Introduction to the Capital Markets Class

- The capital markets class provides a structure for thinking about financial markets and the pricing of financial securities using, where possible, the perspective of personal investing
  - The financial securities that are studied and priced include stocks, bonds, futures
    - Options are also studied within the context of alternative investment strategies
- The class uses case studies to examine issues in the selection and implementation of different investment strategies
  - In the process, the class also examines current research about the pricing of financial securities and their applications to investing
- As part of the class, students will analyze their investment portfolios. For those who do not have an investment portfolio they will be instructed how to create one
  - This investment analysis will be spread out across three or four individual cases and three trading simulations
Capital Markets and Personal Investing

- Particular personal investing topics that will be covered include:
  - How to determine the investments in your retirement account
  - The costs of investing in mutual funds
  - Mutual funds vs. exchange traded funds
  - Indexed funds vs. actively managed funds
  - Hedge funds vs. mutual funds
  - How to select bond, real estate, and other types of mutual funds
  - A discussion of small firm, value, growth, quality, dividend, low-volatility, and momentum investments and their rationale
  - Learning what a smart beta fund is and whether and how to invest in them
  - The rationale behind derivative investments
Course Outline and Cases
Course Outline

- The class is divided up into eight modules
  - A module represents the collection of material for a specific financial topic(s), not a class period or class week
    - Most modules will have a problem set or a case
- This is the list of the topics, readings, and cases that will be covered for each module
Module 1: Introduction

- Perspective of class
- Risk and return
  - Stocks
  - Bonds
- Introduction to trading
  - Margin trading
  - Short sales
  - Market and limit orders
- Who are you trading against?
  - Mutual funds
  - Hedge funds
  - High-frequency traders
  - Dealers and brokers
- Readings:
  - The Wolf Hunters of Wall Street
Module 1 Case

- **Exchange-Traded Funds at Vanguard**
  - Vanguard Group management, led by CEO John Brennan, was considering whether to launch exchange-traded funds (ETFs) in early 2000. ETFs, first created in the early 1990s, combined aspects of traditional mutual funds and closed-end funds. Because ETFs were exclusively index-tracking products, Vanguard, the largest index mutual fund company, had some potential expertise in managing ETFs. However, entering this market would present also unique challenges for Vanguard. Vanguard had a philosophy espousing low-turnover investing, while ETFs enabled short-term trading. The company would also need to develop a distribution network for ETFs. Finally, since Vanguard's mutual fund investors owned the company, management considered whether existing shareholders would benefit from an ETF product launch.

- **Learning objective:**
  - To educate students about how exchange-traded funds (ETFs) work, their differences from other types of funds, and the strategic issues for ETFs going forward.
Module 1 Portfolio Simulation

- In the first portfolio simulation students will create a portfolio of one stock exchange traded fund and one bond mutual fund
  
  - This will be a baseline portfolio that will be used as a performance benchmark for the other portfolios created during the quarter
Module 2: Advanced Modern Portfolio Theory

- Modern portfolio theory
  - Minimum-variance frontier
  - Capital allocation line and the tangent portfolio
  - Selecting the optimal portfolio with a utility function
- Rebalancing your portfolio across time
- Should you consider your home and investment?
- The role of taxes on your portfolio’s returns
- A discussion on how to determine what mutual funds you should invest in for your retirement account and how much to invest in each type of fund
  - Discussion of how much you should invest in bonds vs. stocks, as well as different types of bond and real estate mutual funds and ETFs
Module 2 Case 1

- **Choosing Mutual Funds for Retirement Accounts (A)**
  
  - Focuses on an individual's decision to participate in her firm's retirement plan and how to invest his contributions. Plan participants have a choice of 24 mutual funds with different investment strategies. Includes data from Morningstar on the composition and performance of the different funds and historical data.

