NOTE; This syllabus is being updated to the 12th edition of the text. It is only half completed. It is posted here to give students an idea of the contents of the course. The final updated version will be posted soon. The syllabus is accurate for the for Parts I, II and III.

PRINCETON UNIVERSITY: Woodrow Wilson School of Public and International Affairs
International Affairs

WWS 505--FINANCIAL MANAGEMENT OF ORGANIZED ECONOMIC ACTIVITY

SPRING TERM 2008

PRECEPTOR:
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REVIEW SESSION*:
Tuesdays 7:00-9:00 p.m.

LECTURES:
Mon, Wed 9:00 -10:30 a.m.

A. COURSE OBJECTIVE

This course has been designed to introduce graduate students in the Woodrow Wilson School to a variety of principals and practical analytic tools widely used in the financial management of organizations, be they privately or publicly owned. The course is based on the premise that graduates of the School are likely to be involved in the financial management of public agencies or non-governmental entities, or in the role of civil servants negotiate financial contracts with the private sector, or be called upon to regulate financial management in the private sector, as is now the case in the sub-prime mortgage markets.

Although intended for students in public affairs, the structure and content of the course resembles that of a first-year M.B.A. course in financial management. Some topics normally included in such courses, however, will be traded-off in favor of added material on consumer finance, which requires constant vigilance on the part of the public sector.

The level of technical difficulty in the course will be pitched to students in the B-track of the MPA program, and the emphasis will be on theories and analytic techniques that have practical application. MPA and Ph.D. candidates in the C-track of the Woodrow Wilson School also might prefer the more advanced finance offerings in the latter programs, although some of these lack the practical orientation of this course.

Given its objective, the course is open only to graduate students in the MPA and Ph. D. programs of the Woodrow Wilson School. Students in departments or programs outside the Woodrow Wilson School should take the relevant courses in finance offered by the Bendheim Center for Finance or by the Department of Economics.

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* This review session is entitely voluntary. It is designed mainly for students who find some of the material chasllenging, either because they have never worked with financial material or they have been away too long from the mathematics of compound interest. We have found over the years that Tuesday nights work best although we are open to an alternative slot, should fewer students who wish to come to these session then have conflicts.

B. TEXTBOOKS AND READING ASSIGNMENTS

The lectures in the course draw heavily on Eugene. F. Brigham and Michael. C. Ehrhardt, *Financial Management: Theory and Practice*, (12th edition, 2008). This excellent textbook is known for its practical bent. It has been ordered by the U-Store, along with the Study Guide that accompanies the text. Students are urged to acquire the text as a reference manual for future use. Its content has a long use life.

C. FINANCIAL CALCULATOR

It will be assumed throughout the course that students have and bring to every lecture an electronic calculator programmed with the basic financial formulas mentioned in the text. These calculators vary greatly in terms of sophistication and price. For this course, the relatively low-cost *Texas Instruments BA-35 Student Business Analyst* will do. It costs about $20 - $25 and incorporates a variety of useful financial functions, including special functions to calculate bond yields.

D. SPREADSHEET ANALYSIS

During the first two weeks, the course involves the completion of stylized, hand-written homework exercises. Thereafter the course emphasizes spread-sheet analysis. It will be assumed that, by then, every student in the course will be comfortably familiar with *Excel*, the workhorse on the Woodrow Wilson School's PCs. Students not familiar with that tool should purchase any one of the self-help books on *Excel* available in bookstores. If it is desired, it will be possible to organize special training sessions for students who are unfamiliar with spread-sheet analysis.

E. HOMEWORK ASSIGNMENTS

There will be a number of written homework exercises, about one per week. They will be graded **√-, √, √+,** roughly according to the following criteria:

√+ (100 pts.)	The answers are basically correct, and the workmanship is good to excellent.
√ (80 pts.)	The answers are basically correct; but the workmanship is wanting, **or** there are a few errors in the answers; but the workmanship is good to excellent.
√- (60 pts.)	Quite a few answers are incorrect, whatever the workmanship may be, **or** the workmanship is shoddy, however correct or incorrect the answers may be.
0 (0 pts.)	The assignment was not turned in, **or** it was turned in too late.

The average score on the homework assignments will be given a total weight of 20% in the overall course grade.

F. MIDTERM TEST AND FINAL EXAMINATION

There will be an 80-minutes midterm test (in the regular class period Monday, **March 10, 9:00-10:30 p.m.)** and a three-hour, closed-book, written final examination at the end of the course. Students in the course should mark that date in their calendars, as pre- or postponements of the test will be granted only under truly exceptional circumstances (e.g., medical emergencies).

