1. Course Overview

1.1 AD713 – Derivatives Securities and Markets

AD713 is a comprehensive course in derivative financial instruments, presented from the viewpoint of market hedgers and speculators. The course incorporates the mechanics of derivatives markets, types of available derivative investments, and an introduction to determination of derivative product values. Problems of derivative investments are approached through studies of derivative instrument selection methods and the valuation of special classes of derivatives. After successfully completing the entire course requirements, students should be familiar with risk-return characteristics of the various types of derivatives and derivative trading in the markets, develop a sound conceptual understanding of the quantitative approach to derivative valuation, and acquire basic skills involved in fundamental derivative instrument valuation.

1.2 Introduction

- A schedule of reading assignments and assigned problems is given in the Course Calendar. Students are expected to prepare for the lectures as well as to do research on their own. The objective of the lectures will be to guide and clarify student learning. Students are expected to read the chapters and attempt to do the assigned problems in the text prior to the lectures, and come to class prepared to participate in a group learning experience. Class attendance is mandatory, and absences in excess of two classes may result in failing grade for the course.
• There are two exams in this course. The first exam will cover the readings, lectures, and assigned problems with particular emphasis on the mechanics of futures and options markets. The second exam will focus on swaps as well as Black-Scholes option valuation and option Greeks. Practicing the assigned problems will be essential preparation for the exams.

• Homework will be assigned and you will be required to work on the assigned problems at home. In class we will discuss solutions of the homework problems and address any question you may have. After that, several of the same homework problems will be selected to be solved in class, closed-book and closed-notes, which will be graded as homework.

1.3 Prerequisites

a) Courses:
   Prereq: MET AD 731 and MET AD 630 or equivalent

b) Student Competencies:
   Statistics Concept Understanding, Mathematics Comprehension
   Facility with MS Word and MS Excel

2. Basic Information

2.1 Schedule
   Classroom: GCB 206
   Dates and Times: Tuesdays 6 – 9 pm

2.2 Delivery Mode - Classroom Format
   The classroom format is designed to bring students in-class to study the subject in the form of lectures delivered by a professor taking advantage of a personal live instruction.

2.3 Instructor:

Alper Corlu has joined Boston University as a part time faculty in 2012. Prior to Boston University, Dr. Corlu was a quantitative analyst and worked as a vice president at Bank Asya/Turkey and as an associate at Citi Institutional Clients Group in New York. His primary responsibilities were building quantitative models to price and hedge financial instruments. He has experience in credit, foreign exchange and treasury trading desks. Dr. Corlu holds a PhD in physics from University of Pennsylvania and an MBA in financial engineering from Carnegie Mellon University, Tepper School of Business.

Office Hours:
Schedule for mutual convenience, can remain after class to meet with students.

e-mail: corlu@bu.edu

WHEN YOU EMAIL, always add the course number “AD 713” to the beginning of your subject line of email.
3. Text & Materials

3.1 Required Text:

Options, Futures, and other Derivatives, 8th Ed. ©2012, Hull, John C.

3.2 Optional Readings:

Wall Street Journal at: www.wsj.com
Business Week at: www.businessweek.com

3.3 Blackboard

This course will use a Blackboard site. Students are required to have a BU ID and password to log in. If you do not have a BU ID yet, note that this takes some time so be sure to start this process well before class starts. The site is:

http://blackboard.bu.edu

4. Course Overview and Details

4.1 Course Learning Goals and Objectives

To successfully complete this course, the students should have a general understanding of financial analysis, mathematical and statistical concepts such as the time value of money, calculation of means, variance of distributions and correlation, etc., and a basic introduction to the workings of derivatives financial markets. This course will build on these fundamentals to provide the student with a framework for analyzing individual derivative securities such as options, futures, and swaps that can be combined into a portfolio to enhance the overall yield and/or reduce the volatility of portfolio returns.

We will address valuation of derivative instruments and study their role to dramatically affect the overall return and risk to the investment portfolio.

After successfully completing the entire course requirements, students should be familiar with risk-return characteristics of the various types of derivative securities, develop a sound conceptual understanding of the quantitative approach to valuing derivative securities, and acquire basic skills to perform derivative security analysis and valuation.

4.2 Course Expectations

a) The course will be conducted by a sequence of classroom lectures. There will be one weekly lecture on Tuesdays from 6 – 9 pm.

b) Homework will be assigned and you will be required to work on the assigned problems at home. In class we will discuss solutions of the homework problems and
address any question you may have. You will have in-class quizzes on the material covered in the previous class and after you have had an opportunity to ask questions regarding the material.

