groups is not allowed.**

For Type B assignments, each student should attempt to answer the questions on their own before collaborating with other students. Each student should hand in their own submission for Type B assignments.

**METHOD OF EVALUATION**

|  |  |
| --- | --- |
| Class Participation and Assignments | 40% |
| Equities Exam (take home) | 20% |
| Fixed Income Exam after Class 8 | 15% |
| Final Project | 25% |

An important component of Class Participation is attendance which will be tracked. I reserve the right to downgrade (including failing) any student who misses a significant number of classes, or does not complete all of the assignments. I will try to avoid cold calling, with the exception being case discussions. During class, please do not use laptops, tablet computers, and smartphones. Exceptions will be made with my prior approval.

Notice that there is a Final Project in the Method of Evaluation. The Final Project is an oral presentation in response to a case study I will hand out toward the end of the semester. Each group will meet with me for 20 minutes at a mutually convenient time to present your project. Attendance is mandatory.

**PRE-RECORDED CLASSES**

As part of a course I recently taught, I pre-recorded four classes that are part of Capital Markets.

All of the material covered in these classes will be discussed LIVE in class. However, feel free to use the following pre-recorded classes as review material if needed.

**Pre-recorded Class 1:** The Tools of Investing

This class begins by exploring the metrics used to evaluate public investments. We go over return measures like Arithmetic and Geometric averages, and risk measures like Variance, Standard Deviation and Correlation.

**Pre-recorded Class 2:** Portfolio Construction, Beta, Systematic and Non-Systematic Risk

In this class, we review the calculations used in the Portfolio section of Equities.

**Pre-recorded Class 3:** Introduction to Fixed Income Markets and Bond Pricing

We review the different types of securities that exist in fixed income markets. Then we show why a bond’s price must be the present value of its coupons and return of principal. We review the relationship of prices and yields.

**Pre-recorded Class 4:** Options Introduction

In this class I describe the workings of the options market and introduce strategies and valuation.

**COURSE OUTLINE**

1. The Tools of Investing/Asset Allocation (01/20 - 12:30pm-3:30pm)

After a brief discussion on the structure of the course, the class begins by exploring the metrics used to evaluate public investments. We go over return measures like Arithmetic and Geometric averages, and risk measures like Variance, Standard Deviation and Correlation. We then define what an Asset Class is and the different Asset Classes used to construct an investment portfolio.

The class then explores the process of determining what percent of an overall portfolio should be allocated to each asset class. This requires understanding not only the returns and risk of each asset class, but also how the correlation of different asset classes affects the overall risk of the portfolio.

Readings:

* Chapter 5, pp. 126-136, BKM
* Glossary, BKM
* Issues in Strategic Asset Allocation (Litterman, Robert B.), pp. 104-109 (SN)
* Hedge Funds 101 (Schwager, Jack D.), Part Two: Hedge Funds as an Investment, Chapter 11, pp. 195-210 (click on “Click here for full text” on the Reserves page) (LR)

2. Asset Allocation/Finding Alpha in Equities Markets (01/27 – 3:45pm-6:45pm)

After completing our discussion on Asset Allocation, the class moves onto Equities Markets. We start by describing how Active Equity Investors generate Alpha, that is outperformance versus their Passive counterparts. This discussion begins with a review of the Divided Discount Model.

Readings:

* Chapter 18, pp. 569-581, BKM

Assignments:

Assignment (1) – Asset Allocation Introduction (Type B)

3. Case Study/Equities Markets (02/03 – 3:45pm-6:45pm)

By studying the issues faced by the Yale Endowment Fund in developing an asset allocation strategy the second half of the class attempts to give you a real world perspective on how both institutions and individuals construct investment portfolios.

During the second half of the class we expand on the Finding Alpha discussion with the help of a guest speaker.

Readings:

* [Yale University Investments Office: February 2015 (Lerner, Josh)](https://cb.hbsp.harvard.edu/cbmp/pl/73942689/73942691/67efeb688d84e2bbff76cb26196d3b37)

(<https://cb.hbsp.harvard.edu/cbmp/pl/73942689/73942691/67efeb688d84e2bbff76cb26196d3b37>)

* [The Yale Endowment 2016 (Yale University)](https://static1.squarespace.com/static/55db7b87e4b0dca22fba2438/t/578e41ffe58c629352d7560a/1468940803516/Yale_Endowment_15.pdf) (LR)
* Norway: The New Yale? (Zweig, Jason) (LR)

Assignments:

Assignment (2) – Questions on Yale Case (Type A)

Guest Speaker: Katherine Hensel

4. Going from Stocks to Portfolios (02/10 – 12:30pm-3:30pm)

In this class we explore the process of constructing an investment portfolio. We start by reinforcing the virtues of diversification then describe how portfolios are constructed. We explore the Capital Asset Pricing Model (CAPM), a theory which is the basis of modern investing. We then discuss how investment managers who do not believe the market is efficient use quantitative techniques to optimally trade off risk and return.