G. OVERALL COURSE-GRADE

The final letter grade for the course will be based on a score calculated as follows:

$$S = 0.20\mathbf{H} + \max\{0.30\mathbf{M}+0.50\mathbf{F},\ 0.15\mathbf{M}+0.65\mathbf{F}\}\ ,$$

where H is the average percentage score for the homework exercises, M is the percentage score on the midterm examination, and F is the percentage score on the final examination. This formula is designed to reduce the mortgage that an unexpectedly poor performance on the midterm test might place on the overall course grade.

Given the typical enrollment in this course and the nature of the work it requires, the customary evaluation of students, written in prose, would merely verbalize the quantitative grades earned with that work. Therefore, these written evaluations will be eschewed.

H. "AUDIT" CREDIT

To receive credit for an "AUDIT" on the transcript, students should (1) write the midterm test with a passing grade and (2) complete all but two of the homework exercises. As a rule, I do not negotiate around these terms. If space becomes an issue, students enrolled in the course for Credit naturally will be accorded priority.

COURSE OUTLINE

The abbreviation BE refers to the textbook by Brigham and Ehrhardt.

The topic numbers do not exactly coincide neatly with lecture numbers, as some topics may require more than one lecture session, depending on the discussion that emerges in class.

PART I: THE TIME VALUE OF MONEY

1. COMPOUND INTEREST

The objective in this part is to introduce students to the concepts of compound interest and some applications.

Reading Assignment: BE, Chapter 2, pp. 37-50.

Blackboard: Notes on compound interest. (Recommended only: These notes were written for an undergraduate course in micro-economics. Some students in this course may find them helpful.

2. TIME-PHASED CASH FLOWS (ANNUITIES AND AMORTIZATION TABLES)

In this lecture we explore the present and future value of time-phased cash flows and the associated amortization tables.

Reading Assignment: BE, Chapter 2, pp. 50-73.

PART I: CONSUMER INSTALLMENT CREDIT AND MORTGAGES

3. AMORTIZED LOANS

In this part, the mathematics of finance are applied to sundry topics in consumer finance, an area in which fraud is common and which future civil servants will increasingly be called upon to monitor and regulate—chiefly mortgages and other forms of installment credit.

Reading Assignment: BE, Chapter 2, Section 2.17, pp. 69-70.

3. VARIABLE-RATE MORTGAGES AND THE SUBPRIME MORTGAGE LOAN MESS

Reading Assignment:

Blackboard: "The Sub Prime Mortgage Mess" and
"The WSJ on the Mortgage Mess"

PART III: THE VALUATION OF REAL AND FINANCIAL ASSETS

In their preface, the authors note that "valuation" is a unifying theme for the book, by which they mean the valuation of real and financial assets or, from a borrower's perspective, of time-phased debt obligations. The discussion then extends to a study of the effect of risk on asset values. An important part of that discussion is how risk should be defined and measured for this purpose. We shall follow the text in this regard. Some of the material is technically more demanding and may warrant several readings.

5. AN OVERVIEW OF FINANCIAL MANAGEMENT AND FINANCIAL MARKETS

For starters on this Part, we shall look at the financial markets in which the values of financial and real assets are determined.

Reading Assignment: BE, Chapter 1, especially pp. 12-33.

6. THE USE AND VALUATION OF BONDS

Reading Assignment: BE, Chapter 5. There's much more in this rich chapter than we can cover in class. Read this chapter carefully and take notes.

7. STOCK CERTIFIACTES AND THEIR VALUATION

Reading Assignment: BE, Chapter 8. the text covers Portfolio Theory and the so-called Capital Asset Pricing Model (CAPM) before Chapter 8 on stocks, but it is not necessary to know that material before reading Chapter 8. Overlook any references in Chapter 8 to Chapters 6 or 7.

Blackboard: Uwe E. Reinhardt, "The Rise and Fall of the Physician Practice Management Industry," *Health Affairs* (January/February, 2000). Toward the end of Chapter 8, the authors discuss the Efficient Market Hypothesis. I personally view it as part of what makes economics a quasi-religious doctrine. In this article, I describe how the market worked during the asset bubble that preceded the (presumably efficient) real estate and CDO bubble from which we are emerging now.

