Finance 480
Derivative Instruments

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Office: 305 CHURCHILL TOWER
Hours: Tuesday, Thursday, 10:00–11:30
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Course Description: Finance 480 is designed to introduce the undergraduate to derivative securities and their valuation. Derivative securities are securities which derive their value from other (the ‘underlying’) securities and assets such as stocks, bonds, and kilowatt hours. This includes common options such as the put and the call, futures and forward contracts, swaps, and a wide variety of exotic new derivatives. Most of these derivatives have been actively traded only recently, but already the trading volumes of such securities are rivaling or exceeding that of the underlying security, and the trading activity and associated risks are the daily topic of discussion in the financial press and Congress.

Required Text: The main text of this course is:


A subscription to the Wall Street Journal is always recommended, as is watching Wall Street Week - aired on public TV each weekend.

Grade Determination: The material covered in this course is difficult for almost everyone. It is also very important material for a Finance major, and the earlier you develop a foundation for dealing with these concepts, the more quickly you will begin the process of mastering these concepts and instruments. If you show a good effort and convince me that you are making progress with the material, you will certainly survive and most likely prosper in this course. Your grade will be determined by your performance on problem sets, two midterms, and a final exam or paper. I will hand out some possible paper topics mid-way through the semester. The grading weights are as follows:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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<tbody>
<tr>
<td>Problem Sets (2)</td>
<td>30%</td>
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<tr>
<td>Midterm Exams (2)</td>
<td>40%</td>
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<tr>
<td>Final Exam or Paper</td>
<td>30%</td>
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Topic Outline: The topic outline for the course appears on the next page. Topics II through V.A represent the basic methodology. The remaining topics can be covered separately, and, depending upon time remaining, the class can choose those which they would like to cover.
Topic Outline

I. Introduction

II. Forward and Futures Contracts
   A. Contract and Market Mechanics
   B. Futures and Forward Prices
   C. Hedging using Futures
   D. Interest Rate Futures

III. Introduction to Options and Option Markets
   A. Options and Market Mechanics
   B. Basic Properties of Options
   C. Strategies involving Options

IV. The Valuation of Options
   A. The TSP Model
   B. The Binomial Model
   C. The Black-Scholes Model
      1. The Basic Model
      2. Biases in Black-Scholes
   D. Warrants, and Convertibles

V. More on Hedging
   A. Hedging and Synthetic Options
   B. Options on Stock Indices

VI. Miscellaneous Topics
   A. Derivative Mishaps
   B. Swaps
   C. Interest Rate Options
      1. Interest Rate Derivatives
      2. Some Basic Interest Rate Models
   D. Value at Risk