Georgia Institute of Technology
College of Management
Derivative Securities
MGT 3084
Spring 2012

Class Information

Title: Derivative Securities (MGT 3084)
Time and Location: Tu,Th 4:35-5:55, Management (Tech Sq) 201
Class Webpage: T-Square

Instructor: Pedram Nezafat, Ph.D.
Office Hours: Th. 12-1:30 or by appointment.
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Teaching Assistant-Undergrads, MBAs: Priyanka Karan
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Office Hours: M, 2-3pm or by appointment.
Office: TBA

Course Information

Prerequisites

Introductory courses in calculus, multivariate calculus, differential equations, statistics, stochastic processes, and investments. Some knowledge of at least one computer programming language and Excel is required. This course uses mathematics heavily. Most importantly, you should have a high interest in this course and be willing to work hard. You should not expect to understand the material by just coming to the lectures. Going over lecture notes, cross-reading, doing the assignments, and coming to office hours regularly are extremely important to be successful in this course. Non-finance majors and first year MBA students are advised not to take this course unless they have gained (or regained) an adequate amount of finance knowledge and quantitative skills. Please be aware that this course might turn out to be quite challenging and time consuming (and rewarding too).

Description

In recent years there has been a phenomenal growth in the markets for options and futures contracts on financial assets. These markets are used by individuals and institutions to meet a variety of objectives. With these instruments, firms and portfolio managers can hedge

particular kinds of risk or alter the distribution of the returns on their portfolios in certain ways. These markets played a significant role in the recent financial crisis.

This course covers financial derivatives such as options, forward contracts, futures contracts, and swaps. I will take a pragmatic approach and discuss both the derivatives markets and the derivatives products, some basic numerical methods, and risk management. After finishing this course, you will have a basic working knowledge of how the derivatives markets function, how the derivatives products are used and why they are used, and how they are usually priced.

Promises and teaching style

My decision to teach this course includes the commitment to offer sessions worth attending, and I ask you to let me know if you think I am not doing it. The decision to take this course is yours but once you make that decision, you have responsibilities to everyone else in this community of learners and you should be willing to participate intellectually in the deliberation of each day.

I will try to create a learning environment that fosters learning, critical and creative thinking. To this end my teaching style would not be procedural. In particular I will not break down a problem in detail in class and then ask you to do a very similar problem in the assignments. The assignments are a complementarity tool to class lectures and you should expect to struggle with them if you are taking this course with the purpose of learning the concepts.

You are encouraged to read the corresponding sections of the book before and after class. The first time you learn something new it may sound like total nonsense, the second time you are more familiar with it and things start being clearer. Also, ask a lot of questions to yourself and your classmates while reviewing or doing your homework, and try to write down precise answers. Often in trying to formulate a precise answer you will realize you had not really understood much, which is the first step to start really understanding.

I will be available for any help that you need during your learning process. In particular if you get frustrated with any concept/problem you should contact me and ask for help. Remember that “failure is not falling down but refusing to get up”.

Textbook

Required: Options, Futures and Other Derivatives (8th edition), by John C Hull.

I assign homework problems from the textbook. If you buy an earlier version or an international version of the textbook, you need to make sure that you do the correct assigned homework problems.

As an additional reference, I also recommend:

Derivatives Markets (2nd edition), by Robert L McDonald.

Lecture slides

I will distribute all lecture slides electronically via T-Square. The lecture slides are joint work with Professor Daniel Spirn at the University of Minnesota-mainly his work. I will always make sure to post slides prior to class. If you wish to take notes directly on the slides, please make sure to print out a set before class. I will not distribute paper copies in class. I will also use T-Square to post the problem sets and solutions.

Workload expectation

This course has an extensive workload and you should expect to work 10-12 hours a week on coursework outside the classroom. The course load will not be uniform over the semester.

One of the homework assignments will be a small project that involves programming. You should expect to work 20-30 hours on this homework assignment.

Assignments

Assignments are weekly and are due at the beginning of the class. Problems from the textbook will be assigned. No late assignment or electronic submission will be accepted. Solutions should be hand written and typed solutions will not be accepted. Students can form groups of up to 3 members and collaborate with each other. Groups are self-selected and should be formed no later than the second week of the semester. Students are strongly cautioned to form groups carefully, ensuring that members complement each other in analytical, computer and mathematical skills. Assignments should not be divided up among group members. Each member of a group should hand in his/her own solutions.

Assignment Grading:

Not all the assignments will be graded. The 15% assignment grade will be divided to the assignments that I randomly collect and grade. Grading policy places heavy emphasis on effort and showing details of the work and not necessarily the correct answers.

Exams

There are three exams. All exams are cumulative and closed-book. Calculators will be required, and you can have a letter size crib sheet. A large set of examination questions will be based on the homework assignments. A few questions unlike those you have seen in the assignments may test your critical understanding of the material.

This is the first time that I am teaching this course and no past sample exam will be provided. Handouts with the structure of the exams will be given one week prior to the exams.

