

**FINA 7320 SECTION 94-070**  
**FINANCIAL DERIVATIVES**  
**Terry College of Business**  
**University of Georgia**  
**Spring 2009**

**Professor:** Chris Stivers

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**Course Web Site:** <http://terry.blackboard.com>  
I will regularly post announcements, problem solutions, and other course materials on this site. You should check it frequently.

**Class time:** Monday and Wednesday, 9:30 AM to 10:45 PM

**Classroom:** Sanford 309

**Office Hours:** Wednesday 1:00 – 2:00 PM, Thursday 10:00- 11:00 AM, and by appt.

**Course Description:** The first half of this course is an introduction to derivative security markets including call and put options, futures and forward contracts, and swaps. Topics include the economic role of derivatives, valuation of derivatives, derivative trading strategies, and managing risk with derivatives.

The second half of the course will focus more on examples and applications in financial derivatives and financial engineering. Financial engineering refers to the development of innovative financial instruments and their application to a variety of risk management problems. Topics include “Option Greeks”, futures hedging issues, structured equity products, value-at-risk, interest rate derivatives and term structure, financial swaps, and so-called real options.

**Text:** *An Introduction to Derivatives & Risk Management*, Seventh Edition, by Don M. Chance and Robert Brooks, 2007, Thomson South-Western Publishers.

**Structure:** For the first half of the course, the course format will be primarily lecture with classroom discussion. For the second half of the course, the focus will be more on applications with significant project work. Students will be responsible for assigned readings and other material that will be introduced in the lectures. There is much more to learn about derivative financial markets than can be covered in one semester class. Thus, we must focus on a limited agenda. The course outline should be regarded as tentative and revisions may be made, depending upon the progress of the class. Students are encouraged to introduce relevant material from their work experience.

**Cautionary Note:** Students in this course are likely to range from people who barely know what an option is, to people who have traded options. As such, the course will probably proceed too fast for some students and too slow for others. I will try to achieve a reasonable balance so that all students can benefit from the class. For the more advanced students, I will occasionally post supplementary articles that provide additional coverage.

**Supplementary Material:** Other news or research articles will be assigned periodically. I will either provide the article or post the article or link on the class web page. Most of the articles will come from the Wall Street Journal.

Another useful textbook (but not required) is: *Options, Futures, and Other Derivatives*, by John Hull, 2003, Fifth edition, Prentice Hall. (I will reference this text periodically.)

**Prerequisites:** Completion of the core finance course.

**Course Outline:** A tentative list of specific topics appears as the last part of this syllabus. While we may deviate somewhat from this schedule, it provides the basic structure for the course. I reserve the right to deviate from this schedule at my discretion depending upon class progress.

**Homework:**

Periodic Routine Homework: For every chapter, problems will be recommended that correspond to the lecture material. Some of these problems will be worked in class as examples and students should be ready to contribute to these problem-working sessions.

Supplemental Readings: Additional articles will be assigned for reading from current periodicals or journals. We will discuss these articles and they may provide material for the exams, as specified. These readings will be announced in class and on the course web page.

Other Homework: Homework will be assigned to provide practice material to help prepare for the midterm exams and as a self-check on your progress.

**Group Projects.** There will be four types of group projects, as outlined below. Groups will be comprised of 2 to 3 students. In aggregate, these projects will count 49% of the course grade.

**1) Trading Exercise:** There will be a trading exercise during this course. The goal of the derivatives trading game will be to make a profit through the speculative trading of derivative products. In the process, students should learn about the nature of derivative financial markets. For this game, students will have freedom to be creative and try different strategies. The Trading Exercise will count as 10 % of the course grade. The trading exercises will be web based. This will be group work of about two students per group. Unfortunately, the web company charges a small fee that should run about \$9 per student.

**2) Case Project:** Students will be assigned a case project that applies much of the course material. The goals of the case are: 1) to illustrate the use of the Black-Scholes option-pricing model in evaluating option prices; 2) to understand the concept of “implied volatility” from option prices and compare implied volatility with historical volatility estimates, and 3) to evaluate trading strategies for a particular market forecast. Counts 9% of the course grade. This will also be group work of about two students per group.

### **3) Quantitative Exercises in Financial Derivatives and Financial Engineering.**

Students should expect about three to four quantitative projects that apply the principles of financial engineering. The quantitative project work will feature Excel work. I anticipate projects on hedging against multiple sources of risk for a portfolio of options, on structured equity products, on value-at-risk, and a Monte Carlo valuation of a complex derivative. Details to follow. Counts 25% of the course grade.

**4) Presentation on current issue or topic in finance that relates to the course.** Each group will prepare a report on the issue/topic and make a presentation to the class. Details to follow. Counts 5% of the course grade.

**Class Attendance and Participation:** Classroom attendance and participation is expected and will result in a much better course for you and your fellow students. Each student is expected to be prepared for class and to contribute to class discussions. **Absences:** It is your responsibility to contact me **in advance** if your absence will affect your ability to meet any of the course requirements **on time**. Due to the concentrated nature of the course, absences are highly discouraged. **Leaving class early:** I realize there may be legitimate reasons for you to leave class early. However, please let me know **prior to class starting** that you must leave early.

