

Derivative Securities
FNCE 4040
Spring 2005

Instructors: Nathalie Moyen and David Gross

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Course Material You are strongly encouraged to complete your class notes with Hull, John C. *Fundamentals of Futures and Options Markets* Fifth Edition, Prentice Hall: New Jersey, 2005. You will also need the *Harvard Business School Case #9-298-029*.

Course Outline

1. Introduction (Hull chap 1)
2. Futures and Forward Markets:
 - 2.1. Institutions (Hull chap 2)
 - 2.2. Pricing (Hull chap 5)
 - 2.3. Hedging Strategies (Hull chap 3)
3. Swaps (Hull chap 7)
4. Options Markets:
 - 4.1. Institutions (Hull chap 8)
 - 4.2. Basic Properties (Hull chap 9)
 - 4.3. Trading Strategies (Hull chap 10)
 - 4.4. Binomial Trees (Hull chap 11)
 - 4.5. Black-Scholes (Hull chap 12)
 - 4.6. Applications:
 - 4.6.1. Options on Stock Indices (Hull chap 13)
 - 4.6.2. Options on Currencies (Hull chap 13)
 - 4.6.3. Options on Futures (Hull chap 14)
 - 4.7. Hedging Strategies (Hull chap 15)
 - 4.8. Volatility Smiles (Hull chap 17)
 - 4.9. Value at Risk (Hull chap 18)

Course Objective The objective of the course is to introduce you to futures and options markets. More specifically, you will acquire analytical tools to understand derivative markets, gain some knowledge of its institutions, and sharpen your skills in thinking about finance problems.

Prerequisites The course is based on the assumption that you have taken FNCE 3010 and FNCE 3020. It also requires a working knowledge of algebra, calculus, and statistics, only because these instruments enable us to study derivative securities with the most clarity.

Evaluation The evaluation consists of three mid-term exams, one quiz, a trading group project, and class participation including attendance to guest speakers' presentations (Jonathan Heroux from Piper Jaffray on April 14 and Steven Manaster formerly at the CFTC on April 19). The mid-term exams will be held on February 3, March 3, and April 5, while the quiz will be held on April 12. The exams, quiz, and guest speakers' presentations will take place in Duane room G1B20 from 5 to 6:30pm.

Each exam will be graded on a total of 150 points. No make-up exam will be given. The trading group project will be graded on a total of 100 points. Class participation will count for a total of 50 points. Final letter grades will be awarded based on your total score out of 600 possible points. No letter grades will be assigned for individual exams. The quiz is optional and will provide a maximum of 50 bonus points. The final distribution of grades will be curved such that the mean letter grade of the course is between B and B⁺ (before the bonus points of the quiz).

In case you are not satisfied with your score on an exam, you will need to provide a written explanation on why you feel you deserve more points. Explanations should be precise and should pertain to the content of your exam only. Explanations like "I deserve more points" or "My answer on this question is better than Xyz's" are not acceptable. A reevaluation request for a particular question will entail a reevaluation of the entire exam. As a result, your revised score may go up, stay the same, or move down relative to your initial score.