

B8306 Capital Markets and Investments
Professor Michaela Pagel
Spring 2015 Syllabus

Please note that the first lecture of this class will be held on Thursday January 29 and not on the first day of classes (Tuesday January 27).

Contact Details:

Professor Michaela Pagel
Uris 418-A
Office hours Tuesdays 4 to 5pm or by appointment
E-mail: mpagel@columbia.edu

I. Course Description

This course has three goals:

1. To introduce the principles of investing from an applied perspective. Leading applications include personal and professional portfolio management, risk management, security valuation, and capital structure.
2. To develop the following concepts: risk-return trade-offs, diversification, systematic and idiosyncratic risk, expected returns, market efficiency, performance evaluation, arbitrage, the term structure of interest rates, bond duration, and 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 the following groups:

- 2 classes: Introductory Concepts
- 5 classes: Valuation of Fixed Income Securities
- 5 classes: Portfolio Choice
- 3 classes: Evaluating Investment Performance
- 3 classes: Behavioral Finance
- 6 classes: Valuation of Options

Throughout the course, we will address two basic questions:

1. How should we manage and evaluate portfolios of investments?
2. Which methods do we use to value securities?

Connection with the Core

Capital Markets builds on knowledge from Corporate Finance, Managerial Statistics, and Business Analytics 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, time value of money, understanding risk-return trade-offs, the CAPM, and asset valuation. Capital Markets uses many concepts from Statistics, including statistical modeling, random variables and distributions, parameter estimators, hypothesis testing, and regression. Particularly in the portfolio and risk management section, the course uses optimization methods and modeling tools from Business Analytics. Finally, our discussions of the economy's impact on financial markets, especially bond markets, build on ideas from the Global Economic Environment course.

II. Course Materials

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.

I will distribute handouts of the lecture notes during class and will also place electronic copies of the lecture notes and other reading materials on Canvas.

The following textbook is useful as background material throughout this course:

- *Investments* by Bodie, Kane, and Marcus (hereafter BKM), 9th or 10th edition
- *Investments, Student Solutions Manual* by Bruce Swenson, 9th or 10th edition.

I will reference relevant chapters in BKM.

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 Assistants:

The names (e-mail addresses) of the five teaching assistants are:

- Jena Deng (jdeng15@gsb.columbia.edu)
- Graham Johnson (gjohnson15@gsb.columbia.edu)
- Anthony Baumann (abaumann16@gsb.columbia.edu)
- Alastair Seaman (aseaman16@gsb.columbia.edu)
- Howie Tan (stan16@gsb.columbia.edu).

Teaching assistants will hold office hours at times posted on Canvas.

Please contact your teaching assistants if you have questions about the course.

Review Sessions – Optional review sessions will be held on Fridays at 9:00-10:30am and 12:30-2:00pm in Uris 326. See the review session calendar on Canvas for details and exceptions. The first review session, which will be held on February 6th, will cover mathematical and statistical background for the class. Additional Friday review sessions throughout the semester will help students with questions about cases, problem sets, or lectures. Review sessions will emphasize examples. Special review sessions will be held before the midterm and final exams as follows:

Midterm Reviews:

- March 6th, 6:15-9:15pm in Uris 301 (big room)
- March 9th, 4:30-7:30pm in Uris 326 (small room)

Final Reviews:

- May 4th, 4:15-7:15pm in Uris 301
- May 5th, 4:15-7:15pm in Uris 301

Groups – Cases and problem sets 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.

Cases – There will be four case assignments, though the first is intended as a review and will not be graded. Each case will be distributed at least one class in advance and **due by 9am on the due date** (cases can be submitted online via Canvas). Cases and solutions will be available only on Canvas. Submitted cases will be graded on a check plus, check, or check minus scale. The case grades are weighted equally in your course grades. Because case solutions are discussed in class, late cases cannot be accepted.