  - **Subjects covered:**
    
    - Investments; Mutual funds; Pension plans; Personal finance; Retirement
Module 2 Case 2

- Creating Your Own Portfolio
  - This case is for students who do not currently have an investment portfolio. The case instructs students in how to create a hypothetical portfolio that they will analyze during the quarter.
  - **Learning objective:**
    - To expose students to the principals security selection
  - **Subjects covered:**
    - Asset allocation; Asset management; Portfolio management;
Module 2 Case 3

- **Optimizing Your Portfolio**
  - This case has you take your current investment holdings and then optimize the portfolio to increase its return while minimizing its risk. For those students who do not have an investment portfolio, the will use the portfolio they create in the “Creating Your Own Portfolio”
  
- **Learning objective:**
  - To expose students to the principals of portfolio theory

- **Subjects covered:**
  - Asset allocation; Asset management; Portfolio management;

- **Case reading:**
  - Vanguard’s Diversification Strategy
Module 2 Portfolio Simulations

- In two different trading simulations students will use their investment portfolios (including the portfolios created in the “Create Your Own Portfolio” case)

  - The first simulation has students buy their current portfolio
  
  - The second simulation has students buy their optimized portfolio from the “Optimizing Your Portfolio” case

- Across the term students will compare the performance of these two simulations to each other and to the baseline stock and bond portfolio created in the Module 1 simulation
Topic 1: Introduction to Financial Markets

- Realized returns vs. expected returns
- Risk
- Details on some financial instruments: Different types of bonds, different types of stocks
- Interest rate risk (duration)
- Credit risk
- Taxes and returns
- Primer on trading: Market orders and limit orders
- Buy-side market participants and their holdings: Households, mutual funds, dealers, brokers, hedge funds and high frequency traders

Readings:
- The Wolf Hunters of Wall Street
Topic 1 Case

- Exchange-Traded Funds at Vanguard
  - Vanguard Group management, led by CEO John Brennan, was considering whether to launch exchange-traded funds (ETFs) in early 2000. ETFs, first created in the early 1990s, combined aspects of traditional mutual funds and closed-end funds. Because ETFs were exclusively index-tracking products, Vanguard, the largest index mutual fund company, had some potential expertise in managing ETFs. However, entering this market would present also unique challenges for Vanguard. Vanguard had a philosophy espousing low-turnover investing, while ETFs enabled short-term trading. The company would also need to develop a distribution network for ETFs. Finally, since Vanguard's mutual fund investors owned the company, management considered whether existing shareholders would benefit from an ETF product launch.

- Learning objective:
  - To educate students about how exchange-traded funds (ETFs) work, their differences from other types of mutual funds, and the strategic issues for ETFs going forward.
Topic 1 Portfolio Simulation

- In the first portfolio simulation students will create a portfolio of one stock exchange traded fund and one bond mutual fund.
  - This will be a baseline portfolio that will be used as a performance benchmark for the other portfolios created during the quarter.
Topic 2: Advanced Modern Portfolio Theory

- Quick review of Fin 1 or Accelerated Corporate Finance (ACF) material on portfolio theory
- Introduction to portfolio theory for when you are considering investing in more than two assets
  - Minimum-variance frontier
  - Capital allocation line and the tangent portfolio
  - Selecting the optimal portfolio with a utility function
- Long term investing: Strategic investing (rebalancing) and tactical investing
- Effective of homeownership on investment portfolios
Topic 2 Case 1

- **Choosing Mutual Funds for Retirement Accounts (A)**
  - Focuses on an individual's decision to participate in her firm's retirement plan and how to invest her contributions. The (A) case focuses on which mutual funds the participant should invest in. Plan participants have a choice of 24 mutual funds with different investment strategies. Includes data from Morningstar on the composition and performance of the different funds and historical data. Uses Northwestern’s new 403(b) plan as its example.

- **Learning objective:**
  - To expose students to the concepts of Sharpe ratios and mutual fund/exchange-traded fund fees and their role in selecting investments.

- **Subjects covered:**
  - Investments; Mutual funds; Pension plans; Personal finance; Retirement savings; Mutual fund and exchange-trade fund fees; Sharpe ratios.
Topic 2 Case 2

- Creating Your Own Portfolio
  - This case is for students who do not currently have an investment portfolio. The case instructs students in how to create a hypothetical portfolio that they will analyze during the quarter.
  - **Learning objective:**
    - To expose students to the principals security selection
  - **Subjects covered:**
    - Asset allocation; Asset management; Portfolio management;
Topic 2 Case 3

- Optimizing Your Portfolio
  - This case has you take your current investment holdings and then optimize the portfolio to increase its return while minimizing its risk. For those students who do not have an investment portfolio, they will use the portfolio they create in the “Creating Your Own Portfolio”

