

California Institute of Technology
Division of Humanities and Social Sciences

BEM 104
Investments
Fall 2004

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Syllabus
Fall 2004

Course Description

This course is designed to provide a sound foundation for the fundamental concepts in investments. Students who master the course material will acquire the analytical tools and financial theory necessary for making good investment decisions and understanding the paradigms by which financial securities are valued.

The course will prepare students for more advanced courses on the topics covered. This course is highly quantitative and relies on analytical tools and economic theory developed throughout the course. Students should be comfortable with probability, statistics and regression analysis. Use of a spreadsheet package such as Excel will be vital for the homework assignments, saving time and aiding in understanding the material. Some use of calculus and linear algebra will also be required.

Course Requirements and Grading

The course requirements are a Midterm exam, a Final exam, five graded homework assignments, and two case write-ups. Class participation will also affect your grade (positively or negatively!). Your course grade will be determined by the maximum of Methods A, B and C below:

	Method A	Method B	Method C
Case Write-ups	10%		
Problem Sets	15%		
Midterm	25%	25%	
Class Participation	5%	5%	5%
Final	45%	70%	95%

In other words, homework assignments, midterm and case write-ups are optional. They can only help your grade. In the interest of diversification, I suggest that you do them!

Homework and Case Assignments

Five homework assignments will be given, which consist of problems and several applications to real data. The latter are designed to apply techniques learned in the course to real data in a manner similar to what might be applied in practice. Keep in mind that exam questions will be similar to the assigned homework problems. In determining your final grade for the homeworks, I will only count your best four problem sets.

There will be two case write-up in this course. The case write-ups are separate from the homework assignments. Details of the cases will be provided later.

You may do the homework problems and cases in groups that are not to exceed four people, and you can change groups for each homework or case. The case write-ups are not to exceed five typed pages.

You should discuss the problems and cases only with members of your group. You should not discuss the problems and cases with other members of this or any other class. In the future, you should not discuss the problems and cases with students then taking BEM 104 or other finance classes.

If you are in doubt about whether something is acceptable, you should not hesitate to ask me.

Office Hours and Review Sessions

- I will hold conference hours on Mondays between 2 and 4pm in my office Baxter 332F, except for Monday November 22nd.
- If you would like to schedule an individual appointment for another time please feel free to call me or to send me email.
- I will hold 2 informal question/answer and review sessions at mutually convenient times, one prior to the midterm due date and one prior to the final. Further info is forthcoming.

Readings for the Course

Texts

Required text:

Bodie, Zvi, Alex Kane, and Alan Marcus, *Investments*, McGraw-Hill - Irwin, 6th Edition, 2005.

Recommended (but optional) texts:

1. Morris, Kenneth, Virginia Morris and Alan Siegel, *The Wall Street Journal Guide to Understanding Money & Investing*, Simon & Schuster Trade Paperbacks, 1999.
2. Malkiel, Burton, *A Random Walk Down Wall Street*, W.W. Norton & Co., 2003.
3. Hull, John, *Fundamentals of Futures and Options Markets*, Prentice Hall, 2001.

The first optional text provides an overview of financial markets that you might find helpful. The last two optional texts will not be explicitly employed in the course, but may provide additional insight into some of the topics covered. Both texts, however, should be part of any finance interested person's library, although they are not required for the course.

Course Readings

The course packet contains some of the leading articles from practitioner and academic journals discussing the topics covered in class. Some of the articles are challenging and are geared toward a slightly more advanced level. I will assign certain portions of these articles that I feel are relevant to the topics discussed in class, and will not hold you responsible for the most difficult and advanced material. In addition, I have included some optional readings, which you are not formally responsible for, but will interest the advanced student. I am in the process of completing the reading package – only articles that can be freely accessed and downloaded through the library will be included.

Lecture Slides and Handouts

Lecture slides will be posted in advance on the class web page. You will need to print these out and bring them to class with you. The lecture slides provide an outline of the course discussion and some details on the topics covered. They are not a substitute for attending class since the class discussion will add value to the notes and texts. Simply reviewing the lecture slides and text material will not be sufficient to succeed in the course.

Practice exams will be posted on the class web page. I will also periodically hand out current newspaper and magazines articles relevant to the course topic.