4.3 Schedule

a) Class Schedule

<table>
<thead>
<tr>
<th>Class</th>
<th>Date</th>
<th>Chapter(s)</th>
<th>Topic</th>
<th>Assigned Problems</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/22</td>
<td>1,2</td>
<td>Introduction, Mechanics of futures markets</td>
<td>1-5, 6, 19, 31, 2-4, 17, 23</td>
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<tr>
<td>2</td>
<td>1/29</td>
<td>3,4</td>
<td>Hedging strategies using futures</td>
<td>3-6, 7, 16, 18, 4-3, 5, 11, 22</td>
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<tr>
<td>3</td>
<td>2/5</td>
<td>5,6(R)</td>
<td>Determination of forward and futures prices</td>
<td>5-4, 10, 12, 14</td>
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<tr>
<td>4</td>
<td>2/12</td>
<td>9,10</td>
<td>Mechanics of option prices, Properties of stock options</td>
<td>9-2, 10, 22, 10-7, 9, 14</td>
</tr>
<tr>
<td>5</td>
<td>2/19</td>
<td>Review</td>
<td>Chapters: 1, 2, 3, 4, 5, 9,10</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2/26</td>
<td></td>
<td>MIDTERM EXAM I, Chapters: 1, 2, 3, 4, 5, 9,10</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>3/5</td>
<td>11</td>
<td>Trading strategies involving options</td>
<td>11-4, 7, 10</td>
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<tr>
<td>8</td>
<td>3/19</td>
<td>12</td>
<td>Binomial trees</td>
<td>12-4, 9, 13, 14</td>
</tr>
<tr>
<td>9</td>
<td>3/26</td>
<td>14</td>
<td>The Black-Scholes-Merton model</td>
<td>14-4, 14, 29, 30</td>
</tr>
<tr>
<td>10</td>
<td>4/2</td>
<td>21</td>
<td>Value at risk</td>
<td>21-3, 5, 16</td>
</tr>
<tr>
<td>11</td>
<td>4/9</td>
<td>7,32(R)</td>
<td>Swaps</td>
<td>7-3, 10, 23</td>
</tr>
<tr>
<td>12</td>
<td>4/16</td>
<td>34</td>
<td>Real Options</td>
<td>34-2, 6, 8</td>
</tr>
<tr>
<td>13</td>
<td>4/23</td>
<td>Review</td>
<td>Chapters: 7, 11, 12, 14, 21, 34</td>
<td></td>
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<tr>
<td>14</td>
<td>4/30</td>
<td></td>
<td>MIDTERM EXAM II, Chapters: 7, 11, 12, 14, 21, 34</td>
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</tbody>
</table>

* No class on 3/12

4.4 Course Grading

You can expect to be challenged in this course, and excellent, research quality work will be rewarded with an ‘A’. Grades for this course will be curved.
Course grading will consist of evaluations of the homework quizzes, midterm I, midterm II, term paper and a project, weighted as follows:

<table>
<thead>
<tr>
<th>A: Midterm Exam I:</th>
<th>30%</th>
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<tbody>
<tr>
<td>B: Midterm Exam II:</td>
<td>40%</td>
</tr>
<tr>
<td>C: Homework:</td>
<td>30%</td>
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4.5 Homework and Discussions

Homework will be in the form of assigned problems. Each week students will be assigned number of problems from the end of the chapters that we cover in class. You need to solve or attempt to solve these problems and come to class ready to either explain these problems or ask questions if clarification is needed. Students will be expected to participate in problems discussions each week.

5. Requirements, Policies and Standards

5.1 Attendance

Attendance at all classes is mandatory. Attendance will be taken early on in the class. In accordance with the department policy, any student missing more than 2 classes will be considered to have withdrawn. Students arriving late will be considered to have missed the class.

5.2 Homework

Homework will be assigned each week. The homework problems will serve to appropriately prepare you for the exams. Please take advantage of this opportunity. Come to class prepared to discuss these problems and ask questions.

5.2.1 Discussion Expectations

Please remember that your class participation is essential. You should read the assigned readings before coming to class and be ready to ask questions or answer your classmate questions. Each student should be prepared to discuss the assigned material in class.

5.2.2 Student Preparation

Minimal preparation is reading the material, and being able to summarize what it is about, what the major issues are, and some recommendations.

Superior preparation involves being able to (i) summarize the situation or problem presented; (ii) recommend a solution to the discussed problem; (iii) support your recommendation with relevant details, and analyses; and (iv) discuss innovative solutions

5.3 Grading Policy

Grade inflation is not in the best interests of BU students or the reputation of the institution. I have a responsibility to differentiate the performance of my students, and to reward
with high grades only those who do exceptionally well. A Grade of ‘A’ or ‘A minus’ will be limited only to those students truly distinguishing themselves in the course.

The Academic Policy Committee of Metropolitan College recommends the following guidelines for distinguishing grades.

- A, A-: 20%
- B+, B, B-: 80%
- Other: As merited

Excellent work will be rewarded with an ‘A’. An ‘A’ grade requires quality excellence in all aspects of the course: homework, discussions, project, and exams. Grades will be curved.

5.3.1 Requests for Extensions

The General position is that make up extensions are not given. There is no guarantee that a make up will be permitted, and any request needs to be in writing and a written verification of the incident will be expected. Sometimes, unfortunate situations occur that make fulfilling requirements impossible and, as such, requests for extensions will be evaluated on a case-by-case basis.

