SYLLABUS

Capital markets simultaneously inspire fascination, fear, admiration and contempt. They have been the source of both untold wealth and ultimate ruin. But whatever the attitude toward them, or the outcome in them, one thing is indisputable: They are a vital part of a modern economy, and a significant determinant of the net worth of most American households. For example, as of 2015, Gallup reported that 55% of Americans owned stock, either directly or indirectly.

Moreover, finance has engaged some of the most brilliant minds in economics. Paul Samuelson, Robert Merton, Fisher Black and Myron Scholes, Eugene Fama, and Harry Markowitz and Merton Miller have all made seminal contributions to the field. Together, the practical significance and intellectual rigor of financial economics has proven to be a powerful and seductive combination.

This course offers a survey of the major financial markets and instruments which make up capital markets: Bonds, stocks and derivatives. Along the way, we study some of the fundamental ideas of modern finance: Time value of money, the capital asset pricing model and the efficient markets hypothesis will all be discussed. Additionally, you are studying finance at an especially interesting time. The efficient markets hypothesis, or EMH, which has been the dominant paradigm in the field for at least 75 years, is giving way to a new approach called “behavioral finance.” Cousin to behavioral economics, this approach offers a completely new perspective on finance, and promises to provide new
insights into market behavior. We will explore behavioral ideas in the second half of the course.

My aim is for students to come away with a good basic understanding of financial markets and finance concepts. Whether or not you intend to pursue further academic work in the field, or simply want to be in a better position to manage your own financial affairs, I think you will find the course exciting and useful.
Course Requirements

• Exams

There will be two exams given in the course—a midterm and a final. The dates of the exams are:

Midterm: Thurs., Oct. 13 (covering the material from Aug. 30 through Oct. 6)

Final: Wed., Dec. 14, 12:30 – 2:30 PM

(The final will be cumulative, but weighted 60% toward material covered after the midterm.)

Please Note:

• It is your responsibility to plan your travel ahead around exam dates. In particular, the date of the final exam is determined by the Registrar and cannot be changed for any reason.

• No makeup midterms will be given.

• Please see the section below on “Grading” to understand how your semester grade will be determined if you must miss the midterm for any reason.

• Problem Sets

There will be nine problem sets assigned during the term. The problem sets will be available in the “Problem Sets” folder on the class Canvas site.

Problem sets must be completed and submitted at the start of class on the dates detailed in the course calendar below.

The due date on problem sets cannot be extended for any reason. However, the lowest two of the nine problem set scores will be dropped from the calculation of each student’s semester grade. So, if you cannot do one of the psets some week, that will just be one of the scores that gets dropped.
Grading

Your semester grade will be the higher of:

- 30% problem set scores
- 30% midterm exam
- 40% final exam  
  or  
- 30% problem sets
- 70% final exam

So, if you do poorly on the midterm, or are unable to take it for any reason, your final exam will automatically be reweighted to be 70% of your semester grade, with the problem sets constituting the remaining 30%. We will make these calculations automatically for each student—you don’t have to “opt in” or “opt out” of one or the other weighting. We will make certain you receive the highest grade to which you are entitled.

Requests for problem set or midterm exam re-grades must be submitted to the grader no later than one week after your work has been returned. In order to allow for a timely and orderly response to your request, we must adhere to this policy without exception. We cannot accept re-grade requests made after these deadlines.

Grading Mechanics: Assigning Letter Grades Based on a Curve

Semester grades are determined by a curve. The nature of a curve is that your grade is based on your performance relative to all other students in the class. It does not involve an “absolute standard,” e.g., 90 – 100 = A, 80 – 90 = B, etc., which you may be used to from some other courses. I believe that a curve is ultimately the fairest way to determine grades, since it does not set some arbitrary absolute standard, but evaluates students on their performance relative to their peers.