Course Outline

This is an approximate schedule of topics that will be covered. You should read the corresponding material in the text prior to the lecture. "BKM" refers to the Bodie, Kane and Marcus textbook. Unless otherwise stated, the listed articles are included in the case packet.

Session 1 (Tuesday September 28)

- **Topics:** Course Outline and Introduction, Overview of Financial Markets, Risk and Return, Asset Pricing and the Present Value Formula.
- **Required Readings:** BKM Chapters 1-5, Greenleaf et. al., "Understanding Financial Data in the Wall Street Journal."

Session 2 (Tuesday October 5)

- **Topics:** Fixed Income
- **Required Readings:** BKM Chapters 14-16.

Session 3 (Tuesday October 12)

- **Problem Set #1 Due** at the beginning of class
- **Topics:** Fixed Income Continued, Introduction to Asset Allocation
- **Required Readings:** BKM Chapters 6-7.

Session 4 (Tuesday October 19)

- **Problem Set #2 Due** at the beginning of class
- **Topics:** Portfolio Theory and Mean-Variance Analysis, Asset Allocation
- **Required Readings:** BKM Chapter 8, Harvard Case: "Harvard Management Company," Jorion "Portfolio Optimization in Practice" (handout), Black and Litterman "Global Asset Allocation with Equities, Bonds, and Currencies" (handout - this is also required below).
- **Optional Readings:** Bevan and Winkelmann "Using the Black-Litterman Global Asset Allocation Model: Three Years of Practical Experience"

Session 5 (Thursday October 21 –SPECIAL CLASS)

- **Topics:** The Capital Asset Pricing Model, Multifactor Models and the Arbitrage Pricing Theory (APT)
- **Required Readings:** BKM Chapter 9 to 11, Mullins, "Does the Capital Asset Pricing Model Work?" Fama and French, "The Cross-Section of Expected Stock Returns" (Read the introduction and conclusion), Bower, et. al., "A Primer on Arbitrage Pricing"

Session 6 (Tuesday October 26)

- **Problem Set #3 Due** at the beginning of class
- **Topics:** Applications of Asset Pricing Models
- **Required Readings:** Berry, et. al., "Sorting Out Risks Using Known APT Factors," Black and Litterman "Global Asset Allocation with Equities, Bonds, and Currencies" (handout).

Midterm: Handed out end of Class October 26

Due Friday October 29, 3pm, Karen Kerbs, Baxter 332

Session 7 (Tuesday November 2)

- **Strategic Capital Management Case Writeup Due**
- **Topics:** Market Efficiency and Anomalies, The Money Management Industry and Performance Evaluation
- **Required Readings:** BKM, Chapter 12 & 24. Malkiel "Efficient Market Hypothesis," Thaler "Giving Markets a Human Dimension," Lakonishok et. al. "The Structure and Performance of the Money Management Industry," Sorensen, et. al., "Allocating Between Active and Passive Management," **Optional Readings:** Hawamini and Keim "On the Predictability of Common Stock Returns: World-Wide Evidence," DeBontd and Thaler "Anomalies: A Mean-Reverting Walk Down Wall Street," Thaler "Anomalies: The January Effect," Lakonishok et. al., "Contrarian Investment, Extrapolation and Risk," Gmbhatt and Timman "Performance Evaluation," Barber and Lefwich "The Elusive Butterfly of Superior Returns."

Session 8 (Tuesday November 9)

- **Case Write-Up for DFA Due** at the end of class
- **Topics:** DFA Case, Forwards and Futures, Introduction to Options
- **Required Readings:** BKM Chapter 20, 22, 23

Session 9 (Tuesday November 16)

- **Problem Set #4 due** at beginning of class
- **Topics:** Derivative Security Valuation
- **Required Readings:** BKM Chapter 21
- **Optional Readings:** Schwartz "Options and Portfolio Insurance"

Session 10 (Tuesday November 30)

- **Problem Set #5 Due** at the beginning of class
- **Topics:** International Investment, Risk Management
- **Required Readings:** BKM Chapters 25, Bailey and Stulz "Benefits of International Diversification: The Case of Pacific Basin Stocks"

Final: Handed out end of Class November 30

Due Friday December 10, 3pm, Karen Kerbs, Baxter 332