

**Corporate Finance (Honors)**  
Finance 100  
Sections 301 and 302  
The Wharton School, University of Pennsylvania  
Fall 2010

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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: Thursdays 2:00-3:00 in SH-DH 2322

### **Teaching Assistants**

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Office hours for teaching assistants will be announced by the second week of class.

### **Course Material**

- S. A. Ross, R. W. Westerfield and J. F. Jaffe, Corporate Finance, 9th Edition, McGraw-Hill Irwin, 2010. (Referred to as RWJ in the course outline.)

It is recommended (but not required) that you also purchase the solutions manual.

- Course pack of readings, links to relevant articles and past exams available on the website: <https://webcafe.wharton.upenn.edu/eRoom/fnce/100-fa10-2>. Wharton students have automatic access. Non-Wharton students should see <http://supportcenteronline.com/ics/support/default.asp?deptID=658> for information on obtaining a Wharton computing account.

Readings from the course pack are prefaced with CP on the course outline. Supplementary articles are prefaced with S on the outline. Additional readings may be posted over the course of the semester.

- A scientific or business calculator. It will be necessary for your calculator to have a  $x^y$  function.

## **Problem Sets**

There will be eight problem sets. Problem sets are due in class on the day given in the syllabus. 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, 6:00–8:00 PM.

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. 09/08	Introduction and NPV rule RWJ: [1–3], 4.1, CP: 1	
Mon. 09/13	Present Value RWJ: 4.2 - 4.4 [4.5, 4.6] CP: 2	
Wed. 09/15	Present Value (cont.)	
Mon. 09/20	Applications to Fixed Income Valuation RWJ: [8] CP: 3	
Wed. 09/22	Applications to Fixed Income Valuation (cont.) CP: 4, 5	PS 1 due
Mon. 09/27	Applications to Equity Valuation RWJ: 9.1, 9.2 CP: 6, 7 S: [1]	
Wed. 9/29	Applications to Equity Valuation (cont.) RWJ: 9.3, [9.4, 9.5]	PS 2 due
Mon. 10/04	NPV vs. Internal Rate of Return RWJ 5.1, 5.4, 5.5, [5.7]	
Wed. 10/06	Capital Budgeting in Practice RWJ: 6.1–6.5 CP: 8	PS 3 due
Mon. 10/11	No class (Fall break)	
Wed. 10/13	Capital Budgeting in Practice (cont.)	PS 4 due
Mon. 10/18	Catch-up and review	
Wed. 10/20	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. 10/25	Expected Returns and Risk RWJ: 10.1–10.6, [10.7, 10.8] CP: 9, 10 11	
Wed. 10/27	Portfolio Analysis RWJ: 11.3–11.5 CP: 12, 13 S: [2]	
Mon. 11/01	Portfolio Analysis (cont.) RWJ: 11.6, 11.7 CP: 14, 15	
Wed. 11/03	Capital Asset Pricing Model RWJ: 11.8, 11.9 CP: 16, [17], 18 S: [3]	PS 5 due
Mon. 11/08	Capital Asset Pricing Model (cont.) RWJ: 13.1–13.4 CP: 19	
Wed. 11/10	Market Efficiency RWJ: 14.1–14.4, [14.5], 14.6, [14.7–14.8] CP: 20 S: [4]	PS 6 due
Mon. 11/15	Capital Structure RWJ: 16.1, [16.2], 16.3, 16.4 CP: 21	
Wed. 11/17	Capital Structure (cont.) RWJ: 16.5, 17.1, 17.2, 17.4, [17.5–17.10] CP: 22 S: [5]	
Mon. 11/22	Valuation and Capital Budgeting with Leverage RWJ: 18.1, [18.2], 18.3, 18.4 CP: 23, [24]	Computer assignment due
Wed. 11/24	No class (Thanksgiving)	
Mon. 11/29	Valuation and Capital Budgeting with Leverage (cont.) RWJ: 18.5–18.7	
Wed. 12/01	Option Definitions and Strategies RWJ: 22.1–22.4, [22.5], 22.6 CP: 25 S: [6]	PS 7 due
Mon. 12/07	Option Valuation RWJ: 22.7, 22.8, [22.9–22.10] CP: 26, 27	
Wed. 12/09	Catch-up and review	PS 8 due
Wed. 12/16	Final (from 6:00-8:00 pm, location TBA)	

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## Detailed Outline

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. NPV vs. Internal Rate of Return
  - (a) Definition of Internal rate of return (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

7. Expected Returns and Risk
  - (a) Return definitions
  - (b) Overview of portfolio theory
  - (c) Mean, standard deviation, and correlation
8. 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
9. 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
  - (e) Application to capital budgeting
10. Market Efficiency
  - (a) Efficient markets hypothesis
  - (b) Evidence for and against market efficiency
  - (c) Joint hypothesis problem
11. Capital Structure
  - (a) Preliminaries
  - (b) Modigliani and Miller propositions in a frictionless market
  - (c) Corporate taxes
  - (d) Costs of financial distress
12. 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
13. Option Definitions and Strategies
  - (a) The options contract
  - (b) Payoffs and profits at expiration
  - (c) Option strategies
14. Option 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. The Savings and Investment Decision
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. Forward Rates
6. Equity Valuation Formulas
7. NPVGO and the Constant Growth Model
8. Practical Aspects of the NPV Rule
9. Geometric Average Versus Arithmetic Average
10. Reinvesting Dividends
11. Numerical Examples of Mean, Standard Deviation, and Correlation
12. Proof of Mean and Variance Formulas
13. Gains from Diversification: 2 Risky Assets
14. Portfolio Variance with Many Risky Assets
15. Optimal Portfolios when there is a Riskfree Asset
16. Understanding the CAPM
17. Optional Proof of the Security Market Line
18. Calculating Beta
19. Applying the CAPM to Capital Budgeting
20. Understanding Market Efficiency
21. MM Propositions I and II
22. MM with Corporate Taxes
23. Valuation and Capital Budgeting with Leverage
24. Proofs for Capital Budgeting with Leverage
25. Definition and Payoffs at Expiration of Calls and Puts
26. Numerical Examples of Put-Call Parity and Minimum Value
27. Arbitrage Proofs of Put-call Parity and Minimum Value

## **Supplementary articles**

1. Readings on Equity Valuation
2. Readings on Diversification
3. Readings on the Risk Premium
4. Readings on Efficiency
5. Readings on Bankruptcy Costs
6. Readings on Options