

NYU Tandon School of Engineering
Department of Finance and Risk Engineering
Course Outline FRE-GY 6073 Introduction to Derivative Securities
Adjunct Professor Ronald T. Slivka, Ph.D.
Tuesdays, at assigned times and classroom locations

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Office hours: At classroom location one hour prior to the start of any class or by appointment. Available otherwise by phone / email

Course Pre-requisites

Prerequisite: Graduate Standing

Course Description

For each of the four fundamental derivatives, futures, forwards, swaps and options, this course covers in detail associated definitions, terminology, market mechanics, theoretical fair value pricing and provides numerous practical examples of derivative strategies used in today's markets. New developments in Crypto and IBOR derivatives are covered. Some lectures may be live-streamed.

Prerequisites

Matriculation into MS Financial Engineering or permission of the FRE Department.

Course Objectives

Students should expect to achieve a detailed understanding of the following

- An analytical and intuitive understanding of derivative applications useful in employment interviews
- A clear understanding of definitions and terminology specific to each of the four fundamental types of derivative contracts (futures, forwards, swaps and options)
- A practical knowledge of how contracts are quoted and traded in their respective markets
- How to derive and compute the theoretical fair values for each of the fundamental contracts
- Practical examples of how derivatives are applied to solve current industry problems arising in hedging, investing, trading, and issuing

Course Structure

In the first several lectures we focus on futures and forward contracts on equity, debt and interest rates. Definitions, terminology, users and uses are covered. Market mechanics and fair value pricing of futures and forward through arbitrage are explained. Current industry applications are illustrated in detail along with the emerging cryptocurrency derivatives and the global transition to alternative IBOR rates.

Details of swaps are addressed in several following lectures with special attention given to interest rate swaps. The capital market interpretation of swaps is explored along with the means of determining the valuation and pricing for these important derivatives. Caps, Floors, Swaptions, Equity, FX, Commodity and Non-Generic swaps are also explained. Application examples illustrate industry usage.

Options, Exotic Options and Equity-linked Securities are addressed in the final set of lectures. Option basics, modeling, fair value pricing, valuation and option Greeks are explained, and practical applications are emphasized. Option strategies for investing, hedging, issuing, and trading are all extensively illustrated.

A Midterm Exam will be administered on the seventh lecture date and a Final Exam on the last lecture date. Short quizzes will accompany some lectures.

Readings and Assignments

The required text for the course is: John Hull, Options, Futures and Other Derivatives, 10th edition. Available in the NYU bookstore. However, most of the course content is contained in individual lectures and assigned readings. Important, material supplementary to the text will be assigned for reading and completion along with special practical exercises.

Midterm and Final Exams have the following requirements.

Only registered students can take these exams. Exams will be open book, open notes. You must bring a calculator. By NYU Policy no devices that permit texting, emailing or internet connections will be allowed. The exams typically have four or five problems covering major segments of the lecture content.

Grading

- 35% will be based on the Midterm Exam
- 35% will be based on the Final Exam
- 20% will be based on class participation and completed assigned exercises
- 10% will be based on timely completion of end of chapter problems and on some quizzes
- A = 90+; B = 80-89; C = 70 – 79



Ronald T. Slivka, Ph.D. is an Adjunct Professor in the Finance and Risk Engineering Department at NYU Tandon School of Engineering. With over 35 years of practical Wall Street experience, Dr. Slivka has held equity derivative sales and management positions at Salomon Brothers, J.P. Morgan and ABN AMRO. He has written over 40 articles and book chapters on a broad range of derivative topics and holds a Ph.D. in Physics from the University of Pennsylvania. Ron presently serves on the Editorial Board of the Indian Journal of Finance and reviews for the International Journal of Emerging Markets and Journals of Investing and Index Investing (RTslivka@msn.com).

LinkedIn at <http://www.linkedin.com/pub/ronald-t-slivka/21/275/316>
Access my recent papers on SSRN at: <http://ssrn.com/author=1530815>

NYU Policies

Disability Disclosure Statement

Academic accommodations are available for students with disabilities. Please contact the **Moses Center for Students with Disabilities** (212-998-4980 or mosescsd@nyu.edu) for further information. Students who are requesting academic accommodations are advised to reach out to the Moses Center as early as possible in the semester for assistance.

Inclusivity Statement

The NYU Tandon School values an inclusive and equitable environment for all our students. I hope to foster a sense of community in this class and consider it a place where individuals of all backgrounds, beliefs, ethnicities, national origins, gender identities, sexual orientations, religious and political affiliations, and abilities will be treated with respect. It is my intent that all students' learning needs be addressed both in and out of class, and that the diversity that students bring to this class be viewed as a resource, strength, and benefit. If this standard is not being upheld, please feel free to speak with me.

Academic Misconduct Policy

- A. **Introduction:** The School of Engineering encourages academic excellence in an environment that promotes honesty, integrity, and fairness, and students at the School of Engineering are expected to exhibit those qualities in their academic work. It is through the process of submitting their own work and receiving honest feedback on that work that students may progress academically. Any act of academic dishonesty is seen as an attack upon the School and will not be tolerated. Furthermore, those who breach the School's rules on academic integrity will be sanctioned under this Policy. Students are responsible for familiarizing themselves with the School's Policy on Academic Misconduct.
- B. **Definition:** Academic dishonesty may include misrepresentation, deception, dishonesty, or any act of falsification committed by a student to influence a grade or other academic evaluation. Academic dishonesty also includes intentionally damaging the academic work of others or assisting other students in acts of dishonesty. Common examples of academically dishonest behavior include, but are not limited to, the following:
 1. **Cheating:** intentionally using or attempting to use unauthorized notes, books, electronic media, or electronic communications in an exam; talking with fellow students or looking at another person's work during an exam; submitting work prepared in advance for an in-class examination; having someone take an exam for you or taking an exam for someone else; violating other rules governing the administration of examinations.
 2. **Fabrication:** including but not limited to, falsifying experimental data and/or citations.
 3. **Plagiarism:** intentionally or knowingly representing the words or ideas of another as one's own in any academic exercise; failure to attribute direct quotations, paraphrases, or borrowed facts or information.
 4. **Unauthorized collaboration:** working together on work that was meant to be done individually.
 5. **Duplicating work:** presenting for grading the same work for more than one project or in more than one class, unless express and prior permission has been received from the course instructor(s) or research adviser involved.
 6. **Forgery:** altering any academic document, including, but not limited to, academic records, admissions materials, or medical excuses.
