

University of Pennsylvania  
The Wharton School

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Finance 206/717  
Speculative Markets  
Fall 2001

**Prerequisites** For 206: FNCE 101-102 and STAT 101-102.  
For 717: FNCE 601 and STAT 601.  
The prerequisites CANNOT be taken concurrently. This is a departmental policy and there can be no exceptions.

**Class Time**                      **Lectures**  
FNCE 206 001 Tuesday-Thursday 9:00-10:30    SH-DH 1206  
FNCE 206 002 Tuesday-Thursday 10:30-12:00    SH-DH 1206  
FNCE 717 001 Tuesday-Thursday 12:00-1:30    SH-DH 1206

**Required Materials** Bulk packet containing lecture notes, additional readings, problem set questions, and old exams.

**Optional Texts** Hull, John C., Options, Futures and Other Derivatives, 4<sup>th</sup> Edition.  
Cox, John C. and Mark Rubinstein, 1985. Options Markets.  
Siegel, Daniel R. and Diane F. Siegel. 1990. Futures Markets.  
Hull, John C., Fundamentals of Futures and Options Markets, 4<sup>th</sup> Edition.

**Materials on Reserve** Hull, John C., Options, Futures and Other Derivatives, 4<sup>th</sup> Edition.  
Solutions Manual for Options, Futures and Other Derivatives, 4<sup>th</sup> Edition.  
Hull, John C., Fundamentals of Futures and Options Markets, 4<sup>th</sup> Edition.  
Solutions Manual for Fundamentals of Futures and Options Markets, 4<sup>th</sup> Edition.

## Exams and Grading

The course grade will be based on one midterm exam, two group projects and a final exam with the following weights applied to each:

Group Project 1 Due October 25	15%	
Midterm exam	6:00-8:00 PM Thursday, November 1	30%
Group Project 2 Due November 29	15%	
Final exam	1:30-3:30 PM Monday, December 17	40%

The weights placed on the following requirements are not negotiable and will not be changed. Thus explicit requests to reapportion the weighting scheme or implicit requests due to retesting or supplementary work will be denied.

In case of scheduling conflicts, an alternate midterm exam will be allowed *if the student notifies the instructor of the problem within the first 2 weeks of class*, otherwise the student must take the midterm at the scheduled time.

Both exams are closed book, but a formula sheet will be allowed. You will need a calculator. For those students unable to take either the Midterm or Final exam because:

- (i) they are ill and have a doctors confirmation; or,
- (ii) they have three or more exams scheduled that day,

the makeup exam will occur on the Wharton wide make-up date at the start of the Spring Semester of 2002. There will be no other rescheduling of exams for any reason as per the Provost's policy.

## Withdrawing from the Class

If you wish to withdraw from the class you may do so before September 14, 2001 without having any record of the class on your transcript. Requests for instructor consent to exit the class after September 14, 2001 and before December 1, 2001 will be considered on a case by case basis. Note that withdrawing from the class at this time will leave a record of your withdrawal on your transcript. Requests to exit the class after December 1, 2001 will be denied.

## Group Projects

The group projects are included in the bulk pack. Please note the due dates: October 25, 2001 and November 29, 2001 for project 1 and 2 respectively. Be advised that late projects will not be accepted. Both group projects are to be done in groups of up to five persons, *there are no exceptions to this rule*. Group members receive a common grade. Project write-ups are limited to five (double-spaced) typed pages plus appendices. The projects require some facility with a spreadsheet and an option pricing program that will be provided. The necessary programs, data, etc. can be downloaded off the internet from <http://inside.wharton.upenn.edu/download>.

## Practice Problems and Problem Sets

Both editions of Hull contain practice problems. A brief list corresponding to each Module's material is listed on the cover page to each Module. Solutions to all of Hull's problems are on reserve at Lippincott Library. Please note that the practice problems from Hull are quite elementary and should not be used to measure the difficulty of the midterm and final exams.

In addition to Hull's practice problems, the bulk pack contains problems sets, an old midterm and an old final exam. These questions are representative of what you will encounter on this semester's midterm and final exam. Teaching assistants will be available in office hours to go over any of the practice problems, problems sets, or old exams. Note that problem sets will not be collected, rather they are provided as an aid for students to help them practice applying the material covered in class.

