

UNIVERSITY OF PENNSYLVANIA  
The Wharton School

**FNCE 205 / 720 Investment Management**

Donald Keim  
Fall 2004

Office: 2329 SH-DH  
Telephone: 215-898-7685  
[keim@wharton.upenn.edu](mailto:keim@wharton.upenn.edu)

---

**Overview**

The objective of this course is to study the theory and empirical evidence relevant to institutional portfolio management. The major topics covered will include:

- portfolio selection, asset allocation
- the relation between risk and return
- performance evaluation and measurement; active and passive portfolio management
- measurement of trading costs; analysis of different equity market structures

The primary emphasis of the course is on the design of common stock portfolios. The course does not address the details of individual security valuation and selection (i.e., this is not a course about stock picking).

The course is applied in an important sense, in that various concepts and approaches are subjected to real-world data. On the other hand, the course devotes less time to the institutional aspects of investment management. Rather than describe the institutional details of current practice, the course attempts to provide a lasting conceptual framework in which to view the investment process and to analyze future ideas and changes in the investment environment.

The **prerequisites** for the course are FNCE 601 or FNCE 100 **and** STAT 621 or STAT 101-102. Given that investment management requires one to understand and deal effectively with randomness, a good grounding in statistics is essential. Familiarity with basic statistics should extend through covariance, correlation and regression.

**Required Course Materials**

- (1) Z. Bodie, A. Kane and A. J. Marcus, *Investments* 6th ed. (McGraw-Hill/Irwin, 2005).
- (2) Bulk pack available from Wharton Reprographics. The bulk pack contains additional readings.

## Evaluation

There will be a midterm exam (**Tuesday, Oct. 19, in class**) and a final exam (**Wednesday, Dec. 15, 4:00-6:00pm**) that will contribute 30% and 50% to your grade, respectively. The final exam will be cumulative, but it will place more emphasis on topics covered after the midterm. Both exams will be closed book, but you may bring to each exam an 8½ by 11 sheet of paper containing formulas. The remaining 20% of the grade will be based on performance on four or five computer assignments. In addition, (optional) problem sets will be assigned periodically during the semester.

PLEASE NOTE: If an emergency or illness should force you to miss an examination, you must contact me **before** the exam.

## Computer Projects

The projects are intended to give students some hands-on familiarity with investment data and to provide some experience in applying techniques useful in investment analysis. The projects will require computations that can be performed on a PC. Most of the files that will be used are data-oriented, and are easily read into Excel or a comparable spreadsheet program.

Students may work on these projects individually or in teams of **no more than three** members. If working in a team, only one project report should be submitted per team, and all members of the team will receive the same grade. The names of all team members should appear clearly *on the front page of the report*. The project report should be a self-contained summary of the project's results and should be limited to three pages, although additional exhibits may be included when necessary. Grades will be assigned as "check-plus," "check," "check-minus," or "no-credit." Due dates for computer projects will be announced when the instructions for each exercise are distributed, generally two to three weeks before the due date.

## Teaching Assistant

Marcelo Maia, a Wharton Ph.D. student in finance, is the teaching assistant for the course. He will assist in the grading of exams and projects, conduct review sessions, and will be available to answer questions. His office is 2331 SH-DH and his phone number is 898-7542 (verdini@wharton.upenn.edu). Marcelo's office hours are on Wednesday from 1:00 to 3:00pm.

## Class Handouts

Copies of class notes, problem sets, computer projects, and other class materials that are not in the bulk pack will be available on the Investments course Web site that can be found at

<http://finance.wharton.upenn.edu/~keim/>

This site is password protected. Access information will be provided in class.

## Office Hours

My office hours are on Tuesday from 2:30 to 4:30. You may also see me before or after class to make an appointment for another time.

## Course Outline and Reading List

*BKM* - Bodie, Kane and Marcus, 6<sup>th</sup> ed.