#### **Laptop Policy:**

Students are encouraged to bring laptops in for lectures because we will occasionally have problems or use software in Excel applications. Laptops should be used in class only for class activities, such as taking notes or doing an in-class exercise. They should not be used to check e-mail, surf the web, or other non-class activities. If I perceive there is a “laptop problem”, then I reserve the right to implement a “laptops closed” policy, except for when we are using a computer application directly in class.

#### **Mid-term Exams:**

Two mid-term exams will be given. Tentative dates and coverage are provided on the last page of this syllabus. The exam dates will be firmed up about two weeks prior to the exam. A missed exam will carry a grade of zero unless explicitly excused by a physician or the Dean of students. Truly exceptional circumstances for special arrangements should be discussed with me prior to the exam. Cheating on an exam will result in a grade of zero. The two Mid-term Exams will count for 25% of the course grade.

#### **Final Exam:**

A final examination will be given in accordance with the MBA exam schedule. The exam will be closed book but an equations sheet will be provided. A missed exam will carry a grade of zero unless explicitly excused by a physician or the Dean of students. Truly exceptional circumstances should be discussed with me prior to the exam. Cheating on an exam will result in a grade of zero. The Final Exam will count 25 % of the course grade. Date – to be determined.

**Exam Re-grading:** I will, of course, correct any obvious errors. However, on matters of debate the following policy applies: You should prepare a brief written memo to me explaining why you think you deserve more points on a particular problem or question and then deliver the

memo and exam back to me. I will then review this problem and the entire exam to evaluate whether you deserve additional points.

**Grade Determination:** Final grade assignments will depend upon your overall performance and will be determined as objectively as possible based on the following weights.

Trading Exercise	10 %
Case Project	9 %
Quantitative Group Projects	25 %
Presentation on Current Topic	5 %
2 Mid-term Exams	26 %
Final Exam	25 %

The grade breakdown will be based on the following: A/A-: 90-100; B+,B,B-: 75-89; C+,C,C-: 65-75; D: 55-65; and F: <55. Plus or minuses may be awarded for the extreme tails within the stated distributions, where extreme refers to the values less than (for minuses) or greater than (for plusses) the 20<sup>th</sup> and 80<sup>th</sup> percentiles within each breakdown.

**Academic Honesty:** All academic work must meet the standard contains in the university's "A Culture of Honesty." All students are responsible to inform themselves about those standard before performing any academic work. Students will comply with the following guideline: "I will be academically honest in all of my academic work and will not tolerate academic dishonesty of others."

**Changes to syllabus:** The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary. If the revisions are substantial, I will publish a revised syllabus to keep the class fully informed.

#### **TENTATIVE CLASS SCHEDULE:**

The following schedule is an approximate, tentative list of topics for the course. It is subject to change as we proceed through the material. Additional readings to support the topic will be assigned/provided as the term progresses.

<u>Date</u>	<u>Topic</u>	<u>Text / Readings</u>
Jan. 12	Introduction/Overview	Chapter 1
Jan. 12	Structure of Options Markets	Chapter 2
Jan. 14 – 26	Principles of Option Pricing	Chapter 3
Jan. 19	MLK Holiday	
Jan. 26 – Feb. 2	Binomial Option Pricing Model	Chapter 4

<u>Date</u>	<u>Topic</u>	<u>Text / Readings</u>
Feb. 2 – 16	Black-Scholes Option Pricing Model	Chapter 5
Feb. 16 – 18	Basic Option Strategies & Applications	Chapter 6
Feb. 23	Mid-term Exam 1: Chance Ch. 1 - 5	
Feb. 18 – Mar. 2	Adv. Option Strategies & Applications	Chapter 7
Mar. 2	Structure of Forward and Futures Markets	Chapter 8
Mar. 2 - 4	Principles of Forward and Futures Pricing (limited coverage)	Chapter 9
Mar. 4 – Mar. 16	Futures Pricing & Hedging Issues	Chance Ch. 9 & 11
March 9 - 13	SPRING BREAK	
March 16 -18	What is Financial Engineering?  Structured Equity Products	<a href="http://www.iafe.org">www.iafe.org</a> <a href="http://www.fea.com">www.fea.com</a> <a href="http://www.fenews.com">www.fenews.com</a> Course notes
March 18 – 30	Option Greeks and Dynamic Hedging	Chance Ch. 5 & 15; Hull, Ch. 14.
Mar. 30 – Apr. 8	Swaps, Term Structure, and Interest Rate Derivatives (limited coverage)	Chance Ch. 12 & 13
April 13	Mid-term Exam 2: Chance Ch. 6 – 9, 11	
April 8 - 15	Value-at-Risk	Chance Ch. 15 Hull Ch. 16
April 15 – 22	Real Options Complex Options - Simulations	Handout Handout
April 22 – 29, 30	Risk Management and Group Presentations	Chance Ch. 15 & 16
To Be Determined	FINAL EXAM	