

# New York University

## Advanced Topics in Portfolio Management

### FRE 6991

### Spring 2019

#### **Summary Course Objective and Key-takeaways from the course**

A course on topics in portfolio management that will be useful and insightful for finance and risk students: We will study a wide variety of approaches to portfolio management with a particular emphasis on the tradeoff between risk and return.

At the close of this course, you will be able to:

- Articulate your own approach to investing
- Apply this knowledge as an investor, whether working in the fund industry, or at an endowment or pension fund, or as a risk manager, as an investment adviser, or as a hedge fund manager, or serving other individuals or managing one's own portfolio
- Create an efficient investment portfolio following a passive strategy (*passive beta*)
- Take advantage of your views as they diverge from the market's views to take advantage of active returns (*active beta*)
- Optimize investments in external, uncorrelated strategies such as hedge funds (*alpha*)

#### **Course Description**

Modern Portfolio Theory (MPT) tells us that markets are efficient. This implies that Asset Management is a relatively trivial exercise – an investor, based on her risk preferences, should passively invest in a linear combination of an efficient frontier portfolio and cash, in essence earning a fair return for her *beta*. This implication is belied by the large amount of resources expended on the Asset Management Industry in the real world.

In this course, we will investigate the reasons behind such resource expenditure. And we shall examine ways in which an investor can aim to outperform the predictions of MPT, either by reducing risk without impacting return negatively, or increasing returns without increasing risk.

Risk will be the central thread that will flow through this course. Risk is a complex topic and different approaches take remarkably different approaches to measuring and managing risk.

This class provides an overview of the asset management industry, and investment and risk approaches used. We will also look at analytical tools required to analyze investment strategies.

This course will be of interest to those who are interested in a career in money management, in wealth, family office, pension and endowment management and those who are interested in managing their own money. It will also benefit those who are aiming for an investment banking and risk management careers, where they will have to interact with money managers and retirement plan sponsors.

The art of investing requires that you develop a philosophy of investing that will guide you and your clients to the actions that you will take. This course will focus on practice – understanding and critiquing several investment styles. A deep understanding of principles may form a foundation to developing your own investing style. At a minimum you ought to be able to answer the following questions.

1. There are thousands of securities available for investment; how do you narrow the choice to an investable portfolio?
2. How do you get sufficient confidence in your analysis to back your analysis with your or your clients' money? When you buy/sell a stock or mutual fund or derivative, someone else is on the other side -- why do you think they are wrong and you are right?

In this course we will look at several investment philosophies and deeply understand approaches to risk management for answering these questions. They will be merged in a constructive and practical way.

## Session-Wise Topics/Readings

### Session 1 Indexing, Beta, Smart Beta and Retail Portfolios

- How to invest a retail portfolio
- Smart Beta: Incorporating valuation into Index Portfolios

Required Reading:

Bogle, J.C., "Black Monday and Black Swans," *Financial Analysts Journal*, March/April 2008, pp. 30-40

Bogle, J.C., "What's Ahead for Stocks and Bonds – And How to Earn Your Fair Share," Keynote Speech, "The Money Show", Las Vegas, NV. May 15, 2006.

[http://www.vanguard.com/bogle\\_site/sp20060515.htm](http://www.vanguard.com/bogle_site/sp20060515.htm)

### Session 2 Mean-Variance Optimization: Management of Institutional Portfolios

- Estimating expected returns, variances, correlations
- Applying MVO
- Practical issues:
  - Dealing with error-maximizing properties of MVO
  - Dealing with illiquid portfolios
  - Dealing with strategies across multiple time horizons

Required Reading:

Harvard Management Company

### Session 3 Volatility Pumping, Growth Optimal Portfolios and Volatility as an Asset Class

- Harnessing volatility to increase returns
- Numeraire Portfolios. Growth Optimal Portfolio's

Required Reading:

Luenberger: Volatility Pumping as an investment strategy

Eckhard Platen: Approximating the Numeraire Portfolio by Naïve Diversification, Journal of Asset Management

The rise of the Artificial Asset Class  
Volatility as an asset class  
Exotic ETFs  
Tail Risk

### Session 4 The Mathematics of Arbitrage

- Arbitrage as an Investment Strategy
- Arbitrage and its Limits

Required Reading:

## Long-Term Capital Management, L.P. (A)

### Optional Reading:

Pedersen 13-16

Shleifer, A., and R.W. Vishny, The Limits of Arbitrage

## Session 5 Equity strategies

- Value Investing

### Required Reading:

JPM Analyst Report on Berkshire Hathaway

Pedersen 6-9

## Session 6 Momentum and Global Macro

- Momentum as an Investment Strategy
- Global Macro as an Investment Strategy

### Required Reading:

Pedersen 10-12

## Session 7 Risk Management and Governance

- Difficulty of Measurement/Estimation
- Banks as a source of value and a source of (systemic) risk
  - Leverage as an Edge or a Curse.
  - Structural Short Volatility
- Non-market Risk
- Governance

### Optional Reading:

William Bernstein, Deep Risk: How History Informs Portfolio Design

## Recommended Text Books

Pedersen, Lasse Heje, Efficiently Inefficient: How Smart Money Invests & Market Prices Are Determined, Princeton University Press, 2015

## Optional Textbooks and Manuscripts

Investment Philosophies by Aswath Damodaran

Expected Returns by Antti Illmanen

Mis-Behavior of Markets by Benoit Mandelbrot

A Systematic Approach to Factor Investing by Andrew Ang

## Course Pack

### Course Pack - Cases

1. Harvard Management Company (2010), HBS 9-211-004
2. Long-Term Capital Management, L.P. (A), (B), (C), (D), HBS 9-200-007, 9-200-008, 9-200-009, 9-200-010

### **Course Pack - Articles**

I will provide articles for each session.