

B40.3340 Advanced Futures and Options
Fall 2009
Thursday 6:00 P.M. - 9:00 P.M.
KMEC 3-80

Website: <http://sternclasses.nyu.edu/>

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and by appointment

SYLLABUS (as of June 28, 2009)

Course description:

This course is designed for Finance MBA students who are already familiar and comfortable with the fundamentals of derivatives and derivatives markets. The objective is to solidify and extend their command of the theoretical and practical aspects of financial futures, options, and other derivatives. It is meant to build on, not to replace, B40.3335 Futures and Options.

B40.3335 Futures and Options is a prerequisite for this course. Students who have not completed B40.3335 must have explicit permission from the professor to take this course

Over the last 35 years, the markets for these versatile instruments have grown enormously and have generated a profusion of innovative products and ideas, not to mention periodic crises. Derivatives have become one of the most important tools of modern finance, from both the academic and the practical standpoint. However, the subject matter involves relatively greater use of quantitative methods and theoretical reasoning than many other courses require, and most students will find it quite challenging.

Naturally, the more advanced the level, the more rigorous the subject matter becomes, and the current state of the art in derivatives theory has reached a point that is well beyond the comfort level of nearly anyone who has not done graduate level work in mathematics. But this course is designed for advanced MBA students, not Ph.D.s in finance or math. We will emphasize developing intuitive understanding of the mathematical principles that derivatives theory is based on, much more than formal derivations of formulas. Understanding the economics of how these securities and markets work is just as important as technical knowledge, and experience has shown that students with very strong mathematics but inadequate mastery of economics have just as much difficulty mastering the material as those with good intuition but weaker quant skills.

Reading:

Textbook:

(H) Hull. Options, Futures, and Derivative Securities, 7th ed. Prentice-Hall, 2008.

This textbook is the industry standard reference. It is "everything you might ever want to know about derivatives." Learn everything in Hull, and you will have an outstanding grasp of the subject. It is hard reading, especially for non-mathematicians, but worth the effort. It is very helpful to do the reading before the class in which it will be discussed.

Other required materials:

All class materials, including class notes, homework assignments, spreadsheets, sample problems and exams, will be available for downloading from the course website. Lecture notes, additional readings, and homework assignments will also be distributed in class.

Computer:

A working knowledge of Excel is a requirement for the course. Much of the homework will require use of a spreadsheet program. However, following Stern School standard policy, **no computers, Blackberries, smartphones, etc., are permitted in class**. They are too distracting, for the user and for others.

Calculator:

You will need a calculator for quizzes. It should be a "scientific" calculator, with x^y and \log functions, but nothing fancier than that is required. A calculator with more functionality than is needed costs less than \$20.

Grading:

- There will be a midterm exam (30%) and a final (30%).
- Homework (40% in aggregate). There will be several graded homework assignments.

The typical grade distribution is: A, A- 25-30% ; B+, B, B- 55-65% ; C+ and below 5-15% This generally conforms to the Finance Department norm. The course grade will be based on demonstrated mastery of the material, not on how hard the student has worked.

Homework answers will be posted on the course website one week after an assignment is due. Late homework will not be accepted once the answers have been posted.

TA / Tutor / Grader: The TA for the course, *<to be named later>*, will hold regular office hours. Times and place will be announced.

COURSE OUTLINE

H denotes chapters in the Hull textbook.

Session / Date	Topics	Reading / Homework
1: Thurs, Sep 24	Review of derivative instruments and derivatives valuation; Arbitrage in theory and practice	H1-5; H8, 9, 13, 15, 16
2: Thurs, Oct 1	Derivatives risks and risk management; Value-at-Risk and related concepts	H 10, 12, 17, 20
3. Thurs, Oct 8	Derivatives valuation techniques; Numerical methods	H 11, 19
4. Thurs, Oct. 15	Modeling and forecasting volatility; Stochastic volatility models	H18, 21
5. Thurs, Oct. 22	Derivatives markets and market regulation; Derivatives based on interest rates	H34 H6-7
6. Thurs, Oct. 29	Midterm Exam Derivatives based on interest rates, continued FRAs, Swaps, Caps and Floors	H 28, 29
7. Thurs, Nov. 5	Models of interest rate behavior	H27, 30, 31
8. Thurs, Nov 12	Mortgages, mortgage-backed securities; Securitization	
9. Thurs, Nov 19	Credit risk and credit derivatives	H22-23
Nov. 26	NO CLASS - Thanksgiving	
10.Thurs, Dec 3	Exotic payoff structures (barrier options, quantos, Asian options, etc.)	H24, 26

11 Thurs, Dec 10	Exotic underlying assets (weather, energy, etc.) Real options	H14, 25, 32, 33
12 Thurs, Dec 17	Review Final Exam	