B8306 Capital Markets and Investments  
Professor Michaela Pagel  
Spring 2016 Syllabus

Contact Details:

Professor Michaela Pagel  
Uris 418-A  
Office hours Tuesdays 2 to 3pm 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 – 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.

Readings – Beyond the assigned textbook chapters, there will be supplementary readings available on Canvas (relevant articles from industry, academia, and the popular press will be provided throughout the course).

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

- *Investments* by Bodie, Kane, and Marcus (hereafter BKM), 9th or 10th edition

I will reference relevant chapters in BKM.

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:

- Greg Borek (GBorek16@gsb.columbia.edu)
- Lisolette Cornelissen (LCornelissen16@gsb.columbia.edu)
- Aditya Mohan (AMohan16@gsb.columbia.edu)
- Thomas Schmid (TSchmid16@gsb.columbia.edu)
- Juan Virues (JVirues16@gsb.columbia.edu)

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

Please do not hesitate to contact any of your teaching assistants if you have questions about the course.
**Review Sessions** – Optional review sessions will be held on Fridays at TBD in TBD. See the review session calendar on Canvas for details and exceptions. The first review session, which will be held on TBD, 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 4, 4-7pm, Uris 142
- March 7, 4-7pm, Uris 301

Final Reviews:
- May 2, 4-7pm, Uris 142
- May 3, 4-7pm, 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 are **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 are **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. Attendance will be part of your grade for class participation and will be tracked. I also ask you to bring your nameplate and you should expect me to cold call in class. Beyond answering questions, activities that enhance learning in the classroom include **listening thoughtfully, keeping up with the assigned readings, 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. Because solutions will be posted soon after quizzes are due, late quizzes cannot be accepted.

**Midterm Examination** – The exam will be held on Tuesday March 8th 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 Wednesday May 4th from 9am to 11am. 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

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