

## Course Description

The course undertakes a rigorous study of concepts and evidence relevant to investment management. Topics include asset allocation, diversification, long-short strategies, factor models, long-horizon investing, portfolio optimization, hedge funds, mutual funds, behavioral finance, performance evaluation, trading, and simulation. The course does not deal with individual security valuation, i.e., “equity research” or “stock picking.”

The prerequisites are Fin 601 and Stat 621 (MBA students) or Fin 100 and Stat 101 (undergraduates). Given that investment management requires one to analyze and deal effectively with uncertainty, a good grounding in statistics is essential, and familiarity with statistics should extend through multiple regression, covariance, and correlation.

## Purchases

1. *Investments*, by Zvi Bodie, Alex Kane, and Alan J. Marcus (9th ed.), McGraw-Hill. (*Student Solutions Manual* recommended.) Several copies of the text and solutions manual will be on reserve at Lippincott Library.
2. Cases available from Wharton Reprographics, via [www.study.net](http://www.study.net).

## Grading

Course grades will be based on two exams, four project write-ups, and class participation:

	<u>Percent</u>
Exam 1 ( <b>Oct. 17</b> , in class)	30
Exam 2 ( <b>Nov. 30</b> , in class)	30
Project write-ups	20
Class participation	20
Total	<hr/> 100

## Team sign up

At the beginning of the course, students will form teams of three or four members for purposes of submitting project write-ups and preparing for class discussions. Team sign up is via the course eRoom on Wharton’s webCafé, and all members of a team must be in the same course section.

## Projects

Team members will work jointly on each of the four projects and submit one write-up per team. Write-ups should be submitted by **9:00 AM on the due date**, using webCafé, in order to avoid lateness penalties. Project assignments will be posted on webCafé about two weeks prior to the due dates. Project due dates are September 21, October 5, November 2, and December 7.

## Case discussions

A significant portion of the class participation grade is based on case discussions. It is expected that team members will work jointly in analyzing cases and preparing for class discussions, but every student in the class should be prepared to discuss each case. I will cold-call occasionally but expect students to volunteer comments much of the time. About a week before each case discussion, I will post on webCafé a few pertinent questions about the case. These questions are not intended to be a comprehensive summary of the issues that could arise during the case discussion, but I hope they will be useful when thinking about the case and in stimulating discussion. Written answers are not submitted.

## Exams

The exams, given during regular class-meeting times, are closed-book but you may bring one 8½ × 11 inch “cheat sheet” (two-sided) to each exam. Exam answers will be posted on webCafé a day or two following the exam.

Exam 2 will confine its focus to topics covered after Exam 1. Much of the course knowledge is cumulative, however, such that fully understanding issues addressed later in the course can require mastery of earlier material.

## Help and questions

I welcome students to see me outside of class to discuss any aspect of the course. My scheduled office hours, when students may come without appointments, are Wednesday from 4:45 to 6:00, but I am available by appointment at other times. My office is at 3251 SHDH, my e-mail is [stambaugh@wharton.upenn.edu](mailto:stambaugh@wharton.upenn.edu), and my phone is 8-5734.

The TA's for the course are Leonid Spesivtsev and Carrie (Xin) Wu, who are Wharton finance Ph.D. students, and Sylbia Choi, a Wharton undergraduate student.

TA	email	Office hours
Leonid Spesivtsev	<a href="mailto:spesiv@wharton.upenn.edu">spesiv@wharton.upenn.edu</a>	Tuesdays, 4:30-5:30, SHDH 2406
Carrie Wu	<a href="mailto:wxin@wharton.upenn.edu">wxin@wharton.upenn.edu</a>	Fridays, 1:30-2:30, SHDH 2305 (desk A)
Sylbia Choi	<a href="mailto:echoi@wharton.upenn.edu">echoi@wharton.upenn.edu</a>	Thursdays, 4:00-5:00, SHDH 2305 (desk A)

*Note: Non-Wharton students who are enrolled in the course but do not yet have a Wharton computing account (required for eRoom access) can apply online at <http://accounts.wharton.upenn.edu>.*

## COURSE OUTLINE

1. Foundations: Portfolio return, risk, and performance (10 classes)
  - 1.1. Returns and risk
  - 1.2. Equity-cash positions, using return swaps and futures
  - 1.3. Beta, hedging
  - 1.4. Alpha, long-short, margin and leverage
  - 1.5. Portfolio diversification, time-varying volatility
  - 1.6. Portfolio opportunities and selection
  - 1.7. Portfolio design and optimization; multiple asset classes
  - 1.8. Performance evaluation/attribution; mutual-fund performance
  - 1.9. Multiple return factors; size and value