Readings:

* Chapter 9, pp. 277-288 - BKM
* The Arithmetic of “All-In” Investment Expenses (Bogle, John C.) (LR)
* If You Can’t Beat ‘Em (Silver, Nate) Chapter 11, pp. 329-369 (SN)
* Why Did Wall Street Crash and Warren Buffet Prosper? (Cain, Susan) Chapter 7, pp. 155-177 (SN)
* Investor, Know Yourself (Statman, Meir) (LR)

Assignments:

Assignment (3) – Equity Valuation (Type B)

5. Equity Indices/Key Concepts in Fixed Income Markets (02/24 - 12:30pm-3:30pm)

This class completes the Equities Section of the course by reviewing Equity Indices. Then we move on to Fixed Income. Professor Michaela Pagel will provide all Fixed Income materials for classes 5-8. We start by reviewing key concepts (for instance No-arbitrage and Shorting).

Readings:

* GM Asset Management and Martingale’s Low Volatility Strategy (<https://www8.gsb.columbia.edu/caseworks/ProfessorMarkZurack/11d70>)

Assignments:

Assignment (4) – Portfolio Analysis, Martingale Case (Type A)

**Exams: Equities Exam handed out**

6. Treasury Pricing/Term Structure of Interest Rates (03/03 – 8:30am-11:30am)
We now start with an introduction to the Treasury market and pricing of Treasury bonds. We then move on to discussing the Term Structure of Interest Rates. We will also learn how to price Forwards.

* Chapter 14 and 15 – BKM

7. Interest Rate Risk (Derivation)/Risk Management (Immunization) (03/10 – 8:30am-11:30am)
The class moves on to discussing Interest Rate Risk and the concept of Duration as well as how to manage Interest Rate Risk and immunize bond portfolios.

* Chapter 16 – BKM

**Exams: Equities Exam due**

8. Fixed Income Review/Corporate Bonds (03/24 – 12:30pm-3:30pm)
We will review the bond section of Capital Markets and Mark Zurack will give an Introduction to Corporate Bonds and how to price credit and call risk.

**Exams: Fixed Income Exam handed out**

9. Exchange Traded Funds, Futures and Swaps (04/07 – 8:30am-11:30am)

We now move on to the last portion of the course, Derivatives. We start with an overview of Exchange Traded Funds, one of the great financial innovations in the 21st century. We then explore the trading and valuation of Equity Futures and Swaps. My discussion on Futures will focus on Stock Index Futures, with specific discussion focusing on how futures are traded and valued.

Our discussion on Equity Swaps will focus on how to leverage long positions on individual stocks and establish short stock positions.

Readings:

* Chapter 3, pp. 78-82; Chapter 22, pp. 747-761
* Mechanics of the Equity Lending Market (Cohen, Jeff), Chapter 2, pp. 9-16 (SN)

**Exams: Fixed Income Exam and Problem Sets due (April 8th due by 10pm EST)**

10. Introduction to Options/Options Valuation (04/14 – 12:30pm-3:30pm)

The class moves on to Options, starting with basic strategies and valuation. Although options pricing can be complex, I try to provide you intuition on what drives pricing leaving out the higher mathematics.

Readings:

* Chapter 20, pp. 657-667; 675-678; Chapter 21, pp. 699-706 – BKM

11. Options Strategies/Fixed Income Securities with Embedded Options (04/21 – 12:30pm-3:30pm)

After completing Options Valuation, this class presents a broad overview of the Options strategies most frequently followed by investors.

We then explore different types of Fixed Income Securities and Derivatives, specifically Structured Notes, Credit Default Swaps, Callable Bonds and Convertible Bonds.

Readings:

* Chapter 20, pp. 667-675 - BKM
* Tutorial on Using Options in Active Strategies (Tsu, Maria E.) (Canvas Misc Files)

Assignments:

Assignment (6) – Futures, Swaps and Options Valuation (Type B)

12. Trading/Market Events (04/28 – 1:30pm-4:30pm; classroom TBD)

The course ends with trading followed by a broad discussion on the future of Capital Markets. We start with a review of who the main participants are in trading equities and bonds and what function they serve. We then cover how to trade, focusing on the different types of orders that are placed and where those orders are executed. We end with a discussion on market events that show some of the vulnerabilities in the Capital Markets.

Readings:

* Chapter 3, pp. 62-73 – BKM
* Findings Regarding the Market Events of May 6, 2010 (CFTC & SEC), Executive Summary only, pp. 1-8 (LR)
* Enhancing Our Equity Market Structure (White, Mary Jo)