With a curve, your grade is based on your percentile rank in the class, i.e., the percentage of students in the class who scored below you. If you are in the 60th percentile, for example, that means that 60% of students had scores equal to or below yours, while 40% of students had scores above yours.

Calculation of Total Semester Points

Your problem set average (dropping the two lowest) will be out of 100 pts. possible; your midterm will be out of 100 pts. possible; and your final will be out of 133.33 points possible. Alternatively, we will calculate your total semester points based on 100 pts. possible on the problem set average, and 233.33 pts. possible on the final. These two methods yield the two alternative weightings mentioned in the first paragraph of this section. For each student, we will use whichever weighting results in a higher semester point total for that student.
For example, suppose you average 83/100 on your highest problem sets (dropping your lowest two) and 93/100 on your midterm. Now, let’s say there are 240 pts. possible on the final, and your score is 200/240 pts. Note that 200/240 = .833 (Meaning, you got 83.3% of the possible points on the exam). We would then multiply .833 by 133.33, and by 233.33, to calculate your total points using the two possible weightings on the final. This would give you .833 \times 133.33 = 111.11 pts. weighting the final at 40%, and .833 \times 233.33 = 194.44 pts. weighting the final at 70%.

So, for the semester, your total points would be 83 + 93 + 111.11 = 287.11 pts using the 30/30/40 weighting. Using the 30/70 weighting, your total points would be 83 + 194.44 = 277.44. So, we would use the 30/30/40 method, since it gives you higher total points.

The Curve Used in Assigning Your Letter Grade for the Semester

To determine your semester grade, we will employ the (very generous) curve given below:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Percentile Rank Range of Letter Grade</th>
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<tbody>
<tr>
<td>A</td>
<td>80\textsuperscript{th} Percentile – 100\textsuperscript{th} Percentile</td>
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<tr>
<td>A-</td>
<td>70\textsuperscript{th} Percentile – 80\textsuperscript{th} Percentile</td>
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<tr>
<td>B+</td>
<td>55\textsuperscript{th} Percentile – 70\textsuperscript{th} Percentile</td>
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<tr>
<td>B</td>
<td>45\textsuperscript{th} Percentile – 55\textsuperscript{th} Percentile</td>
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<tr>
<td>B-</td>
<td>35\textsuperscript{th} Percentile – 45\textsuperscript{th} Percentile</td>
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<tr>
<td>C+</td>
<td>25\textsuperscript{th} Percentile – 35\textsuperscript{th} Percentile</td>
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<tr>
<td>C</td>
<td>15\textsuperscript{th} Percentile – 25\textsuperscript{th} Percentile</td>
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<tr>
<td>C-</td>
<td>10\textsuperscript{th} Percentile – 15\textsuperscript{th} Percentile</td>
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<tr>
<td>D</td>
<td>5\textsuperscript{th} Percentile – 10\textsuperscript{th} Percentile</td>
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<tr>
<td>E/F</td>
<td>0\textsuperscript{th} Percentile – 5\textsuperscript{th} Percentile</td>
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To return to our example above: recall that your hypothetical semester point total is 287.11/333.33, and suppose that 43% of students had semester point totals higher than yours (i.e. above 287.11), and therefore 57% had semester point totals less than or equal to yours (i.e. at or below 287.11). This means that you are in the 57\textsuperscript{th} percentile overall. Your semester grade, then, would be a B+. 
**Academic Integrity**

Boston College takes matters of academic honesty very seriously. While you may discuss problem sets with your classmates, you must write up your own answers. Use of old course materials, including problems sets and exams, and any other internet resources, is prohibited unless made available to all students by the instructor.

Examples of unacceptable conduct include plagiarism, copying and pasting answers from the internet, downloading answers to problem sets or exams from other students or the internet, collaborating on examinations, etc.

You should consult the website [http://www.bc.edu/offices/stserv/academic/integrity.html](http://www.bc.edu/offices/stserv/academic/integrity.html) to familiarize yourself with the College’s policies regarding academic integrity and possible serious consequences of academic dishonesty.

