B8306 Capital Markets and Investments
Professor Lars A. Lochstoer
Summer 2014 Syllabus

Contact Details:
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Uris 405B
Office hours by appointment
E-mail: LL2609@columbia.edu

I. Course Description
This course has three goals:

1. To introduce the principles of asset valuation from an applied perspective. The majority of the class is concerned with the valuation of financial securities. The valuation issues to be discussed are heavily used in portfolio management and risk management applications.

2. To develop the following concepts: arbitrage, the term structure of interest rates, diversification, the Capital Asset Pricing Model (CAPM), efficient and inefficient markets, performance evaluation, and derivative securities, particularly options.

3. To provide sufficient background knowledge for students seeking an overview of capital markets and an introduction to advanced finance courses.

The main topics can be summarized in seven groups:

1. 2 classes: Introductory Concepts
2. 3 classes: Valuation of Fixed Income Securities
3. 2 classes: Valuation of Securities with Risky Payoffs
4. 3 classes: Portfolio Choice
5. 3 classes: Evaluating Investment Performance
6. 2 classes: Behavioral Finance
7. 5 classes: Valuation of Options

Throughout the course, we will address two basic questions:

1. Which methods do we use to value securities?
2. How do we choose securities to maximize expected return for a given amount of risk?
Connection with the Core

Capital Markets builds on knowledge from Corporate Finance, Managerial Statistics, and Decision Models courses by advancing students’ understanding of asset valuation and investment decisions. Capital Markets uses and builds upon the basic valuation tools developed in Corporate Finance, such as arbitrage valuation, time value of money, understanding risk-return tradeoffs, the CAPM, and asset valuation. In analyzing various markets and assets, Capital Markets uses many concepts from Statistics, including statistical modeling, random variables and distributions, parameter estimators, hypothesis testing, and regression. Optimization methods and stochastic modeling tools from Decision Models are also widely used, especially in portfolio construction and risk control. There are also some connections with Global Economic Environment, especially in the Fixed Income Unit in discussing bond markets and the role of central banks and monetary policy.

II. Course Materials

Required Text: The textbook for this course is *Investments* by Bodie, Kane, and Marcus (hereafter BKM) (Irwin McGraw Hill), 9th or 10th edition.


Additional Readings: Relevant articles from industry, academia, and the popular press will be provided throughout the course.

III. Course Administration

Finance and Economics Division: Marina Tourevski: mt2051@columbia.edu

Teaching Assistant:

Aleksey Semenov (asemenov16@gsb.columbia.edu).

**Classes:** Section I: Tu/Th from 11am – 1pm, WJW 207. Section II: Tu/Th from 2:45pm to 4:45pm, WJW 207.

Exceptions: (1) Section I, no class Tuesday May 27th, substitute class is *Wednesday* May 28th from 5pm – 7 pm, WJW 207; (2) Section II, no class Thursday June 26th, substitute class *Wednesday* June 25th, 5pm – 7pm in WJW 207.

**Review Sessions** – Optional review sessions will be held on Fridays: 2:45-4:45pm in Uris 141, starting June 6th. See review session calendar on Canvas for details and exceptions. Friday review sessions will help students with questions about cases, homework problems, or lectures. Review sessions will emphasize examples. Special review sessions will be held before the midterm and final exams as follows:

Midterm and Final Review sessions: TBD.
Class Notes – Notes will be distributed in every class and will be available on Canvas.

Readings – Beyond the assigned textbook chapters, there will be supplementary readings available on Canvas. The lecture notes will call attention to any such material.

Cases – There are four case assignments, but the first case will not be graded. Cases should be done in groups of 3 members (MBA Assignment Type A). Students are responsible for organizing these groups and should add all group members to one of the Assignment Groups on Canvas. Each case will be distributed at least one class in advance and due by 11:00am on the due date. Cases and solutions will be available only in Canvas. Submitted cases will be graded on a check plus, check, or check minus scale. The three case grades are weighted equally in your course grades. Because case solutions are discussed in class, late cases will not be accepted under any circumstances.

