

Northeastern University
Financial Risk Management – FINA 4512
Summer 2024
M – R: 1520 – 1700, Dodge 370

Instructor: Sunayan Acharya
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Office hours: Tuesday & Thursday 1415 – 1515

COURSE DESCRIPTION

This course introduces derivative assets, financial engineering, and risk management. Explores specific hedging use of options, forwards, and futures. Focuses on the determinants of forwards, futures, options and swaps, and various exotic derivatives pricing using computer-based numerical methods in a Monte Carlo setting and in closed form using elements of stochastic calculus. Also explores risk-management strategies using positions in derivative securities, static hedging, and dynamic hedging in continuous time.

COURSE MATERIALS

Textbook

I will primarily follow the following textbook:

Options, Futures, and Other Derivatives by John Hull, 11th Edition

Other useful books for reference are:

Derivatives Markets, by McDonald

Derivatives: Theory & Practice, by Cuthbertson et al

Software/Hardware

You will need a calculator throughout the course. Later in the semester, we might use Excel for some calculations.

COURSE PLAN

This is tentative:

- I. Forward & Futures Contracts: Chapters 1 – 6
- II. Options: Chapters 10 – 15 (possibly 21)
- III. Other Topics:
 - a. Greeks: Chapter 19
 - b. Swaps: Chapter 7
 - c. Securitization: Chapter 8
 - d. Employee Stock Options: Chapter 16

COURSE GRADES

Assignments (30%):

- These will be posted on Canvas

Midterm (30%):

- May 30th

Final (40%):

- tba

YOUR RESPONSIBILITIES

- Stay up to date with the material after each class. A lot of the ideas presented in the course will likely be new to you and will also involve quite a few calculations.
- If there's anything not clear during the lecture, feel free to ask me then and there. Questions are welcome and in fact encouraged, whether it's conceptual or quantitative in nature.
- If you're reviewing and feel like you don't understand a concept, stop by my office and I'll be happy to go over it with you. You can also email me and if it's simple enough, I can explain it in the reply.
- Almost all the homework can be solved easily using ChatGPT or similar tools. However, this obviously won't help you during the exam. You'll have unlimited attempts to get the homework right. Use this opportunity to figure out what the question is asking for and how to get about solving it.

ACADEMIC HONESTY

Northeastern University is committed to the principles of intellectual honesty and integrity. I expect that you will not copy the work of others, have others do work for you, or use unauthorized aids beyond what is allowed on assignments, projects, and/or exams. This includes the use of AI programs such as ChatGPT, as well as any in person or electronic collaboration with students inside and outside the classroom. It also includes using calculators not specifically approved by the professor. If in doubt, ask.

Any student caught cheating on any assignment, exam, or project will receive 0 points for the assignment and will fail this course. Any student caught cheating will also be reported to the Office of Student Conduct and Conflict Resolution (OSSCR), which will result in a Information Only OSSCR meeting or a full Administrative Hearing, at the discretion of OSSCR.

Additional penalties as prescribed by the University also may apply. If you have any doubts as to the parameters of academic honesty and integrity, please refer to the University's Academic Integrity Policy: <https://osccr.sites.northeastern.edu/academic-integrity-policy/>

You may also wish to refer to the Code of Student Conduct: <https://osccr.sites.northeastern.edu/code-of-student-conduct/>