This is not to penalize any individual student but to attempt to assure that there is a level playing field and the total class feels confident that no one has a unique advantage.

If, for any reason, you are unable to meet any assignment deadline, a student should contact the instructor immediately and preferably in advance. All assignments must be completed.

5.3.2 Off-Syllabus Work

Students will not be allowed to submit work for consideration that is beyond that defined in the syllabus.

6. Academic Conduct Policy

The academic conduct policy is summarized below. For the full text of the academic conduct code, please go to:

http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html

Any Plagiarism will be reported to the Dean and dealt with according to the Academic Conduct Code of Metropolitan College.

Boston University makes available to all faculty the plagiarism tool “Turn It In.com.” The site contains millions of papers from around the world. When a paper is submitted to TurnItIn.com, it is analyzed and compared to other work. TurnItIn.com reports if any parts of the paper are copied from other sources without proper attribution. Specifically, TurnItIn.com will detect plagiarism.

6.1 A Definition of Plagiarism

“...The academic counterpart of the bank embezzler and of the manufacturer who mislabels products is the plagiarist: the student or scholar who leads readers to believe that what they are..."
reading is the original work of the writer when it is not. If it could be assumed that the distinction between plagiarism and honest use of sources is perfectly clear in everyone's mind, there would be no need for the explanation that follows; merely the warning with which this definition concludes would be enough. But it is apparent that sometimes people of goodwill draw the suspicion of guilt upon themselves (and, indeed, are guilty) simply because they are not aware of the illegitimacy of certain kinds of "borrowing" and of the procedures for correct identification of materials other than those gained through independent research and reflection."

"The spectrum is a wide one. At one end there is a word-for-word copying of another's writing without enclosing the copied passage in quotation marks and identifying it in a footnote, both of which are necessary. (This includes, of course, the copying of all or any part of another student's paper.) It hardly seems possible that anyone of college age or more could do that without clear intent to deceive. At the other end there is the almost casual slipping in of a particularly apt term which one has come across in reading and which so aptly expresses one's opinion that one is tempted to make it personal property."

“Between these poles there are degrees and degrees, but they may be roughly placed in two groups. Close to outright and blatant deceit—but more the result, perhaps, of laziness than of bad intent—is the patching together of random jottings made in the course of reading, generally without careful identification of their source, and then woven into the text, so that the result is a mosaic of other people's ideas and words, the writer's sole contribution being the cement to hold the pieces together. Indicative of more effort and, for that reason, somewhat closer to honest, though still dishonest, is the paraphrase, and abbreviated (and often skillfully prepared) restatement of someone else's analysis or conclusion, without acknowledgment that another person's text has been the basis for the recapitulation."


6.2 Academic Conduct Code

I. Philosophy of Discipline
The objective of Metropolitan College in enforcing academic rules is to promote the kind of community atmosphere in which learning can best take place. This atmosphere can be maintained only so long as every student believes that his or her academic competence is being judged fairly and that he or she will not be put at a disadvantage because of the dishonesty of someone else. Penalties imposed should be carefully determined so as to be no more or no less than required to maintain the desired atmosphere. In defining violation of this code the intent is to protect the integrity of the educational process.

II. Academic Misconduct
Academic misconduct is conduct by which a student misrepresents his or her academic accomplishments or impedes other students' chances of being judged fairly for their academic work. Knowingly allowing others to represent your work as theirs is as serious an offense as submitting another's work as your own.

III. Violations of this Code
Violations of this code are acts that constitute an attempt to be dishonest or deceptive in the performance of academic work in or out of the classroom. To alter academic records, or to collaborate with another student or students in an act of academic misconduct. Violations include but are not limited to:

A. Cheating on examinations. Any attempt by a student to alter his or her performance on an examination in violation of that examination's stated or commonly understood ground rules.

B. Plagiarism. Any attempt by a student to represent the work of another as his or her own. Plagiarism includes each of the following: copying the answers of another student on an examination, copying or substantially restating the work of another person or persons in any oral or written work without citing the appropriate source, and collaboration with someone else in an academic endeavor without acknowledging his or her contribution (see below for a more detailed definition of plagiarism).

C. Misrepresentation or falsification of data presented for surveys, experiments, etc.

D. Theft of an examination. Stealing or otherwise discovering and/or making known to others the contents of an examination that has not yet been administered.

E. Unauthorized conversation is not allowed during examinations. Any unauthorized conversation may be considered prima facie evidence of cheating.

F. Knowingly allowing another student to represent your work as his or her own.

G. Forgery, alteration, or knowing misuse of graded examinations, grade lists, or official University records or documents, including but not limited to transcripts, letters of recommendation, degree certificates, alteration of examinations or other work after submission.

H. Theft or destruction of examinations or papers after submission including purposefully altering possible poor performance.

I. Submitting the same work in more than one course without the consent of the instructors involved.

J. Altering or destroying another student's work or records, altering records of any kind, removing materials from libraries or offices without consent, or in any way interfering with the work of others so as to impede their academic performance.

K. Failure to comply with the sanctions imposed under the authority of this code.