Homework – There are seven homework assignments, but the first homework will not be graded. Homework should be done in groups of 3 members (MBA Assignment Type A). Students are responsible for organizing these groups and should add all group members to one of the Assignment Groups on Canvas. Each assignment will be distributed one week in advance and will be due by 3pm on the due date. Homework and solutions will be available only in Canvas. Submitted homework will be graded on a check plus, check, or check minus scale. Although grades will be assigned to six assignments, only your highest five grades will count towards your course grade. Given this flexibility, late homework will not be accepted under any circumstances.

Class Participation – This evaluation is based on a student’s contribution to learning inside and outside the classroom. Activities that enhance learning in the classroom include attending lectures consistently, arriving before class begins, keeping up with assigned readings, asking thoughtful questions, and answering questions addressed to you or the class. If you are unable to attend any lecture, please send an e-mail to your teaching assistants with the subject line “missing lecture” before class begins. Mobile electronic devices, such as cell phones, smart phones, laptops, and tablets, must be turned off. Activities that enhance learning outside the classroom include taking the weekly Canvas quizzes, helping group members solve homework and case problems, and attending the guest speaker’s lecture.

Weekly Canvas Quizzes – Each week, students must take a short quiz on Canvas between Thursday at 7pm and the following Tuesday at 11:00am. Each quiz consists of no more than three review questions based on the week’s lectures and readings. Any books, references, computing or calculating equipment can be used. Quizzes must be taken individually. Quiz scores count towards the participation component of your grade. Solutions will be posted soon after quizzes are due.
Midterm Examination – The midterm exam will be held Wednesday July 2nd at 10am. The exam will be administered by the Office of Student Affairs (OSA) in Uris rooms. Students can use any books, references, and computing devices.

Final Examination – The final exam will be held on Tuesday, August 12th at 10am. The exam will be administered by OSA in Uris rooms. Students can use any books, references, and computing devices.

Components of the grade:

- 15% Cases
- 25% Homework
- 20% Midterm exam
- 25% Final exam
- 15% Class participation, including quizzes
## Course Content Outline

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Topic</th>
<th>Chapters in BKM</th>
<th>Assignment (Type)*⁺</th>
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<td>1</td>
<td>5/27#</td>
<td>Introduction - Course Outline and Background</td>
<td>1, 2</td>
<td>Case 0 (A) due 5/29</td>
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<td>HW 0 (A) due 6/3</td>
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<td>2</td>
<td>5/29</td>
<td>Introduction - Shorting, Leverage, and No-arbitrage</td>
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<td>3</td>
<td>6/3</td>
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<td>HW 1 (A) due 6/12</td>
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<td>4</td>
<td>6/5</td>
<td>FIXED INCOME – Term structure and Interest Rate Risk (Duration)</td>
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<td>Case 1 (A) due 6/10</td>
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<td>FIXED INCOME - Immunization</td>
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<td>6/12</td>
<td>VALUING RISKY PAYOFFS - Default Risk and Swaps</td>
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<td>VALUING RISKY PAYOFFS - Equity Valuation</td>
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<td>PORTFOLIO CHOICE - Diversification</td>
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<td>PORTFOLIO CHOICE - The Efficient Frontier, CAPM</td>
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<td>Midterm Exam (administered by OSA at 10am)</td>
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<td>7/8</td>
<td>PERFORMANCE EVALUATION - CAPM Anomalies</td>
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<td>PERFORMANCE EVALUATION - Skill versus Luck</td>
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<td>BEHAVIORAL FINANCE - Biases &amp; Limits to Arbitrage</td>
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<td>OPTIONS - Replicating an Option, Binomial model</td>
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<td>OPTIONS - Applications and Trading Strategies</td>
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<td>8/7</td>
<td>OPTIONS - Applications and Trading Strategies</td>
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<td>22</td>
<td>8/12</td>
<td>Final Exam (administered by OSA at 10am)</td>
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# For Section I, first class is instead on 5/28
* Case assignments are due by 11:00am ET on the due date.
⁺ Homework assignments are due by 3:00pm ET on the due date.
^ for Section II, 6/26 class is instead on 6/25

Official MBA assignment types appear in parentheses
A = group/group, B = group/individual, C = individual/individual