FRE 7801 (Section I)
Real-time Risk Management –
Trader vs. Risk Manager's Perspective

Instructor Information

- **Dr. Naresh Malhotra**, Director/Supervisor, Societe Generale (US)
- Phone: +1.917.886.5892
- Naresh.Malhotra@NYU.edu

Course Information

- **Syllabus date –** April 5, 2021
- **Course number –** FRE 7801-I
- **Credits –** 1.5 credits
- **Course name –** Real-time Risk Management – Trader vs. Risk Manager's Perspective.
- **Course description –**
  This class deals with the ways in which traded risks are quantified and managed by the derivative traders and contrast the trader's view of risk with that of risk-managers. Among the topics covered are – the business rationale and nature of derivative trading desks, management of market risk, counterparty credit risk, market liquidity risk, generating trading insights from historical data, trade risk and profitability analysis, and creating, back-testing & implementing trading strategies.
- **Prerequisites** – None
- **Classroom number and building** – In-person (Fall 2021)
- **Virtual (online) meeting days and times** – By appointment on Mondays

Course Overview and Goals

The current class provides the basic components of market risk, counterparty credit risk and market liquidity risk as faced by the derivative trading desks and affiliated risk managers. The class is intended to be applied in nature with focus on real life case studies to provide actual flavor of bank's derivatives trading strategies.

Upon completion of this course, students will be able to:

- Understand the core elements of market risk management as practices by derivative traders,

- Be able to apply basic trading strategies (such as delta-neutral, relative value, curve trades, capital structure trades, options strategies, etc.) to the derivatives portfolios,
- Comprehend the business rationale behind derivatives structures and key considerations such as funding costs, margin and risk limits, and
- Develop a keen appreciation for developing independent trade ideas using classic and modern techniques for a variety of derivative portfolios.

Course Requirements

The grading for this class will based on homework (assigned readings), open-book quizzes, open book final, class participation, and individual project.

Grading of Assignments

The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
5 Homework assignments	30%
5 quizzes	30%
Class project/ Class participation	30%
Final test	10%

Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Points	Percent
A	4.00	92.5% and higher
A-	3.67	90.0 – 92.49%
B+	3.33	87.5% - 89.99%
B	3.00	82.5% - 87.49%
B-	2.67	80% - 82.49%
C+	2.33	77.5% - 79.99%
C	2.00	70.0% - 77.49%
F	.00	69.99% and lower

View Grades

The grades will be available in Albert with 3 after the final class.

Course Schedule

Topics and Assignments

Week/Date	Topic	Reading
Week 1	**An introduction** to real-life Derivatives Trading • Business objectives • Risk vs. return • Risk measures • Key considerations - margin, funding, risk limits)	Class presentation deck, and contemporary industry insights/papers
Week 2	**Key Risk Exposures** of a derivatives trading book • Market Risk measures • Counterparty Credit Risk • Market liquidity Risk	Class presentation deck, and contemporary industry insights/papers
Week 3	**Managing market risk** of derivatives trading book • Risk metrics • Risk analysis • Sensitivity analysis • Back-testing trade strategies	Class presentation deck, and contemporary industry insights/papers
Week 4	**Trading and hedging strategies** • Interest rates derivatives strategies • Credit trading strategies • Equity trading strategies	Class presentation deck, and contemporary industry insights/papers
Week 5	**Generating trade ideas.** • Multivariate regression • Hurst exponents • Principal components	Class presentation deck, and contemporary industry insights/papers
Week 6	**Practical trade strategies –** • Delta-neutral • OTM tail risk • Curve trading • Relative value strategies	Class presentation deck, and contemporary industry insights/papers

Week 7	**Final Class** • Final test • Class presentations	Class presentation deck, and contemporary industry insights/papers

Course Materials

Required Textbooks & Materials

- Risk Management and Financial Institutions, by **John C. Hull**
- Multiple contemporary industry and academic papers on market risk, trading strategies, counterparty credit risk, and market liquidity risk related topics.

Resources

- **Access your course materials**: NYU Classes (nyu.edu/its/classes)
- **Databases, journal articles, and more**: Bern Dibner Library (library.nyu.edu)
  NYU Virtual Business Library (guides.nyu.edu/vbl)
- **Obtain 24/7 technology assistance:**
  Tandon IT Help Desk (soehelpdesk@nyu.edu, 646.997.3123)
  NYU IT Service Desk (AskIT@nyu.edu, 212-998-3333)

Policies

Academic Misconduct

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 have 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.

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.

Inclusion 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.