8. RISK AND ASSET VALUATION: DEFINING "STAND-ALONE RISK"

In the previous lectures, we simply assumed appropriate discount rates for stock valuation. It makes intuitive sense that the discount rate used to convert a future cash flow into its present value equivalent should rise with the uncertainty (risk) associated with that cash flow. The question is how that risk should be defined and quantified. In this and the next two lectures, we shall review the state of the art on this issue. The theory has been developed around the valuation of one particular asset: common stock certificates. We will concentrate on Chapter 6. Students who are really interested in this topic may want to read also Chapter 7, which digs deeper into the Portfolio Theory underlying the Capital Asset Pricing Model discussed in Chapter 6.

Reading Assignment: BE, Chapter 6, Sections 6.1 and 6.2, pp. 200 -11 and material to be distributed in class.

8. RISK AND ASSET VALUATION: THE RISK INHERENT IN PORTFOLIOS OF ASSETS

Reading Assignment: BE, Chapter 6, Sections 6.3 and 6.4, pp. 211-25; Chapter 5, pp. 172-83, and material to be handed out in class.

9. RISK AND ASSET VALUATION: THE CAPITAL ASSET PRICING MODEL (CAPM) AND ALTERNATIVE THEORIES

Reading Assignment: BE, Chapter 6, Sections 6.5 and 6.6., pp. 226-33.

From here on, the syllabus is yet to be updated to the 12th edition of BE.

PART IV: CORPORATION FINANCE

Having laid the groundwork in the mathematics of finance and the valuation of assets, the course shifts in this part to the principles of the financial management of corporations, be they for-profit or not-for-profit. After a bird's-eye view of the subject, we shall examine the overall cost of financing the firm's activities and the principles of evaluating alternative uses of corporate funds (otherwise known as "project evaluation" or "capital budgeting").

10. AN OVERVIEW OF CORPORATION FINANCE: PART I

The managers of corporation render a periodic accounting of their use of the financial resources entrusted to them and of the corporation's financial position to (a) owners, or trustees (b) potential investors or donors and (c) the government by means of standard quarterly and annual financial reports. It is important that you understand their basic structure and contents, as well as the limits of these communications.

Reading Assignment: BE, Chapter 3 (Financial Statements) and Chapter13 (Financial Ratio Analysis). Also class-handout U. E. Reinhardt, "The Legal Structure of a Business Corporation" (on Blackboard).

MIDTERM TEST MARCH 13, 2006

11. AN OVERVIEW OF CORPORATION FINANCE: PART II

Reading Assignment: Class handout U. E. Reinhardt, "An Introduction to Corporation Finance" (On Blackboard). BE, Chapter 9 (the main reading on the firm's cost of financing) and Chapter 19, pp. 647-668 and 675 to 678 only. (Chapter 19 covers the nuts and bolts of actually selling new financial securities in the financial markets. Because it is easy reading, we shall not waste lecture time on this material. It is assumed, however, that you will be familiar with this material. We shall cover the subject matter on pp. 668-674 of Chapter 19 on "Bond Refunding" in a separate lecture later.)

Recommended Reading: Chapter 16. (In Chapter 9, the firm's debt-to-equity mix is taken as given. Chapter 16 explores the Theory of the Firm's Capital Structure, that is, of the optimal mix of debt and equity in the financing of the firm. Chapter 17 extends the analysis even further.)

12. THE COST OF FINANCING OF NOT-FOR-PROFIT FIRMS

Traditionally, not-for-profit firms that were endowed by charitable donors did not apply modern techniques of corporate financial management to their operations. During the last decade, however, more and more of them have adopted these techniques lock-stock-and-barrel, with only minor modifications emerging from their tax-exempt status. In this lecture, we shall explore these modifications and the estimation of the cost of financing for not-for-profit firms.

Reading Assignment: Material to be distributed in class.

13. CAPITAL BUDGETING ASSUMING CERTAINTY: THE BASIC IDEA

The typical capital project requires cash outlays in the early life of the project, followed by hoped for cash inflows subsequently. In this and the following lectures, we shall explore methods of evaluating such cash flows in terms of their economic merit. We shall initially assume that all cash flows will occur with certainty. Thereafter we shall study how one can adjust the evaluation for the more realistic assumption that most such cash flows are surrounded by uncertainty.

Reading Assignment: BE, Chapter 10.