**In short, all work on problem sets and exams MUST be your own.**

**Accessibility**

Boston College is committed to providing an accessible academic environment. The Accessibility Office offers a variety of accommodations and services to students with documented disabilities. Please visit

[http://www.bc.edu/offices/dos/subsidiary_offices/disabilityservices.html](http://www.bc.edu/offices/dos/subsidiary_offices/disabilityservices.html)

for more information and resources for students with accessibility issues.
COURSE CALENDAR

Tues., Aug. 30  Introduction and Course Overview
The Investment Environment
Functions of the Financial Markets
Financial Markets and the Macroeconomy
Direct vs. Indirect Finance
Primary vs. Secondary Markets
Risk and Return: The Fundamental Reality of Investment

Bodie, Kane and Marcus: Sections 1.1 – 1.6

Finance: trick or treat,” The Economist, Oct. 21, 1999

Thurs., Sept. 1  Compounding
Arithmetic Average
Weighted Average
Geometric Average
Present Discounted Value (PDV)

Tues., Sept. 6  Net Present Value (NPV)
Internal Rate of Return (IRR)
Fixed Income Securities
Introduction
Default (Credit) Risk
Bond Pricing
Yield to Maturity (YTM)
Default Risk and Bond Pricing

Bodie, Kane and Marcus: Section 2.2
Chap. 14

Problem Set 1 Available on Class Canvas Site

Thurs., Sept. 8  Bond Pricing (cont.)
Interest Rate Risk
Duration

Bodie, Kane and Marcus: Section 16.1
Tues., Sept. 13  Bond Pricing (cont.)
   Convexity

   Bodie, Kane and Marcus:  Section 16.2

Thurs., Sept. 15  The Term Structure of Interest Rates
   The Yield Curve
   Theory and Evidence on Term Structure

   Bodie, Kane and Marcus:  Chap. 15

   PS 1 Due
   *Problem Set 2 Available on Class Canvas Site*

Tues., Sept. 20  Equities Markets
   Introduction
   The Primary Market in Equities
      Investment Banking
   The Stock Issuance Process:  Mechanics of an IPO

   Bodie, Kane and Marcus:  Section 2.3
   Section 3.1

Thurs., Sept. 22  The Secondary Market
   Market Microstructure:  How are Stocks Traded?
      Historical Market Structure
      Modern Innovations
         Algo trading
         High Frequency Trading
         Dark Pools

   Bodie, Kane and Marcus:  Sections 3.2 – 3.5


   *PS 2 Due*
Tues., Sept. 27  
Basic Trading Terms and Techniques
Stock Price Indexes
Stock Pricing: The Layers of Equity Valuation
  Market
  Industry
  Company
Fundamental analysis
  Financial statement analysis
  Tobin’s q

Bodie, Kane and Marcus: Sections 3.8 – 3.9
Chaps. 17, 19

Thurs., Sept. 29  
Stock Pricing (cont.)
  Traditional Models
    Dividend Discount Models
    Price-Earnings Ratio (P/E)
  An Alternative Approach: Technical Analysis

Bodie, Kane and Marcus: Chap. 18

Problem Set 3 Available on Class Canvas Site

Tues., Oct. 4  
Portfolio Construction
  The “Layers” of Portfolio Decisions
  The Capital Allocation Line (CAL)

Bodie, Kane and Marcus: Chap. 6

Thurs., Oct. 6  
Portfolio Construction (cont.)
  Attitudes Toward Risk
  The Optimal CAL