*BP* – readings in Bulk Pack

*CN* – Class Notes (available on course Web site)

Approx.  
Session #

### 1 I. Introduction and Course Overview

#### A. Returns and Risk; Some Basic Statistics

*BKM*, Ch. 1; Ch. 2, pp. 45-54 (background reading)

*BKM*, Ch. 5; *BKM*, Ch. 6, pp. 173-178; Quantitative Review (pp. 1007-1041)

*CN-1*, "Some Preliminary Observations"

*CN-2*, "Returns and Risk"

*BP-1*, Pindyck and Rubinfeld, "Elementary Statistics: A Review"

*BP-2*, Kritzman, "Uncertainty"

*BP-3*, Hagin, "T-tests"

### 2-4 II. Portfolio Theory: Diversification; Efficient Portfolios; and the Efficient Frontier

*BKM*, Ch. 3, pp. 88-94; Ch. 7, 8

*CN-3*, "Diversification"

*CN-4*, "Optimal Portfolio Choice"

*CN-5*, "Identifying Efficient Portfolios"

### 5-6 III. Implementation of Portfolio Theory: Factor Models and Beta Estimation

*BKM*, Ch. 10 (except pp. 326-328)

*CN-6*, "The Single Factor Model"

*BP-4*, Kritzman, "Regressions"

### 7-11 IV. Market Equilibrium and Asset Pricing Models: Theory and Empirical Tests

#### A. Capital Asset Pricing Model

*BKM*, Ch. 9; Ch. 13, pp. 416-432; Ch. 10, pp. 326-328

*CN-7*, "Capital Asset Pricing Model"

*CN-8*, "Uses and Validity of the CAPM"

*CN-9*, "The Cross Section of Common Stock Returns"

*BP-5*, Hawawini and Keim, "The Cross Section of Common Stock Returns."

## **B. Multi-factor Pricing Models**

*BKM*, Ch. 11; Ch. 13 pp. 426-428

*CN-10*, "Multifactor Pricing Models"

*BP-6*, Sharpe, "Factor Models, Equilibrium Models, and the APT."

## **12 MIDTERM EXAM - TUESDAY, OCTOBER 19**

### **13-14 VI. Long-Horizon Investing/Defined Benefit Pension Plans**

*CN-11*, "Long-Horizon Investing"

*CN-12*, "Defined-Benefit Pension Plans"

*BP-7*, Bodie, "Shortfall Risk and Pension Fund Management"

*BP-8*, Butler and Domian, "Risk, Diversification and the Investment Horizon"

### **15-17 VII. Measurement and Control of Trade Costs; Implications for Portfolio Management**

*BKM*, Ch. 3, pp. 71-85

*CN-13*, "Understanding, Measuring and Controlling Trade Costs"

*BP-9*, Keim and Madhavan, "Costs of Institutional Equity Trades"

*CN-14*, "Implications of Trade Costs for Portfolio Management"

*BP-10*, Sinquefeld, "Are Small Stock Returns Achievable?"

*BP-11*, Keim, "An Analysis of Mutual Fund Design"

### **18-21 VIII. Mutual Funds, Performance Evaluation**

*BKM*, Ch. 4; Ch. 24

*CN-15*, "Investment Companies"

*CN-16*, "Evaluating Managed Fund Performance"

*BP-12*, Sharpe, "Likely Gains from Market Timing."

### **22-24 IX. Some Issues in the Pricing of Fixed Income Securities**

#### **A. Interest Rate Risk; The Pricing of Default-Free Bonds**

*BKM*, Ch. 14 pp. 448-470; Ch. 15; Ch. 16, pp. 520-536

*CN-17*, "Bond Valuation Principles"

**B. Default Risk; Low-Grade Bonds**

*BKM*, Ch. 14 pp. 471-478

*CN-18*, "Default Risk and Low-Grade Bonds"

**25 X. Further Diversification Possibilities**

*BKM*, Ch. 25

*CN-19*, "International Diversification"

*CN-20*, "Real Estate Stocks in a Diversified Portfolio"

*BP-13*, Gyourko and Keim, "Risk and Return of Investing in Real Estate"