

Course Syllabus – Blockchain and Cryptocurrency

FRE-GY 6931 Section B

Richard Radnay, Spring 2023

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Instructor email:	richard.radnay@nyu.edu
Office:	2 Metrotech, Room 830
Office hours:	By Zoom appointment, or in-person appt,
Grading assistants:	TBD
Sections/Location/Time:	Mondays 6pm-8:41pm 1/23-3/20

“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. 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:



Richard Radnay

Resume in brief:

- Current: CTO @ Custodia Bank
- Principal: Prospect Fintech
- Head of Business Development: ETFLogic
- 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
- University of Florida - Finance

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. Capstone Project
 - a. Course Reflection



Class organization:

Required texts: Readings will be assigned

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

Recommended calculators: None

Recommended analytic software: I prefer Excel, not for its elegance or ease of use, but for the ease of collaboration and visualization with colleagues, supervisors and clients. **You must have access to Excel to complete your assignments.**

You are also expected to use **Python** for completing more complex projects.

Course grading: This will be a combination of homework and several 2-person mini projects (50%), a personal final project (25%) and class participation (25%), which is based on your answers to questions in class. You will be cold-called and expected to answer. Each project team will consist of at least two people, and the group *must be different for each project*. There is no final exam, but there will be a final project.

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.

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

COVID-19 ACCOMMODATIONS

At this time, the COVID requirements for Fall 2022 are unknown. Three sections of the class are offered in-person, and one is by Zoom. The Zoom 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.

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.