**PS 3 Due**
Problem Set 4 Available on Class Canvas Site

Tues., Oct. 11  
No Class: Review Video for the Midterm

**PS 4 Due**
<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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<tbody>
<tr>
<td>Thurs., Oct. 13</td>
<td>Midterm  (covering material from Aug. 30 – Oct. 6)</td>
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<tr>
<td>Tues., Oct. 18</td>
<td>Portfolio Optimization</td>
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<td>The Markowitz Portfolio Optimization Model</td>
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<td>Efficient Diversification</td>
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<td>The Efficient Frontier</td>
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<td>Bodie, Kane and Marcus: Chap. 7</td>
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<td>Thurs., Oct. 20</td>
<td>Capital Asset Pricing Model (CAPM)</td>
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<td>Assumptions, Extensions and Applications</td>
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<td>Structure of the Model</td>
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<td>Bodie, Kane and Marcus: Chap. 9</td>
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<td>“Too Much Information,” The Economist, July 12, 2007</td>
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<td>Problem Set 5 Available on Class Canvas Site</td>
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<td>Tues., Oct. 25</td>
<td>Arbitrage Pricing Theory and Multifactor Models of Risk and Return</td>
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<td>Relationship with the CAPM</td>
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<td>Bodie, Kane and Marcus: Chap. 10</td>
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<td>Thurs., Oct. 27</td>
<td>Efficient Market Hypothesis (EMH)</td>
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<td>Theoretical Foundations of EMH</td>
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<td>Empirical Tests</td>
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<td>Bodie, Kane and Marcus: Chap. 11</td>
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<td>PS 5 Due</td>
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<td>Problem Set 6 Available on Class Canvas Site</td>
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</tbody>
</table>
EMH (cont.)
Cracks in the Edifice: Anomalies


“Efficiency and beyond,” The Economist, July 16, 2009

“The grand illusion,” The Economist, March 5, 2009


An Alternative Approach: Behavioral Finance

Information Errors
Behavioral Biases

Bodie, Kane and Marcus: Section 12.1

“Efficient Markets or Herd Mentality? The Future of Economic Forecasting,” Knowledge@Wharton, Nov. 11, 2009

Problem Set 6 Due

Technical Analysis and Behavioral Finance

Bodie, Kane and Marcus: Section 12.2
Thurs., Nov. 10  Introduction to Derivatives
Options
    Calls
    Puts
    Hockey Stick Diagrams

Bodie, Kane and Marcus: Sections 20.1 – 20.3

(There are four on-line tutorials under “Option Basics”)

“An Introduction to Futures and Options,” Chicago Mercantile Exchange (CME)

Problem Set 7 Available on Class Canvas Site

Tues., Nov. 15  Option Strategies
    Spreads
    Straddles

Thurs., Nov. 17  Option Valuation
    Put/Call Parity
    Binomial Option Pricing

Bodie, Kane and Marcus:  Section 20.4
                        Sections 21.1 – 21.3

PS 7 Due
Problem Set 8 Available on Class Canvas Site

Tues., Nov. 22  Option Valuation (cont.)
    The Black-Scholes Model

Bodie, Kane and Marcus:  Sections 21.4 – 21.5
<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
<th>Details</th>
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<tbody>
<tr>
<td>Tues., Nov. 29</td>
<td>Futures Contracts</td>
<td>Introduction, Trading Mechanics, Stock Index Futures</td>
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<td>Bodie, Kane and Marcus: Chap. 22, Section 23.2</td>
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<tr>
<td>Thurs., Dec. 1</td>
<td>Course Wrap-Up</td>
<td>Documentary: “Trillion Dollar Bet”</td>
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<td><strong>PS 8 Due</strong>&lt;br&gt;Problem Set 9 Available on Class Canvas Site</td>
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<tr>
<td>Tues., Dec. 6</td>
<td>Review Session for the Final</td>
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<tr>
<td>Thurs., Dec. 8</td>
<td>Review Session for the Final</td>
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<td><strong>PS 9 Due</strong></td>
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<tr>
<td>Wed., Dec. 14</td>
<td>Final Exam</td>
<td>(cumulative; weighted 60% on material since the midterm, 40% on material covered by the midterm)</td>
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