

# Futures and Options (B40.3335)

Spring 2009

## Professor Menachem Brenner

**Course Description:** This course consists of two parts. The first part of the course deals with the structure of futures markets, pricing of futures contracts and hedging with such contracts. The second and larger part of the course deals with options markets; strategies, pricing and position analysis. The course will consist of lectures, discussions, problem solving and market tracking.

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

**Exams and Grading:** There will be two multiple-choice exams, a midterm and a final. The final grade will be based on the following weights; 30% midterm, 70% final, class participation may improve your grade. The grade distribution is: A (20%-25%), B (50%-60%); C (10%-15%); D,F (remainder if any).

If one gets a higher grade on the final exam, then the midterm will only have a weight of 20% and the final will get 80%. There are no make-up exams for the mid-term.

**Problem Sets:** Posted on Blackboard. The answers will not be collected but I will assign each problem set to a couple of students who will be expected to discuss the solution in class. Solutions to the problem sets will be provided after you have had a chance to solve them. 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 Blackboard and sent by e-mail. The problem sets and all handouts are part of the class material.

**Required book:** John Hull (H) Options, Futures and Other Derivatives, Prentice Hall, 2008. The book is not a substitute for the lecture notes. Some topics and details are not covered by the book.

**Recommended books:** Robert McDonald, Derivatives Markets, Addison Wesley, 2006.  
Cox and Rubinstein, Options Markets, Prentice Hall, 1985.

**Market Tracking:** You are expected to follow the markets on a daily basis. In particular, you should pay attention to 'fair value' of Gold, SPX and NDX futures, and implied volatility from index options (e.g. VIX, VXN). **A couple of market tracking questions may appear on the exams.**

Your internet 'favorites' should include; NYMEX, CME, CBOE, **iseoptions, optionmetrics**.

You are also expected to read the financial press. Pay special attention to the futures and options columns in the **WSJ**. You may also be interested in reading **RISK** and the **Economist**

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

**Office Hours:** Tuesday 2:00-3:00, Wednesday 5:00-6:00 and by appointment. Rm. 9-55 KMEC.

**Homepage:** Other information appears on the Stern Web Site ([stern.nyu.edu/~mbrenner](http://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, Blackberries, 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, 2008, 7<sup>th</sup> edition.

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

### **II. Futures Markets**

1. Forward and Futures: Overview/Comparison
2. The Structure of the Futures Markets (H: Ch. 2)
3. The Cost of Carry Model (H: pp. 99-119)
  - a) Arbitrage Pricing; **Gold Example**
  - b) **FX** forwards , **Stock Index** Futures
4. Hedging with Futures (H: pp. 47-62)

### **III. Options Markets**

1. Options Strategies and Markets (H: Ch. 8, 10)
2. Options Valuation
  - a) Arbitrage Conditions (H: pp.201-208)
  - b) Put-Call Parity (Extended) (H: pp. 208-216)
  - c) The Binomial Model (+ The American Put) (H: pp.237-248)
  - d) The Black-Scholes-Merton Model (H: pp.277-287, 291-294)
  - e) Sensitivity Analysis (the Greek letters) (H: pp. 357-376)
  - e) Volatility; “smiles” and “skews” (H: pp. 389-397)
3. Options on FX, Indices, Futures (H: pp. 330-335)
4. Risk Management (H: pp. 451-453)
5. Exotic Options (H: Ch. 24, optional)