Problem Sets – There will be six problem sets, though the first is intended as a review and will not be graded. Each problem set will be distributed one week in advance and will be **due by 9am on the due date** (problem sets can be submitted online via Canvas). Problem sets and solutions will be available only on Canvas. Submitted problem sets will be graded on a check plus, check, or check minus scale. Although grades will be assigned to all assignments, your lowest grade will be excluded from your problem set average when computing your course grade. Late problem sets cannot be accepted.

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, keeping up with assigned readings, listening thoughtfully, answering questions addressed to the class, sharing well-formulated ideas, helping a classmate understand a concept, or coming to office hours**. I understand that different people have different ways they best participate, and consider all of those valid. **Please do not use mobile electronic devices, such as cell phones, smart phones, laptops, or tablets**. Activities that enhance learning outside the classroom

include taking the weekly Canvas quizzes, helping group members solve problem sets and cases, and attending the guest speaker's lecture.

Weekly Canvas Quizzes – Each week, students must take a **short quiz on Canvas** between Wednesday at 6pm and the following Monday at 9am. 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, so late quizzes cannot be accepted.

Midterm Examination – The exam will be held on March 10th from 10am to 12 noon. 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 exam will be held on May 6th from 2pm to 4pm. 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
- 20% Problem sets
- 20% Midterm exam
- 30% Final exam
- 15% Class participation, including quizzes

Course Content Outline

Class	Date	Topic	Chapters in BKM	Assignment (Type)* ⁺
1	29-Jan	Introduction - Course Outline and Background	1, 2	Case 0 (A) due 3-Feb
2	3-Feb	Introduction - Key Concepts (e.g., Leverage and Shorting)	2, 3	PS 0 (A) due 10-Feb
3	5-Feb	FIXED INCOME – Treasury Pricing and No-arbitrage	14	
4	10-Feb	FIXED INCOME - Term Structure of Interest Rates	15	PS 1 (A) due 19-Feb
5	12-Feb	FIXED INCOME - Interest Rate Risk (Duration)	16	Case 1 (A) due 17-Feb
6	17-Feb	FIXED INCOME - Risk Management (Immunization)	16	
7	19-Feb	FIXED INCOME - Default Risk	16	PS 2 (A) due 26-Feb
8	24-Feb	PORTFOLIO CHOICE - Asset Valuations and Returns	5, 18	
9	26-Feb	PORTFOLIO CHOICE - Diversification	6	PS 3 (A) due 5-Mar
10	3-Mar	PORTFOLIO CHOICE - The Efficient Frontier	7	
11	5-Mar	PORTFOLIO CHOICE - CAPM in Theory	8, 9	
12	6-Mar	PORTFOLIO CHOICE - Applications of the CAPM	8, 9	
13	10-Mar	Midterm Exam - Held by OSA at 10am in Uris		
14	24-Mar	PERFORMANCE EVALUATION - CAPM Anomalies	9, 11	Case 2 (A) due 31-Mar
15	26-Mar	PERFORMANCE EVALUATION - Beyond the CAPM	10, 13	
16	31-Mar	PERFORMANCE EVALUATION - Skill versus Luck	4, 24	PS 4 (A) due 14-Apr
17	2-Apr	BEHAVIORAL FINANCE - Biases & Limits to Arbitrage	12	
18	7-Apr	BEHAVIORAL FINANCE - Empirical Anomalies	12	
19	TBA	Guest Speaker - TBA	26, 27	
20	14-Apr	OPTIONS - Payoffs and Arbitrage Relationships	20	PS 5 (A) due 23-Apr
21	16-Apr	OPTIONS - Replicating an Option	21	
22	21-Apr	OPTIONS - Binomial Model	21	
23	23-Apr	OPTIONS - Black-Scholes Valuation	21	Case 3 (A) due 28-Apr
24	28-Apr	OPTIONS - Applications		
25	30-Apr	OPTIONS - Applications		
26	7-May	Final Exam - Held by OSA at 2pm in Uris		

* Cases are due by 9am on the due date (can be submitted via Canvas).

⁺ Problem sets are due by 9am on the due date (can be submitted via Canvas).

Official MBA assignment types appear in parentheses

A = group/group, B = group/individual, C = individual/individual