14. CAPITAL BUDGETING ASSUMING CERTAINTY: PROJECTING DIFFERENTIAL CASH FLOWS ATTRIBUTABLE TO PROJECTS (DEPRECIATION, TAXES, INFLATION, ENTITY

vs. EQUITY CONCEPT)

Projecting the cash flow triggered by a decision to opt for one particular capital project, rather than to pursue other alternatives, is the art in capital budgeting. Many errors occur at that stage. We shall look at the basics of that art.

Reading Assignment: BE Chapter 11, pp. 379-97 only. (We'll cover the rest of Chapter 11 in the next lecture.)

15. CAPITAL BUDGETING ASSUMING CERTAINTY: A MORTGAGE-LOAN APPROACH TO CAPITAL BUDGETING (AMORTIZATION TABLES FOR PROJECTS, POSITIVE AND NEGATIVE IRRs, THE SO-CALLED "MODIFIED IRR")

Some capital projects have negative internal rates of return (IRRs). Their interpretation is most easily understood if one views projects as "persons" who "borrow" money (the initial outlay) from a "bank" (the firm's treasury department) which, for any given period of the project's life, charges the project "interest" (equal to the appropriate cost-of-capital rate or WACC) on any amount lent to the project and not yet repaid through periodic cash inflows (the project balance outstanding at the beginning of the period). This approach is not found in textbooks, although it is very illuminating. We shall develop it in this lecture. (Reading Assignment: Material to be distributed in the lecture).

16. CAPITAL BUDGETING UNDER UNCERTAINTY

Financial theorists have developed a number of approaches to deal with the uncertainty surrounding time-phased cash flows. Some of these approaches are of more theoretical interest than practical import. The most commonly used approach in practice is sensitivity analysis, which can be made to incorporate elements of the CAPM.

Reading Assignment: BE, Chapter 11, pp. 397-409 and Chapter 12, pp. 419-27. (The reading in Chapter 12 introduces the idea that there are options embedded in many capital projects. The options have value that should, in principle, be included in the evaluation of investment alternatives. Some business firms, although by no means the majority of them, have begun to experiment with formal methods to include such valuations in their capital budgeting. The seminal article on this topic is Avinash K. Dixit and Robert S. Pindyck, "The Options Approach to Capital Investments," *Harvard Business Review*, May-June 1995: 105-115.)

17. THE THEORY AND PRACTICE OF ENTERPRISE VALUATION

In this concluding lecture, we shall look at the problem of putting a value on entire, ongoing enterprises, with a real-life illustration of a business acquisition, to give students an idea of what actually goes on in corporate board rooms in connection with project evaluation. For students of public and international affairs, the issue of enterprise valuation is relevant also in the context of "privatization," that is, in the conversion of hitherto state-owned enterprises into for-profit enterprises, or the conversion of private not-for-profit enterprises into for-profit enterprises. These

conversions occur not only in the formerly socialist nations, but also in traditionally capitalist nations, such as the United States, where many hitherto not-for-profit entities of the health care sector have been converted into for-profit enterprises.

Reading Assignment: BE, Chapter 15 on "Corporate Valuations", pp. 505-16. (Here the authors describe lucidly how financial analysts estimate the value of entire enterprises.)

18. INVESTING CORPORATE FUNDS IN LEASE FINANCING: THE LESSOR'S PERSPECTIVE

Reading Assignment: BE, Chapter 20, pp. 698-701.

PART IV: SPECIAL TOPICS IN CORPORATION FINANCE

19. RETIRING BONDS BEFORE MATURITY

On many occasions, corporations find it financially advantageous to retire an outstanding bond issue before the official maturity date of the issue. One can retire such bonds either with cash on hand or with cash procured from a new bond issue with lower coupon interest. We shall explore how the corporation, be it for profit or not-for-profit, should evaluate such decisions.

Reading Assignment: BE, Chapter 19, pp. 766-73 only.

20. PROCURING CORPORATE FUNDS WITH LEASES: THE LESSEE'S PERSPECTIVE

Reading Assignment: BE, Chapter 20, pp. 686-98 and 701-705.

21. THE ROLE OF FINANCIAL OPTIONS AND THEIR VALUATION

Reading Assignment: BE, Chapter 8.

*22. OTHER DERIVATIVES AND RISK MANAGEMENT: FUTURES, SWAPS, SECURITIZED ASSETS (STRUCTURED NOTES) AND INVERSE FLOATERS

Reading Assignment: BE, Chapter 23. (Even if we do not manage cover this material formally in a lecture, you should read this eminently readable chapter to become familiar with these modern financial instruments and be able to describe their nature on an exam.)

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* Time permitting