Review sessions

I will hold review sessions before each of the three exams. Time and location will be announced.

Quizzes

There is a 10-20 minutes quiz on each Tuesday. Each quiz covers the materials that were covered in the class in the previous week. I do not collect nor grade these quizzes but I will go over them to make sure that you have a good understanding of the concepts in this course.

WGAD (Who Gives a Damn) Points:

I want this course to be as interactive as possible. You are free to ask "who gives a damn?" question at any moment in class. Every time that you ask this question you would get a certificate. Every five certificates would worth 1% bonus point. Feel free to ask any other question. No question is stupid and if you are worried that your classmates may judge your question, remember that "He who asks a question is a fool for five minutes; he who does not ask a question remains a fool forever."

Extra Credits

During the semester I may assign a few optional projects. You would get extra bonus points for doing them.

Grading Distribution

Grading will be based on a combination of the following:

Assignments	15%
Class Attendance	10%
Midterm Exam I	15%
Midterm Exam II	20%
Final Exam	40%

Midterm Exam I is a free option and if it does not help your grade, 35% of the "midterm grade" will be based on Midterm Exam II. The optional extra bonus points would be added to determine your course grade.

Course Grade

Grades are based on absolute scale: A (90-100), B (80-89), C (70-79), D (60-69), and F(0-59).

Course Policies

Name tent

Please bring your name tent card to class and display it. This applies to undergraduate as well as MBA students. If you do not have a name tent card, make one.

Class attendance

The decision to take this course is the decision to attend the class every time it meets. I will take attendance few times during the semester. The dates and the number of times that I take attendance are random. You may miss one attendance day without penalty. 10% of your course grade would be determined based on your class attendance. For every three attendance days that you would miss, your course grade would be reduced by one grade letter.

Class participation

Class participation is highly encouraged. This course uses mathematics heavily and its concepts are challenging. If you do not understand a concept or an equation you should raise your hand and ask for clarification. When final grades are determined, those students who made substantial contributions in class during the semester will get up to 12% "bonus" points.

Course feedback

If you have any concern regarding this course you should use the email account gatech_feedback@yahoo.com and send me anonymous feedback.

Late homework

No late homework will be accepted.

Electronic homework submission

Homework assignments should not be typed and no electronic submission will be accepted.

Rescheduling exams

No exam will be rescheduled.

Contacting me

It is best to contact me by email. I will respond to course related emails promptly. All your emails should be sent to gatech_derivatives@yahoo.com. I will not respond to emails that are sent to my gatech account.

Laptops and cell phones

For the overwhelming majority of the material covered in class laptop computers are unnecessary. As such, unless we are working with an example or model using Excel I ask that you keep your laptops closed as the screens are quite distracting to other students. As a courtesy to your classmates, please turn off your cell phones.

Course announcements

Important information on the class will be sent to your university email account. You may have this account forwarded to another address if you wish. Be sure to check your university email once a week for announcements. Regular announcements will also be posted on the class website.

Grade negotiation

Please notice that my grading policy would be fair/uniform and based on your performance on the course requirements. You should not try to negotiate your grade with me reasoning that you would lose your scholarship or your company would not reimburse your tuition. If you have difficulty with the course material, please contact me well before the exams. I will do my best to help you understand the course material so that you can do well in the exams.

Academic misconduct

Academic misconduct is defined as any act by a student that misrepresents the student's own academic work or that compromises the academic work of another. Scholastic misconduct includes (but is not limited to) cheating on assignments or examinations, plagiarizing, i.e., misrepresenting as one's own work any work done by another, submitting the same paper, or substantially similar papers, to meet the requirement of more than one course without the approval and consent of the instructors concerned, or sabotaging another's work. Within this general definition, however, I determine what constitutes academic misconduct in the courses. I emphasize that using the solution manual to complete the assignments counts as academic dishonesty. It is your responsibility to familiarize yourself with the Georgia Tech Honor Code. Academic dishonesty will not be tolerated in any form and I would recommend to the Office of the Dean of Students that you should withdraw from the course if I find that you were involved in academic misconduct. There is no exception to this, and no second chances.

Ambiguity in the honor policies is not an excuse for a violation. If you have any questions about how the Honor Code applies to specific scenarios, please discuss them with me.

Course Schedule (subject to change)

- Futures and Forward
  - Mechanics of Futures Markets
  - Hedging Strategies Using Futures
  - Interest Rates
  - Determination of Forwards and Future Prices
- Swaps

- Options
  - Mechanics of Options Markets
  - Properties of Stock Options
  - Trading Strategies Involving Options
  - Binomial Trees
  - The Black-Scholes Model
  - The Greek Letters
  - Basic Numerical Procedures
- Additional topics if time permits:
  - Value at Risk
  - Credit Risk
  - Credit Derivatives
  - Exotic Options

Midterm Exam I: Tuesday February 21rd.
Midterm Exam II: Tuesday April 10th.
Final Exam: It will be given at the time specified on the university's final exam schedule.