\*\*\* Exam 1 \*\*\*

2. Strategies—seeking performance (5 classes plus 2 guest speakers)
  - 2.1. Hedge funds
  - 2.2. Behavioral perspectives
  - 2.3. Momentum
  - 2.4. Value and valuation
  
3. Asset allocation and long-run investing (4 classes)
  - 3.1. Equity premium
  - 3.2. Shortfall risk and options/insurance
  - 3.3. Mean reversion and the life-cycle
  - 3.4. Pension funds

\*\*\* Exam 2 \*\*\*

4. Special topics (2 classes)
  - 4.1. Trading
  - 4.2. Liquidity risk; simulation; active vs. passive

### CLASS SCHEDULE - SUMMARY

	<i>Topics</i>	<i>Cases &amp; Projects</i>
7-Sep	Overview; returns and risk	
12-Sep	Stock-cash positions; using return swaps & futures	
14-Sep	Beta; hedging	
19-Sep	Alpha; long-short; margin & leverage	<i>The Vanderbilt University Endowment (2006)</i>
21-Sep	Portfolio diversification; time-varying volatility	<b>Diversification write-up due</b>
26-Sep	Portfolio opportunities and selection	
28-Sep	Portfolio design and optimization; multiple asset classes	<i>Harvard Management Company (2010)</i>
3-Oct	Refining optimization: Black-Litterman model	
5-Oct	Performance evaluation/attribution; mutual fund performance	<b>Optimization write-up due</b>
10-Oct	no class - fall break	
12-Oct	Multiple return factors; size & value	<i>Dimensional Fund Advisors, 2002</i>
17-Oct	<b>Exam 1 (in class)</b>	
19-Oct	Hedge funds and strategies	
24-Oct	Behavioral strategies	<i>Behavioral Finance at JP Morgan</i>
26-Oct*	Guest speaker: Jinghua Yan – S.A.C. Capital Advisors, LP	
31-Oct	Momentum investing	<i>AQR's Momentum Funds</i>
2-Nov	Combining and implementing strategies	<b>Stock-screening write-up due</b> <i>numeric investors l.p.</i>
7-Nov*	Guest speaker: Gregor Andrade – AQR Capital Management	
9-Nov	Valuation and value investing over time	<i>Grantham, Mayo, Van Otterloo &amp; Co., 2001</i>
14-Nov	Equity premium	<i>Deutsche Bank: Discussing the Equity Risk Premium</i>
16-Nov	Long-horizon framework; shortfall and options/insurance	<i>The Risk of Stocks in the Long Run: The Barnstable College Endowment</i>
21-Nov	Life-cycle issues; mean reversion and long-horizon volatility	<i>The Vanguard Group, Inc. in 2006 and Target Retirement Funds</i>
23-Nov	No class – day before Thanksgiving	
28-Nov	Pension-fund asset allocation	<i>Pension Policy at The Boots Company PLC</i>
<b>30-Nov</b>	<b>Exam 2 (in class)</b>	
5-Dec	Trading	<i>At the T. Rowe Price Trading Desk (A); Investment Technology Group</i>
7-Dec	Liquidity risk; active vs. passive	<b>Simulation write-up due</b>

**\*Note: this class will meet at 4:30pm (location TBA)**

## CLASS SCHEDULE – ASSIGNMENTS AND READINGS

### Notes:

- “BKM” denotes the textbook (Bodie, Kane, and Marcus)
- The BKM and sample exam problems are not to be turned in.
- The sample exam problems are available on the course webCafé site.
- Optional readings are ordered by likely accessibility/relevance and available on the course webCafé site, organized in folders designated by topic.

