1 Course Overview

1.1 Goal

This course aims to develop a framework for understanding how to construct a portfolio and how to evaluate investment strategies and managers. Along the way, we will discuss the specifics of investments in equities, bonds, derivatives, mutual funds, and hedge funds, among other topics. Every lecture will present data and case studies to demonstrate how the investment framework is useful for making decisions in practice.

The discussion takes the perspective of a typical investor, an investment manager, or an institutional investor. As a baseline, this class will give you concrete knowledge that you can use in constructing your own portfolio, optimizing taxes, and making other financial plans. But in terms of careers, as a specific example, this class aims prepare you to work at a fund like AQR (aqr.com) in that you will learn to understand the strategies that they use and how they fit into a diversified portfolio. It is also useful for careers in wealth management.

The underlying theme of the course is to teach students to ask the right questions about investment strategies and plans to understand both their advantages and their potential pitfalls. A quote that I particularly like is “In a broad macro way financial capitalism is a delightful and efficient engine for prosperity, but up close it’s mostly scams.” To avoid scams, we will develop an understanding of two main areas of investing: portfolio choice and performance evaluation. The key questions for portfolio choice are what constitutes a good mix of investments in theory, and how we can actually achieve such a mix in practice. For performance evaluation, the key question is whether a particular investment can improve your portfolio. More interestingly, how can you beat the market? The class will give concrete answers to all of those questions.

This course will have an emphasis on real-world applications and case studies, both formal and informal. I will use the case studies to examine issues in the selection and implementation of investment strategies. Just like I want you to know what questions to ask an analyst when you’re an investment manager – or just investing your own wealth – later in life, you should always feel encouraged to ask me what the practical uses or implications are for anything we cover in class.

1.2 What this class is not about

This class is not about stock picking or valuation. The detailed analysis of individual companies and their balance sheets is outside the scope of this course. Classes like Securities Analysis and Value Investing provide fantastic coverage of how to pick specific stocks and I highly recommend them. More briefly, those classes are about getting rich, while this class is about staying rich. That said, there will be a consistent emphasis
on understanding strategies that consistently outperform the market. When it is more ambitious, this class takes the perspective of a quant hedge fund like AQR.

1.3 What I expect:

- I expect you to be comfortable with key statistical concepts: mean, standard deviation, variance and covariance, and linear regression.
- I expect you to participate in class discussions and prepare sufficiently so that you can contribute positively.
- If you miss class, I expect you to find out what was covered from the other students in class.

1.4 What you need:

“Asset Management” by Andrew Ang
Canvas access
Case packet

2 Administrative

- Contact Information

Ian Dew-Becker
email: i-dewbecker@kellogg.northwestern.edu

Sending me messages through Canvas is risky – I have a poor history of finding them. If you email, I will reply promptly and reliably.

- Office Hours: by appointment.
- Course website: Canvas

Teaching Assistant: Qiushi Huang (q-huang@kellogg.northwestern.edu)

3 Grading

The course grade is based on the formula:

\[ X_H + X_C + \max \left[ \frac{1}{2} X_M + \frac{1}{2} X_F, X_F \right] \]

where

- \( X_H \) = Homework (including case write-ups and peer evaluations) (25 pts)
- \( X_C \) = Class Participation (25 pts)
- \( X_M \) = Midterm (50 pts)
- \( X_F \) = Final (50 pts)

The midterm represents a free option and can only improve your grade.
Class participation is graded on the basis of three components: Did you show up? Did you ask questions? Did you answer questions (ideally correctly)? If there is something in the lectures that you don’t understand, somebody else probably doesn’t understand it, so I appreciate when people ask for clarification of things that I have failed to explain sufficiently clearly. This is an easy way to make sure you do well on the participation component of the class. I will cold call in class.

Individual problem sets will primarily be in the form of quizzes on canvas.

All cases are group projects. I will assign groups at the end of the second week of class. There will be peer evaluations at the end of the quarter to ensure that everybody participates.

Questions in problem sets and cases will be a mix of exam-type problems – to help prepare you for the midterm and final – and exercises involving real-world data. Past iterations of this course involved more heavy Excel work, including optimization. This year will have less of that and will focus more on learning where you can find data online and then using it to guide typical problems you or a client might face, such as whether you should add a new fund to your portfolio, or whether you should replace one manager with another.

There are two exams, which combine to 50 percent of your grade. The final exam will cover material from the entire course and will be a take-home. The midterm is a free option – if it doesn’t help your grade, 50 percent of the grade will be based on the final. Requests for reconsideration of grading must be submitted in writing within a week of when the material is returned. If a regrade is requested, the entire material will be re-evaluated.

The Kellogg Honor Code strictly applies. Exams must be completed independently and within the allotted time. Only the specifically allowed materials may be used and nothing else. On the homework you can consult with any other class members and refer to class materials, except that answers to previous years problems are off limits.

