

Topics in Investments (B40.3176.00)

Options Markets

Summer 2018

Professor Menachem Brenner

Course Description: This is a course in options markets: structure, strategies and pricing. It combines theory, empirical findings and practical applications. The main applications include the equities markets, foreign exchange and commodities (e.g. oil, gold, silver). Readings, cases and examples include the recent Financial Crisis, the 1987 Crash, LTCM.

This short course focuses on the options; strategies; pricing and position analysis. It includes topics like: Value-at-Risk, Volatility Derivatives (VIX) and Trading Volatility. The course will consist of lectures, discussions and problem solving.

Prerequisites: All core courses. This course requires a basic knowledge of options. Remind yourself of the basic features of calls, puts and payoff diagrams.

Exams and Grading: Due to the intensive nature of the course, there will only be a **final exam** (multiple-choice exam with explanation). The **final grade** will be based on the final exam. The grade distribution is: A (30%-35%), B (60%-65%); C (0%-5%); D, F (remainder if any). Class participation may improve your grade.

Problem Sets: Posted on NYU CLASSES. There will be 4-5 problem sets. Solutions to the problem sets will **not** be collected. The solutions will be posted after you had a chance to solve them for yourself. Additional problems will be presented and discussed in class.

Required Material: You are responsible for the material covered in class, for all announcements made in class, for material posted on NYU CLASSES and sent by e-mail. The problem sets and all handouts are part of the class material.

Recommended book: **Hull John (H)** Options, Futures and Other Derivatives, Prentice Hall, 10th ed. The book is not a substitute for the lecture notes and class discussions. Some topics and details are not covered by the book.

Recommended book: **Sundaram Rangarajan and Sanjiv Das**, Derivatives, Principles and Practice. McGraw-Hill/Irwin, 2010.

Market Tracking: You are expected to follow the markets on a daily basis. In particular, Gold, SPX, SPY and Implied Volatility from index options (e.g. VIX). **Market tracking questions may appear on the exam.**

Your internet 'favorites' should include the exchange sites; CME, CBOE. You are also expected to read the financial press. Pay special attention to the futures and options columns in the **WSJ&FT**.

Schedule of Classes: Sundays (July 8, 15, 22). Hours: 9:00-12:00 am and 1:00-4:00 pm.

E-mail: Check your mail regularly for additional material, announcements, and assignments.

Office Hours: Wednesday 4:00-6:00 & by appointment.

Office; Rm. 9-55. KMEC

Homepage: Other information appears on the Stern Web Site (stern.nyu.edu/~mbrenner)

Classroom Responsibilities:

Class Attendance: Students are expected to attend all classes and be on time.

Cell phones: You should turn off your cell phone before you enter the class.

NO LAPTOPS or any email/internet devices are allowed in class.

Honor Code: You are responsible for maintaining Stern's honor code.

Course Outline

Recommended Textbook: John Hull (H): Options, Futures and Other Derivatives, Prentice Hall, 2017, 10th edition.

I. Overview of Derivatives Markets (H: Ch.1)

II. Options Markets

1. **Options Strategies and Markets** (H: Ch. 10, 12)
2. **Options Valuation**
 - a) **Arbitrage Conditions** (H: pp.235-238)
 - b) **Put-Call Parity** (Extended) (H: pp. 238-247)
 - c) **The Binomial Model** (+ The American Put) (H: Ch. 13)
 - d) **The Black-Scholes-Merton Model** (H: pp. 319-328, 333-337, 339-344)
 - e) **Options on FX, Indices, and Futures** (H: Ch. 17)
 - f) **Volatility; “smiles” and “skews”** (H: Ch. 20)
 - g) **Sensitivity Analysis** (the Greek letters) (Ch. 19)
3. **Risk Management (VAR)** (H: pp. 493-499)
4. **Applications: VIX and Derivatives, Structured Products, Other**