UNIVERSITY OF PENNSYLVANIA
The Wharton School

FNCE 205 / 720 Investment Management

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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
- active and passive portfolio management; understanding and measurement of trading costs
- performance evaluation and measurement;

The primary emphasis of the course is on the design of common stock portfolios, although additional asset classes such as bonds and alternatives (e.g., hedge funds, real estate) are covered in some depth.

Important: This course does not address the details of individual security valuation and selection (i.e., this is not a course about stock picking). Also, the course *does not* cover private equity and venture capital, which are covered in FNCE251/751 and FNCE 250/750 respectively.

The course is applied in an important sense, in that various concepts and approaches are subjected to real-world data. However, the course does not devote much 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* 10th ed. (McGraw-Hill/Irwin, 2014).

(2) Additional readings and lecture notes that will be available on Canvas.

Evaluation

There will be two exams (**Tuesday, Oct. 7 and Thursday Dec. 4,** *both held during regular class time*), each contributing 35% to your grade. Both exams will be closed book, but you may bring to each exam an 8½ by 11 sheet of paper containing formulas. The remaining 30% of the grade will be based on performance on five or six 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 laptop. Most of the files that will be used are data-oriented, and are easily analyzed in Excel.

Students may work on these projects individually or in teams of **no more than four** 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 one to two weeks before the due date.

Teaching Assistants

Anna Cororaton (annadc@wharton.upenn.edu); 2306 SH-DH) and Andrew Wu (wudi1@wharton.upenn.edu; 2403 SH-DH), Wharton Ph.D. students in finance, are the primary teaching assistants for the course. They will hold weekly office hours, assist in the grading of exams and projects, and conduct review sessions. There will be two additional TAs assisting Anna and Andrew. Office hours for all TAs will be posted on Canvas.

Class Handouts

Copies of readings, class notes, problem sets, computer projects, and other class materials will be available on Canvas.

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. Office hours for TAs will be posted on the course Website.

Course Outline and Reading List *(<u>SUBJECT TO CHANGE</u>)*

BKM - Bodie, Kane and Marcus, **10th ed.**
BP – Additional readings on Canvas
CN – Class Notes (available on Canvas)

Approx.
<u>Session #</u>

1   I. **Introduction and Course Overview**

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

     BKM: Ch. 1 (Overview; includes a good summary of 2008 financial crisis);
        Ch. 2, pp. 41-51 (stocks; indexes).
     BKM: Ch. 5, pp. 127-152; Ch. 7, pp. 249-255 (some basic statistics).
     CN-1, "Statistics Review"
     CN-2, "Returns and Risk"
     BP-1, Pindyck and Rubinfeld, "Elementary Statistics: A Review"

2-4   II. **Portfolio Theory**: **Diversification; Efficient Portfolios; Asset Allocation techniques**

     BKM: Ch. 3; Ch. 6; Ch. 7.
     CN-3, "Diversification"
     CN-4, "Optimal Portfolio Choice"
     CN-5, "Asset Allocation (Identifying Efficient Portfolios)"

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

     BKM: Ch. 8.
     CN-6, "Factor Models and Beta Estimation"

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

     A. **Capital Asset Pricing Model**

     BKM: Ch. 9 (skip from middle p. 306 to top p. 310).
     CN-7, "Capital Asset Pricing Model"

     B. **Asset Pricing Models - Empirical Extensions**

     CN-8, "Cross Section of Stock Returns"
     BP-2, Hawawini and Keim, "The Cross Section of Common Stock Returns."
     BP-3, Keim, "Financial Market Anomalies."

     C. **Multi-factor Pricing Models**

     BKM: Ch. 10; Ch. 13.
     CN-9, "Theoretical Multifactor Pricing Models (APT)"

12   **EXAM #1 - TUESDAY, OCTOBER 7 – <u>IN CLASS</u>**

13-16   V.   **Some Issues in the Pricing of Fixed Income Securities**

> *BKM*: Ch. 2, pp. 28-41; Ch. 14; Ch. 15; Ch. 16, pp. 516-543 (skip pp. 530-532).
> *CN-10*, "Bond Valuation Principles"
> *CN-11*, Default Rates and Low-Grade Bonds

      VI.   **Trading Strategies: Implementation, Costs, and Performance**

17-18   A.   **Mutual Funds**

> *BKM*, Ch. 4
> *CN-12*, "Investment Companies"

19-20   B.   **Measurement and Control of Trade Costs**

> *BKM*: Ch. 3, pp. 63-74.
> *CN-13*, "Measurement and Control of Implementation Costs"
> *BP-4*, Keim and Madhavan, "Costs of Institutional Equity Trades"

21-22   C.   **Topics in Implementation of Active Portfolio Strategies**

> *BKM* : Ch. 26, pp. 926-930, pp. 943-946; Ch. 3, pp. 76-83.
> *CN-14*, Topics in Implementation of Active Portfolio Strategies
> *BP-5*, Sharpe, "Likely Gains from Market Timing."

23-24   D.   **Performance Evaluation**

> *BKM*, Ch. 24
> *CN-15*, "Evaluating Managed Fund Performance"

25-26   VII.   **Long-Horizon Investing/Defined Benefit Pension Plans/Endowments**

> *BKM*, Ch. 5, pp.152-162
> *CN-16*, "Long-Horizon Investing"
> *CN-17*, "Defined-Benefit Pension Plans"
> *BP-6*, Bodie, "Shortfall Risk and Pension Fund Management"
> *BP-7*, Butler and Domian, "Risk, Diversification and the Investment Horizon"

27   **EXAM #2 - THURSDAY, DECEMBER 4 – _IN CLASS_**

28   VIII.   **Further Diversification Possibilities (REITs)**

> *CN-18*, "Real Estate Stocks in a Diversified Portfolio"