### 3.1 Case Studies

There will be a total of seven cases discussed in class, depending on how fast we cover the material. A key focus of the class is on presenting data on how investments actually perform, and the cases are particularly useful for showing you details of how these investments work in reality. The tentative list is:

<table>
<thead>
<tr>
<th>Case</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Factor Investing: The Reference Portfolio and Canada Pension Plan Investment Board</strong></td>
<td>week 1</td>
</tr>
<tr>
<td><strong>Partners Healthcare</strong></td>
<td>week 3</td>
</tr>
<tr>
<td><strong>GM Asset Management and Martingale’s Low Volatility Strategy</strong></td>
<td>week 5</td>
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<tr>
<td><strong>Dimensional Fund Advisors</strong></td>
<td>week 6</td>
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<tr>
<td><strong>Multifactor models</strong></td>
<td>week 7</td>
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<tr>
<td><strong>Harvard Management and TIPS</strong></td>
<td>week 8</td>
</tr>
<tr>
<td><strong>AQR DELTA funds</strong></td>
<td>week 9</td>
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</tbody>
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Canvas will have the authoritative schedule. We will be discussing these cases in class. I expect you to have read the case in advance and be able to fully participate in the classroom discussion. The assignments will also ask specific questions about the cases.
4 Course Outline

We will cover approximately one topic per class. Articles not in the course packet will be distributed in class and will be posted on the course website. The outline below is not set in stone and what we end up covering will depend on the interests of the students and the pace at which we cover material. I will endeavor to have the readings and assignments posted at least two weeks in advance, though.

1. Portfolio choice
   
   (a) Mean-variance analysis
       
       • Ang ch. 3
       • Case: Read the "Reference Portfolio" section of *Factor Investing: The Reference Portfolio and Canada Pension Plan Investment Board*
   
   (b) Investing for the long-run
       
       • Ang ch. 4
       • Case: *Partners Healthcare*
   
   (c) Investing over the life-cycle
       
       • Ang ch. 5
   
   (d) Taxes
       
       • Ang ch. 12

2. Performance evaluation

   (a) The CAPM
       
       • Ang. ch. 6 sections 3, 5; ch. 8, section 5
   
   (b) Anomalies and deviations (or: beating the market)
       
       • Ang ch. 10
       • Case: *GM Asset Management and Martingale’s Low Volatility Strategy*
   
   (c) Equity factor models
       
       • Ang ch. 7
       • Case: *Dimensional Fund Advisors*

3. Specific asset classes

   (a) Options and derivatives
       
       • Ang ch. 17
       • Case: *AQR DELTA*

   (b) Bond pricing and investment
       
       • Ang ch. 9, sections 1–3
5 Reading

Obviously, I encourage and expect you to do the required reading above. You will also benefit from reading about financial news, and I suggest some sources below.

5.1 Internet

There is a lot of extremely high-quality analysis of financial markets available for free on the internet. I highly recommend Matt Levine (www.bloombergview.com/contributors/matt-levine). Bloomberg.com is also good for financial news.

5.2 Periodicals

*The Economist* is always worth reading. If you have the time, *The Wall Street Journal* is also worth following.

5.3 Books

The following recommended books are mostly pretty easy reads that are entertaining, interesting and provide some good insights. In all cases, the recommendation of these books is not an endorsement of the material in them: much of what is said in these is plain wrong (as is probably true for most books on investment). Nevertheless, they offer food for thought.


2. Peter Bernstein: “Capital Ideas” – Bernstein’s earlier book dealing with the development of modern finance theory and how this has affected Wall Street practice.


5. Graham and Dodd: “Security Analysis” – If any book can be called the investment classic of all times, this is it. Warren Buffett said something like this is the only book you ever need to read. It has been continuously in print since it was originally issued in 1934, and has been through five editions. It was recently re-issued in the original 1934 edition (written at the bottom of the great depression).


8. Michael Lewis: “Liar’s Poker” – A bond salesman’s irreverent look Salomon Bros. Great anecdotes and a good history of some of the developments of modern finance (e.g., mortgage backed securities). Also reads like a novel.

9. Victor Niederhoffer: “The Education of a Speculator” – The very entertaining and insightful autobiography of a modern, eccentric, and successful trader. Niederhoffer grew up poor, went to Harvard and then to Chicago for his Ph.D. in finance, and was a professor at Berkeley for a short stint.

10. Edwin Lefvre: “Reminiscences of a Stock Operator” – Originally written in 1923, and recently re-issued. This is the story of Jesse Livermore, supposedly one of the greatest stock speculators of all time.
Many modern traders cite this as the book that they found most helpful in learning how to trade. Be aware that Livermore killed himself after losing everything in the great depression.

11. Schwager “Market Wizards” – a set of interviews with some of the most successful traders of the modern era.

12. Engel and Hecht: “How to Buy Stocks.” – This book provides a great discussion of the institutional features of the stock market. Also, there are few sections on investing are less interesting and less valuable.