- Learning objective:
  - To expose students to the principals of portfolio theory

- Subjects covered:
  - Asset allocation; Asset management; Portfolio management;

- Case reading:
  - Vanguard’s Diversification Strategy
Module 2 Portfolio Simulations

- In two different trading simulations students will use their investment portfolios (including the portfolios created in the “Create Your Own Portfolio” case)
  
  - The first simulation has students buy their current portfolio
  
  - The second simulation has students buy their optimized portfolio from the “Optimizing Your Portfolio” case

- Across the term students will compare the performance of these two simulations to each other and to the baseline stock and bond portfolio created in the Module 1 simulation
Topic 2: Using Derivatives in Your Portfolio

- Introduction to futures
- Discussion of mutual funds that include futures
- Review of option payoff diagrams from Fin I/ACF
- Option portfolio strategies: Protective puts, covered calls, collars, straddles, etc.
- Discussion of mutual funds that include options
 Topic 3 Simulation

- In this simulation students will take either their initial investment portfolio or their optimized portfolio and add futures or options to the portfolio to enhance the return of the portfolio and/or manage risk the risk of the portfolio.

- This portfolio will be compared to the other portfolios created during the term.
Topic 4: Factor Models

- Multifactor models
  - Fama-French three-factor model
  - Carhart four-factor model
  - Fama-French five-factor model
  - Three factor model for bonds

- Readings:
  - Characteristics, Covariances, and Average Returns
  - Dissecting Anomalies with the Five-Factor Model
  - Explorations in Factors Explaining Money Market Returns
  - Luck versus Skill in the Cross-Section of Mutual Fund Returns
AQR’s Moment Funds (A)

AQR is a hedge fund based in Greenwich, Connecticut, that is considering offering a wholly new line of product to retail investors, namely the ability to invest in the price phenomenon known as momentum. There is a large body of empirical evidence supporting momentum across many different asset classes and countries. However, up until this point momentum was a strategy employed nearly exclusively by hedge funds, and thus not an investment strategy available to most individual investors. This case highlights the difficulties in implementing this "mutual funditizing" of a hedge fund product, along with the challenges that the open-end and regulatory features that a mutual fund pose to many successful strategies implemented in other contexts.

Case readings:

- Aspects of Investor Psychology: Beliefs, Preferences, and Biases Investment Advisors Should Know About
- Fact, Fiction and Momentum Trading
Topic 5: Applications of Factor Models

- Performance evaluation with factor models
- Indexing and how to create benchmark or factor portfolios
- Investing based on forecasts of factors
- Smart beta ETFs
  - What are they and the value added (if any) of investing in them
Topic 5 Case

- **Smart Beta Exchange-Traded Funds and Factor Investing**
  - iShares by Blackrock is considering launching an innovative investment management product in the rapidly evolving ETF space, a multifactor ETF. iShares is the world market leader in the overall ETF market, as well as the newer smart beta ETF market. To understand the motivation for this product they reviewed recent academic literature on what are relevant factors that drive investment returns and factor investing. iShares needed to determine if this new multifactor ETF had value added over the ETFs they already sold.

- **Learning objective:**
  - To examine the launching of an innovative factor-based smart beta ETF in the investment management industry.

- **Subjects covered:**
  - Competitive strategy; Corporate strategy; Financial instruments; Investment management; Investments; Smart beta exchange-traded funds.
Topic 6: Arbitrage and Active Trading

- Law of one price
- Law of no arbitrage
- Arbitrage trading with stocks
- Arbitrage trading with bonds
- Active trading with the CAPM
- Active trading with the arbitrage pricing theory (APT)
Topic 6 Case

- **Deutsche Bank: Finding Relative Value Trades**
  - Deutsche Bank's Fixed Income Research Group is looking for yield curve trades to pitch to clients as well as for their proprietary trading desk. The group has data on recent bond trades and a proprietary term structure model, which they can use to develop trading ideas.

- **Learning objective:**
  - To help students understand how the sales and trading function works within an investment bank. To have a qualitative discussion of the motivations and incentives of sell-side firms and the various functions within these firms as well as how these firms interact with clients. Also how to spot potential arbitrage opportunities along the yield curve.

- **Subjects covered:**
  - How bond trading desks work; Trading bonds against theoretical prices; Risks inherent in trading against theoretical prices (model risk).