

**Corporate Finance (Honors)**  
Finance 100  
Sections 301 and 302  
The Wharton School, University of Pennsylvania  
Fall 2009

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### Course Description

The purpose of this course is to introduce techniques of financial analysis, with applications to corporate finance. The concepts developed in Finance 100 form the foundation for all elective finance courses. The main topics covered include (1) the time value of money and the net present value rule; (2) valuation of bonds and stocks; (3) capital budgeting decisions; (4) uncertainty and the tradeoff between risk and return; (5) corporate financing decisions; and (6) options. The honors sections will take a more analytical and quantitative approach compared to other sections, and will cover some topics in more depth.

### Professor

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Office Hours: Wednesdays 2:30–4:00 in SH-DH 2322

### Course Material

Required:

- S. A. Ross, R. W. Westerfield and J. F. Jaffe, Corporate Finance, 8th Edition, McGraw-Hill Irwin, 2006. (Referred to as RWJ in the course outline.)
- Course pack of readings and past exams available from Wharton Reprographics. (Referred to as CP in the course outline.) Additional material may be distributed in class.
- A scientific or business calculator. It will be necessary for your calculator to have a  $x^y$  function.

Recommended:

- Solutions Manual for use with Corporate Finance (8th edition), McGraw-Hill Irwin, 2006. (A custom version of this solution manual is available at the Penn bookstore.)

## **Problem Sets**

There will be eight problem sets. You will be rewarded full credit on the problem set if you have made a good-faith effort to answer all of the questions, and if you hand in the problem set on time. Late problem sets will not be accepted.

## **Grading**

Grades will be based on the midterm exam (30%), the final exam (45%), problem sets (20%), the computer assignment (5%). The final exam is cumulative. You will be allowed one double-sided page of notes for the midterm and two double-sided pages of notes for the final. Class participation can help determine the grade if the student is on the margin between grades.

Exam Schedule:

- Midterm Exam: Wednesday, October 21, in class.
- Final Exam: Wednesday, December 16, 3:00–5:00.

All regrade requests must be made in writing within one week of the day the exams are returned. Any exam submitted for regrading of a question can be subjected to a complete regrading.

## **Study Groups**

You are encouraged to work in groups on the problem sets, but you must hand in your own answers. It is also highly recommended that you regularly review the readings and class notes with your study group. The computer assignment may be completed and handed in by groups of up to three students.

## Course Schedule

Readings in brackets are optional  
Additional handouts may be distributed in class  
Dates are approximate

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Wed. 09/09	Introduction and NPV rule RWJ: [1–3], 4.1, CP: 1	
Mon. 09/14	Present Value RWJ: 4.2 - 4.5 CP: 2	
Wed. 09/16	Present Value (cont.)	
Mon. 09/21	Applications to Fixed Income Valuation RWJ: 5.1–5.3 CP: 3	
Wed. 09/23	Applications to Fixed Income Valuation (cont.) CP: 4, 5	PS 1 due
Mon. 09/28	No class	
Wed. 09/30	Applications to Equity Valuation RWJ: 9.1, 5.4, 5.5 CP: 6, 7, [8]	PS 2 due
Mon. 10/05	Applications to Equity Valuation (cont.) RWJ: 5.6–5.8	
Wed. 10/07	Capital Budgeting: NPV vs. Internal Rate of Return RWJ 6.1, 6.5, 6.6, [6.8]	PS 3 due
Mon. 10/12	Capital Budgeting in Practice RWJ: 7.1–7.5, CP: 9	
Wed. 10/14	Capital Budgeting in Practice (cont.)	PS 4 due
Wed. 10/21	Midterm	

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## Course Schedule (Continued)

Readings in brackets are optional  
Additional handouts may be distributed in class  
Dates are approximate

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Mon. 10/26	Expected Returns and Risk RWJ: 9.1 (review), 9.2–9.6, 10.1, 10.2	CP: 10, 11 12	
Wed. 10/28	Portfolio Analysis RWJ: 10.3–10.5	CP: 13, 14, [15]	
Mon. 11/02	Portfolio Analysis (cont.) RWJ: 10.6–10.7	CP: 16, 17	
Wed. 11/04	Capital Asset Pricing Model RWJ: 10.8, 10.9	CP: 18, [19], 20, [21], [22]	PS 5 due
Mon. 11/09	Capital Budgeting under Uncertainty RWJ: 12.1–12.3	CP: 23	
Wed. 11/11	Overview of Financing and Market Efficiency RWJ: 13.1–13.4, [13.5], 13.6, [13.7–13.8]	CP: 24, [25]	PS 6 due
Mon. 11/16	Capital Structure RWJ: 15.1, [15.2], 15.3, 15.4	CP: 26	
Wed. 11/18	Capital Structure (cont.) RWJ: 15.5, 16.1, 16.2, 16.4, [16.5–16.10]	CP: 27, [28]	
Mon. 11/23	Valuation and Capital Budgeting with Leverage RWJ: 17.1, [17.2], 17.3, 17.4, CP: 29, [30]		CA due
Wed. 11/25	No class		
Mon. 11/30	Valuation and Capital Budgeting with Leverage (cont.) RWJ: 17.5–17.7		
Wed. 12/02	Options RWJ: 22.1–22.4, [22.5], 22.6	CP: 31, [32]	PS 7 due
Mon. 12/07	Options (cont.) RWJ: 22.7, 22.8, [22.9–22.10]	CP: 33, 34	
Wed. 12/09	Review		PS 8 due
Wed. 12/16	Final (from 3:00-5:00, location TBA)		