<u>Date</u>	<u>Topics, assignments, and readings</u>
7-Sep	Overview; returns and risk  BKM chapter 5, pp. 115–146, problems 7, 9, 10 Sample exam problems 1–3
12-Sep	Equity-cash positions; using return swaps and futures  BKM chapter 6, pp. 167–173, 179–180, problems 13–18 BKM chapter 22, pp. 756–766, 770–773, problems 4–10 BKM chapter 23, pp. 791–794, problem 7(a & b) Sample exam problem 4 Optional: Chance, “Equity Swaps and Equity Investing” <a href="#">ProShares</a> (hyperlink) <a href="#">Direxion</a> (hyperlink)
14-Sep	Beta; hedging  BKM chapter 8, pp. 248–249, 254–261, 269–272, problems 9, 10, 12–14 BKM chapter 23, problems 7c, 8 Sample exam problems 5–8
19-Sep	Alpha; long-short; margin & leverage  ● Case discussion: <i>The Vanderbilt University Endowment (2006)</i> BKM chapter 3, pp. 76–82, problems 11, 12 BKM chapter 9, pp. 280–296, problems 20, 23, CFA problems 11,12 Sample exam problems 9, 10 Optional: Cohen et al., “Mechanics of the Equity Lending Market” Jacobs and Levy, “Long/Short Equity Investing” and “Enhanced Active Equity Strategies”
21-Sep	Portfolio diversification; time-varying volatility  <b>Diversification write-up due</b> BKM chapter 7, pp. 197–198, 217–219, CFA problems 1–3, 8–10 BKM chapter 8, pp. 252–254

- BKM chapter 21, pp. 730–731  
 Sample exam problem 11  
 Optional:  
     Booth and Fama, “Diversification Returns and Asset Contributions”
- 26-Sep      Portfolio opportunities and selection
- BKM chapter 6, pp. 161–167, 174–178  
 BKM chapter 7, pp. 199–216, 234–239, CFA problems 8–10, 12  
 Sample exam problems 12–18  
 Optional:  
     [Fidelity](#) (hyperlink)  
     [Janus](#) (hyperlink)  
     [Optimization examples](#) (hyperlink)
- 28-Sep      Portfolio design and optimization; multiple asset classes
- Case discussion: *Harvard Management Company (2010)*  
 BKM chapter 14, pp. 440–453  
 BKM chapter 16, pp. 509–511
- 3-Oct        Refining optimization; Black-Litterman model
- BKM chapter 8, pp. 247, 249–252, 268  
 Sample exam problems 19–22  
 Optional:  
     He and Litterman, “The Intuition Behind Black-Litterman Model Portfolios”  
     Litterman, “Beyond Equilibrium: The Black-Litterman Approach”  
     Black and Litterman,, “ Global Portfolio Optimization”  
     <http://www.blacklitterman.org/>
- 5-Oct        Performance evaluation/attribution; mutual fund performance
- Optimization write-up due**  
 BKM chapter 24 (all but pp. 830–832), problems 6–11  
 Sample exam problems 23–28  
 Optional:  
     Elton and Gruber, “Mutual Funds”  
     Wermers, “Mutual Fund Performance: An Empirical Decomposition into Stock-Picking Talent, Style, Transactions Costs, and Expenses”  
     Pastor and Stambaugh, “Mutual Fund Performance and Seemingly Unrelated Assets”
- 10-Oct      no class – fall break
- 12-Oct      Multiple return factors; size and value
- Case discussion: *Dimensional Fund Advisors, 2002*  
 BKM chapter 10 (all), problems 7–9  
 BKM chapter 13, pp. 419–425

- Sample exam problems 29–32  
Optional:  
Fama and French, “Common Risk Factors in the Returns on Stocks and Bonds”  
Fama and French, “Value versus Growth: The International Evidence”  
Berk, “Does Size Really Matter?”
- 17-Oct **Exam 1 (in class)**
- 19-Oct Hedge funds and strategies  
  
BKM chapter 8, pp. 261–265  
BKM chapter 24, pp. 830–832  
Sample exam problems 33–39  
Optional:  
Asness, Krail, and Liew, “Do Hedge Funds Hedge?”  
Gatev, Goetzmann, and Rouwenhorst, “Pairs Trading: Performance of a Relative-Value Arbitrage Rule”  
Mitchell and Pulvino, “Characteristics of Risk and Return in Risk Arbitrage”  
Cooper, Gulen, Schill, “Asset Growth and the Cross-Section of Stock Returns”  
Cohen and Frazzini, “Economic Links and Predictable Returns”  
Daniel and Titman, “Market Reactions to Tangible and Intangible Information”
- 24-Oct Behavioral strategies  
  
