

## Finance 6470 - Derivatives Markets

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- **Office:** BUS 605
- **Course Dates:** January 7 - May 1, 2015
- **Course Room:** [Engineering Laboratory](#) 248
- **Course Time:** TR 10:30 - 11:45 PM
- **Office hours:** TBD

### Course Description

This course covers forwards, futures, options, and swaps. By the end of the course, you will have a solid knowledge of how these products work, how they are used, how they are priced, how financial institutions trade them to hedge and speculate, as well as of the markets in which they trade.

### Class Objectives

- Learn fundamental principles and theories.
  - Learn what derivatives are and their basic vocabulary.
  - Learn how derivatives markets work and the institutional features of the markets in which they trade.
  - Learn the principles of modern financial economic theory explaining how derivative securities are priced.
- Learning to apply course materials.
  - Learn a framework for corporations, individuals and other organizations to determine how and when to use derivative securities for hedging and speculation.
  - Learn to implement derivative pricing models for applications in hedging and speculation.
- Developing specific skills, competencies and points of view needed by professionals in the finance industry and in academic finance.
  - Learn some basics of the R programming language for purposes of financial modeling.

## Huntsman School Pillars

This course aligns with the Huntsman School Pillars along the dimension of analytical rigor. In addition, we will be able to discuss the financial crisis and the role that derivatives played in that saga. As such ethical leadership will be touched upon. Financial derivatives are perhaps the fastest growing products in any market. The entrepreneurial spirit comes strongly into play. Finally, a global vision is required to understand modern derivatives markets as the trading markets continue to become more and more global.

## Textbook

The *required* textbook for the course is:

- *Derivative Markets, 3rd Edition.*

## Grading

The grade that you earn will be determined by your ranking in the class based on the weighted total points accumulated on class preparation and participation, as well as on exams. There is no predetermined percentage of the class that will get an A or that will fail. However, if you all do excellent work you will all earn exceptional grades. The weights given to each part of the class are as follows:

- Class Preparation, Participation, and Homework (30%) – I expect each student to come prepared for each class session. Preparation includes completing the assigned readings, writing down questions for sections of the reading that were not fully understood or internalized, and completing homework assignments. Class participation is crucial for understanding. I will call on students in class. There are always two good answers when called upon. The first correct response is an informed answer based on your preparation. The second correct response is a question that shows that you have wrestled with the material in your preparations. A good question often lays the foundation for a more complete understanding. One important aspect of class participation is the professionalism with which you conduct yourself. I will drop your lowest homework assignment and replace it with the average of the others, BUT only if I deem it of sufficient quality and effort.
- Midterm Exam (35%) – The midterm will be a traditional in-class exam. You are allowed a single sheet of notes for the exam.
- Final Exam (35%) – The final exam will be a traditional in-class exam. You are allowed a single sheet of notes for the exam.

## Topics (Subject to Change)

Lecture Topic	Readings
Probability Review	Handout
Introduction to Derivatives	Chp. 1 (DM)
An Introduction to Forwards and Options	Chp. 2 (DM)
Financial Forwards and Futures	Chp. 5 (DM)
Parity and Other Option Relationships	Chp. 9 (DM)
Binomial Option Pricing: Basic Concepts	Chp. 10 (DM)
Binomial Option Pricing: Selected Topics	Chp. 11 (DM)
The Black–Scholes Formula	Chp. 12 (DM)
Market–Making & Delta–Hedging	Chp. 13 (DM)
The Lognormal Distribution	Chp. 18 (DM)
Monte Carlo Valuation	Chp. 19 (DM)
Brownian Motion & Itô’s Lemma	Chp. 20 (DM)
The Black–Scholes–Merton Equation	Chp. 21 (DM)
Risk–Neutral & Martingale Pricing	Chp. 22 (DM)
Real Options	Chp. 17 (DM)
Bayesian Decision Theory	Handouts

Important Dates:

- **Feb 17** - Monday Schedule
- **Mar 9 - 13** - Spring Break
- **Apr 24** - Last Day of Classes
- **Apr 28** - Final Exam