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## Detailed Outline

### Part I: Present value

1. Introduction and Net Present Value (NPV) Rule
  - (a) Present value concepts
  - (b) NPV rule
  - (c) Separation theorem
2. Present Value
  - (a) Simple vs. compound interest
  - (b) Annuities and perpetuities
  - (c) Growing annuities and perpetuities; delayed annuities and perpetuities
  - (d) Compounding within the year and the effective annual interest rate
3. Applications to Fixed Income Valuation
  - (a) Bond definitions
  - (b) Valuation of pure discount bonds
  - (c) Yield to maturity vs. holding period return
  - (d) Prices and returns on coupon bonds
  - (e) Semi-annual bonds
  - (f) The yield curve
  - (g) Forward rates
4. Applications to Equity Valuation
  - (a) Using present value methods to value equity
  - (b) Applying infinite horizon formulas
  - (c) Determining dividend growth
  - (d) Net present value of growth opportunities
5. Capital Budgeting: NPV vs. Internal Rate of Return
  - (a) Definition of IRR
  - (b) Comparing NPV and IRR: Accept or reject decision
  - (c) Comparing NPV and IRR: Mutually exclusive projects
6. Capital Budgeting in Practice
  - (a) Overview of capital budgeting
  - (b) Depreciation
  - (c) Inflation and capital budgeting
  - (d) Investments of different lives: EAC method
  - (e) Working capital

## **Part II: Portfolio Theory and the CAPM**

1. Expected Returns and Risk
  - (a) Return definitions
  - (b) Overview of portfolio theory
  - (c) Mean, standard deviation, and correlation
2. Portfolio Analysis
  - (a) Two risky assets
  - (b) One riskless and one risky asset
  - (c) One riskless and two risky assets
  - (d) The general case: one riskless and multiple risky assets
3. Capital Asset Pricing Model (CAPM)
  - (a) Statement of the CAPM
  - (b) Proof of the CAPM
  - (c) Capital market line vs. Security market line
  - (d) Evidence for and against the CAPM
4. Capital Budgeting under Uncertainty

## **Part III: Financing Decisions**

1. Overview of Financing and Market Efficiency
  - (a) Overview of financing
  - (b) Efficient markets hypothesis
  - (c) Evidence for and against market efficiency
  - (d) Joint hypothesis problem
2. Capital Structure
  - (a) Preliminaries
  - (b) Modigliani and Miller propositions in a frictionless market
  - (c) Corporate taxes
  - (d) Costs of financial distress

### 3. Valuation and Capital Budgeting with Leverage

- (a) Weighted average cost of capital (WACC)
- (b) Adjusted present value (APV)
- (c) Unlevering and levering beta
- (d) WACC vs. APV

## Part IV: Options

### 1. Definitions and Strategies

- (a) The options contract
- (b) Payoffs and profits at expiration
- (c) Option strategies

### 2. Valuation

- (a) Bounds on option prices prior to expiration
- (b) Factors affecting option prices
- (c) Put-call parity
- (d) The Black-Scholes formula

## Course Pack Readings

1. Appendix to RWJ Chapter 4
2. Computing Effective Annual Rates
3. Holding Period Return and Yield to Maturity for Zero-Coupon Bonds
4. Calculating the Holding Period Return on a Coupon Bond
5. Appendix to RWJ Chapter 5
6. Equity Valuation Formulas
7. NPVGO and the Constant Growth Model
8. News Clippings on Equity Valuation
9. Practical Aspects of the NPV Rule
10. Geometric Average Versus Arithmetic Average
11. Reinvesting Dividends
12. Numerical Examples of Mean, Standard Deviation, and Correlation
13. Proof of Mean and Variance Formulas
14. Gains from Diversification: 2 Risky Assets
15. News Clippings on Diversification
16. Portfolio Variance with Many Risky Assets
17. Optimal Portfolios when there is a Riskfree Asset
18. Understanding the CAPM
19. Optional Proof of the Security Market Line
20. Calculating Beta
21. Appendix to RWJ Chapter 10
22. News Clipping on the Risk Premium
23. Applying the CAPM to Capital Budgeting
24. Understanding Market Efficiency
25. News Clippings on Efficiency
26. MM Propositions I and II
27. MM with Corporate Taxes
28. News Clipping on Bankruptcy Costs

29. Valuation and Capital Budgeting with Leverage
30. Proofs for Capital Budgeting with Leverage
  
31. Definition and Payoffs at Expiration of Calls and Puts
32. News Clippings on Options
33. Numerical Examples of Put-Call Parity and Minimum Value
34. Arbitrate Proofs of Put-call Parity and Minimum Value
35. Previous Midterms and Solutions
36. Previous Finals and Solutions