● Case discussion: Behavioral Finance at JP Morgan  
BKM chapter 12, pp. 381–392, CFA problems 1, 2  
Sample exam problems 40, 41  
Optional:  
Barber and Odean, “The Courage of Misguided Convictions”  
Baker, Wang, Wurgler, “How Does Investor Sentiment Affect the Cross-Section of Stock Returns”  
Lakonishok, Shleifer, Vishny, “Contrarian Investment, Extrapolation, and Risk”  
Stambaugh, Yu, Yuan, “The Short of It: Investor Sentiment and Anomalies”
- 26-Oct **Guest speaker:** Jinghua Yan, SAC Capital Advisors, LP  
  
**4:30pm, SH-DH 351**  
\*\*\*Note special time and room—no class meeting at regular time
- 31-Oct Momentum investing  
  
● Case discussion: *AQR’s Momentum Funds*  
Sample exam problem 42  
Optional:  
Chan, Jegadeesh, Lakonishok, “The Profitability of Momentum Strategies”  
Daniel, “Momentum Crashes”  
Da, Gurun, Warachka, “Frog in the Pan: Continuous Information and Momentum”

- 2-Nov Combining and implementing strategies
- Stock-screening write-up due**
- Case discussion: *numeric investors l.p.*
- Sample exam problems 43–47
- Optional:
- Hameed, Huang, Mian, “Industries and Stock Return Reversals”
- 7-Nov **Guest speaker:** Gregor Andrade, AQR Capital Management
- 4:30pm, SH-DH 350**
- \*\*\*Note special time and room—no class meeting at regular time
- 9-Nov Valuation and value investing over time
- Case discussion: *Grantham, Mayo, Van Oterloo & Co., 2001*
- BKM chapter 18, pp. 581–609, CFA problems 1, 2, 4
- Sample exam problem 48
- Optional:
- Cohen, Polk, Vuolteenaho, “The Value Spread”
  - Gulen, Xing, Zhang, “Value versus Growth: Time-Varying Expected Stock Returns”
- 14-Nov Equity premium
- Case discussion: *Deutsche Bank: Discussing the Equity Risk Premium*
- BKM chapter 13, pp. 428–435
- BKM chapter 18, pp. 613–615
- Sample exam problems 49–53
- Optional:
- Stowe, McLeavey, Pinto, “Share Repurchases and Stock Valuation Models”
  - Fama and French, “The Equity Premium”
- 16-Nov Long-horizon framework; shortfall and options/insurance
- Case discussion: *The Risk of Stocks in the Long Run: The Barnstable College Endowment*
- BKM chapter 5, pp. 147–154
- BKM chapter 20, pp. 668–669, 674–682, 687–689, problem 29
- BKM chapter 21, pp. 718–720, problems 9, 10
- Sample exam problems 54–58
- 21-Nov Life-cycle issues; mean reversion and long-horizon volatility
- Case discussion: The Vanguard Group, Inc. in 2006 and Target Retirement Funds
- BKM chapter 28, pp. 979–981
- Sample exam problems 59, 60
- Optional:
- NYTimes articles, 3/29/2009 and 6/20/2009
  - Pastor and Stambaugh, “Are Stocks Really Less Volatile in the Long Run?”



23-Nov No class – day before Thanksgiving

28-Nov Pension-fund asset allocation

- Case discussion: *Pension Policy at The Boots Company PLC*

BKM chapter 28, pp. 975–979

Sample exam problems 61–63

Optional:

Bodie, “Shortfall Risk and Pension Fund Asset Management”

Black, “The Tax Consequences of Long-Run Pension Policy”

Dammon, Spatt, Zhang, “Optimal Asset Location and Allocation with Taxable and Tax-Deferred Investing”

30-Nov **Exam 2 (in class)**

5-Dec Trading

- Case discussion: *At the T. Rowe Price Trading Desk (A)*

- Case discussion: *Investment Technology Group*

BKM chapter 3, pp. 63–76

Optional:

Keim and Madhavan, “The Cost of Institutional Equity Trades”

7-Dec Liquidity risk; active vs. passive

**Simulation write-up due**

BKM chapter 9, 306–310

BKM chapter 13, 426–428

Optional:

Pastor and Stambaugh, “Liquidity Risk and Expected Stock Returns”

Sadka, “Liquidity Risk and the Cross-Section of Hedge-Fund Returns”

Franzoni, Nowak, Phalippou, “Private Equity Performance and Liquidity Risk”

Pastor and Stambaugh, “On the Size of the Active Management Industry”