## Review Sessions

There will be four review sessions held throughout the semester. Each session entails a structured overview of the material since the last review session as well as time for student questions and problem solving. These review sessions are scheduled as follows:

- Review I: October 1, 2001, 6:00-8:00 PM, Location TBA, covering Modules 1,2,3.
- Review II: October 29, 2001, 6:00-8:00 PM, Location TBA, covering Modules 1-6.
- Review III: November 19, 2001, 6:00-8:00 PM, Location TBA, covering Modules 7,8,9.
- Review IV: December 12, 2001, 1:00-4:00 PM, Location TBA, covering Modules 1-13.

### **Regrade Policy**

Exams and Group Projects will be accepted for regrade only if they are accompanied by a signed Regrade Request Form (contained in the bulkpack) and are submitted within the timetable outlined below. Note if an exam/group project is submitted for regrade, the entire exam/group project may be regraded at the discretion of the instructor.

Deadlines for regrade requests:

- Group Projects: 2 weeks from the day the project was returned.
- Midterm Exams: 2 weeks from the day the exam was returned.
- Final Exams: 2 weeks after the beginning of the following semester.

### **Academic Integrity**

May I remind you that your work and conduct will be held accountable under the University of Pennsylvania's *Code of Academic Integrity*. Violations of this Code will be met with swift and certain punishment up to the full extent of the regulation.

### **Course Outline and Reading List**

The goal of this course is to provide you with a more complete understanding of the different types of derivative securities, how to price them and how they can be used to change the risk and payoff structure of an investor's portfolio. The course is broken down into a series of modules as follows:

- Module 1      The Law of One Price and the Law of No Arbitrage
  
- Module 2      Forwards and Futures
  - Definition and pricing
  - Distinction and relation between forwards and futures
  - Pricing with transactions costs
  - Relation between futures prices and expected future spot prices
  
- Module 3      Futures Applications
  - Managing risk with futures: Hedging and Levering
  - Dividend Capture: A tax arbitrage strategy
  - Futures markets as a signal to production of real goods and services
  - Dynamic hedging: Metallgesellschaft case
  - Swaps
  
- Module 4      Option Contracts
  - Definitions and Graphics

## Strategies/Positions

Module 5	Options - Arbitrage restrictions Boundary conditions Strike price conditions Time to maturity conditions Optimal exercise conditions Put-Call Parity
Module 6	Options - Pricing Binomial option pricing model Black-Scholes option pricing model Technical Appendix: Continuous time derivation of the Black-Scholes Partial Differential Equation Long Term Capital Management: What Went Wrong?
Module 7	Options - “Greeks” Comparative statics: Assessing how the price of an option will change in response to one of its fundamentals Delta ( $\Delta$ ), Gamma ( $\Gamma$ ), Theta ( $\Theta$ ), Vega ( $\Lambda$ ), Rho ( $P$ ), Omega ( $\Omega$ )
Module 8	Options Applications I - Stock Indices, Currencies and Futures Derivation of pricing equations for options on stock indices, options on currencies and options on futures. Portfolio Insurance RJR Nabisco Case
Module 9	Options Applications II - Corporate Securities Equity Debt Junior Debt Warrants Convertibles PERCS
Module 10	Futures and Options - Market Micro-structure The practical side to building a portfolio with derivatives; investigating the difference between an investment strategy and a trading strategy.

- Module 11      Exotic options  
                  What are they? What are they good for? How do you price them?  
                  Path Independent exotics  
                    Forward Start option  
                    Chooser “as you like it”  
                    Cash-or-Nothing option  
                    Asset-or-Nothing option  
                    COD option  
                  Path Dependent exotics  
                    Barrier option  
                    Lookback option  
                    Asian option
- Module 12      Other Derivative Securities  
                  Broadening the definition of a derivative security  
                    PRIMES and SCORES  
                    Securitization  
                    Credit Derivatives
- Module 13      Regulation of Derivatives  
                  Group of 30 Recommendations / SEC reporting requirements  
                  Value At Risk (VAR)