NYU Tandon School of Engineering

Finance & Risk Engineering

Course Syllabus – Blockchain and Cryptocurrency

FRE-GY 6931 I

Richard Radnay, Spring 2026
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Instructor email:	richard.radnay@nyu.edu
Office:	Jacobs Hall, 6 Metrotech, Room 203
Office hours:	By Zoom appointment, or in-person appt,
Grading assistants:	TBD
Sections/Location/Time:	Monday, 6pm-8:41pm Jan 20th – March 10th

"Digital currency may redefine currency. Although the main function of currency is still there, it will redefine currency, just like Apple redefines mobile phones as not just being a phone."
- Jack Ma Co-Founder, Alibaba Group

This course is an executive program designed to offer a comprehensive introduction to blockchain technology. Starting with the basics of decentralized systems and distributed ledgers to smart contracts and cryptography, this course provides knowledge on all the fundamentals and applies them to finance and their use for investing and in future careers. It will require programming in both python and solidity. The highlights include:

- "Web3" Is it truly decentralized?
- "Bitcoin" why it matters and why you should care
- "Cryptocurrency" Trading / Hedging
- "Permissionless" open-sourced protocols for capital markets
- "Economics" valuing mining and digital assets
- "Smart Contracts" and tools for regulation
- Financial Engineering Careers in Web3

Instructor information:

Resume in brief:

- Current: Head of Enterprise Technology MUFG Investor Services
- Principal: Prospect Fintech
- CTO, Custodia Bank
- MD, Technology Wealth Management - LSE
- Sold company to London Stock Exchange
- Co-founder, Chief Information Officer - XTF
- Harvard Business School – FinTech certificate
- Executive MBA – Baruch Zicklin School of Business

Class outline, *subject to revision*:

1. The Promise and Pitfalls of Blockchain and Digital Assets
    a. Satoshi Whitepaper
    b. Web3
2. Blockchain Protocols
    a. Decentralized Databases
    b. Lightning Network & Layer 2 Protocols
    c. Permissioned vs. Permissionless
3. Digital Assets
    a. Bitcoin and Cryptocurrencies
    b. Stablecoins and CBDCs
    c. Ethereum and Smart Contracts
4. Decentralized Finance (DeFi)
    a. Securing Private Keys
    b. Decentralized Lending & Leverage
    c. Governance & Regulation
5. Valuation and Investing
    a. Economics of Mining
    b. Proof of Work vs. Proof of Stake
    c. Valuation of Digital Assets
6. Trading & Hedging Smart Contracts
    a. NFT's
    b. Solidity programming language
7. Final Project
    a. The future of Blockchain technology
    b. Careers in Crypto

Class organization:

Required texts: Readings will be assigned and you are expected to have read them prior to class.

Brightspace: All course material will be on Brightspace. Please follow the course requirements and announcements online weekly, as they are likely to change as the term progresses.

Recommended IDE: Jupyter notebook & Remix (for Ethereum)

Recommended software: Microsoft Excel or Google Sheets.

You are also expected to use **Python** for completing some projects. You will be learning the **Solidity** programming language in this class and the final assignment will be a combination of tools used throughout class.

Course grading: This will be a combination of weekly projects (50%), a final project (25%) and class participation (25%), which is based on your ability to ask great questions in class and in your participation in Brightspace. You will be called-upon and expected to answer. The final project can be completed as a 2-person team if you wish.

Missed class policy: I do not take responsibility for your missed classes, but you can expect missed recitations to affect your class participation grade.

Office hours: GA hours TBD. By in-person appointment, Zoom appointment, or for 30 minutes after every scheduled class.

NYU Class Prerequisites:	None for FRE students
Functional prerequisites:	Python, Excel
Analytical skills taught:	Valuation of Digital Assets

You are expected to attend ALL CLASSES in person. If you cannot attend a class, please notify me and the TA as soon as possible. If you are sick or can only attend remotely, the class will be broadcast via Zoom.

The lecture recordings will be available to all students for study purposes.

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.

Generative AI Use

The use of generative AI tools is **Welcome with Attribution** in this course. You are welcome to use generative AI tools including, but not limited to ChatGPT, Microsoft Bing, Google Bard, etc. You are responsible for the information submitted based on an AI query (for instance, that it does not violate intellectual property laws, or contain misinformation or unethical content). Your use of AI tools must be properly documented and cited. Please use the following guidelines for citation, https://style.mla.org/citing-generative-ai/

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.