NJIT New Jersey Institute of Technology

MARTIN TUCHMAN SCHOOL OF MANAGEMENT

AACSB ACCREDITED

FIN 306-001: Blockchain Tech for Business

Fall 2024

(Updated on 9/3/2024)

Instructor: Jixing Li

Email: jixing.li@njit.edu

Class: Tue/Thu 8:30 am - 9:50 am

Classroom: In person - CKB 204

Instructor Office Hours: Tue/Thu 12:30 pm - 2:00 pm (CAB 4023)

Course Description:

In this course, students will delve into the world of blockchain technology and the promise it holds for business. In particular, the course is divided into two parts.

In the first part (Week 1 to 8), students will have a comprehensive and intuitive understanding of the technical foundations of blockchain technology, which is necessary to understand specific blockchain applications, evaluate business cases of blockchain startups, and follow the discussion about its expected economic impacts.

In the second part (Week 9 to 14), students will study how cryptocurrencies like Bitcoin make use of blockchain technology to facilitate peer-to-peer transactions, analyze how smart contracts work, how they're used today, how to reason about their capabilities, and what ongoing technical challenges they pose, as well as other blockchain applications in business.

Course Objectives:

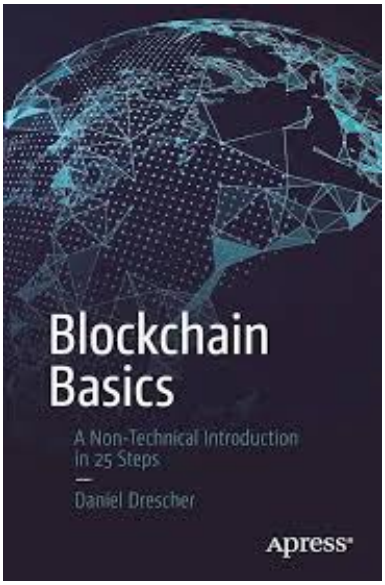
Upon completion of this course, you will be able to grasp and enhance skills in the following areas:

- A well-grounded understanding of blockchain technology.
- Become an active part of the ongoing discussion about blockchain technology.

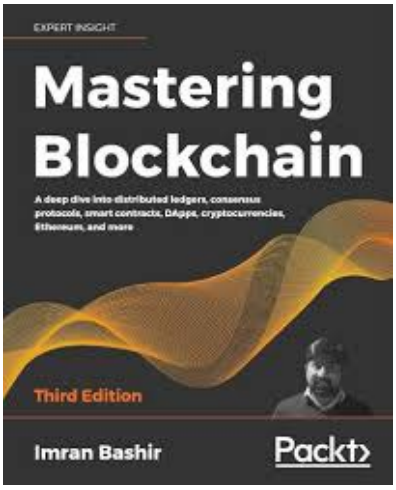
- Create blockchain and cryptocurrency using Python
- Understand and develop critical thinking towards blockchain applications
- Present blockchain applications in the real business world.

Course Materials:

Required Textbook: **Blockchain Basics: A Non-Technical Introduction in 25 Steps**, Daniel Drescher (2017), (Abbreviation: DD)
ISBN-13: 978-1484226032, ISBN-10: 1484226038, Apress.



Optional Textbook: **Mastering Blockchain: A deep dive into distributed ledgers, consensus protocols, smart contracts, DApps, cryptocurrencies, Ethereum, and more**, 3rd edition, Imran Bashir (2020), (Abbreviation: IB)
ISBN-13: 978-1839213199, ISBN-10: 1839213191, Packt.



Other Materials: Slides and supplementary materials will be available through Canvas (https://canvas.njit.edu/).

DO NOT post or share course materials with outside parties.

Prerequisites:

MGMT 216 and FIN 218

Basic programming skills in Python are required. Students with no programming background should utilize online resources (e.g. YouTube, Udacity, and Udemy) to familiarize themselves with the basics of Python programming. Here are some free online courses:

- Udacity: Introduction to Python Programming (https://www.udacity.com/course/introduction-to-python--ud1110)
- Udemy: Introduction to Python Programming (https://www.udemy.com/course/pythonforbeginnersintro/)
- YouTube: Python Programming for Finance (https://www.youtube.com/watch?v=2BrpKpWwT2A&list=PLQVvvaa0QuDcOdF96TBtRtuQksErCEBYZ)

Grading:

		Percent of Final Grade
1.	Class Participation	7%
2.	5 Quizzes (6% each)	30%
3.	2 Coding Assignments (10% each)	20%
4.	Mid-term Review	3%
5.	Mini Project	15%
6.	Final Presentation	25%
	Total	100%
7.	Bonus - Pop-up Quizzes	1% to 3%

Grading Scale (NO Curve):

A	90% - 100%
B+	85% - 89%
B	80% - 84%
C+	75% - 79%
C	70% - 74%
D	60% - 69%
F	Below 60%

Participation:

Class participation is not an explicit part of the grading scheme. However, I reserve the right to adjust your participation grade based on an overall assessment of your contribution to the class. Insightful

questions/comments that indicate careful preparation for and attention to class are good. Regular failure to attend and/or to be prepared is not good.

Quizzes:

Quizzes are delivered via Canvas. Quizzes are available at the beginning of the quiz week (Week 3, 5, 7, 10, 13) and must be completed by Sunday at 11:59 pm of that week. Students have three times of attempt on each quiz before its due date. There is no time limit for each attempt. After each attempt, students will be told which questions they get correct and which questions they get wrong. Only the highest score will be recorded.

Coding Assignments:

After each lab, there will be a follow-up coding assignment that is a variant version of the lab. Students will have the chance to develop and implement their own blockchain and cryptocurrency. Coding assignments are available after each lab and must be completed by Sunday at 11:59 pm of the following week.

Late submissions will not be accepted.

Mid-term Review:

At the end of Week 8, you will complete a brief review of your participation and reflect on what you learned in the first half semester.

Mini Project:

In this project, students will have three weeks (Week 11, 12, 13) to write a report on Bitcoin and other cryptocurrencies in terms of Introduction, Past, Present, and Future. Detailed requirements for this mini project will be provided via Canvas. According to academic integrity, your reports will be assessed using Turnitin to check the similarity rate. The low similarity rate proves the originality of your work. The answer with a high similarity rate will be returned without grading.

Late submissions will not be accepted.

Final Presentation:

In this online presentation, students will utilize all the knowledge and skills they learned from the class to make a presentation about blockchain applications in the real business world. You can either record an audio or a video that is consistent with your slides. Both your audio/video and slides should be uploaded to Canvas before the deadline. Detailed requirements for this presentation will be provided via Canvas.

Late submissions will not be accepted.

Schedule:

The course schedule should be viewed as the general framework within which we will work. The instructor reserves the right to adjust the material covered during the semester.

Class	Session	Lecture	Reading
Week 1 (9/3) **Academic Engagement Due 9/10 11:59 pm**	Tue	Introduction: About the Course	
	Thu	Lecture 1: Terminology and Technical Foundations	DD Chapters 1, 2, 3
Week 2 (9/10)	Tue	Lecture 2: Why the Blockchain Is Needed	DD Chapters 4, 5, 6, 7
	Thu	Lecture 3: How the Blockchain Works -Task 1: Describing Ownership	DD Chapters 8, 9
Week 3 (9/17) **Quiz 1 Due 9/22 11:59 pm**	Tue	Lecture 3: How the Blockchain Works -Pre Tasks 2 & 3: Hash Values	DD Chapters 10, 11
	Thu	Lecture 3: How the Blockchain Works -Pre Tasks 2 & 3: Hash Values	
Week 4 (9/24)	Tue	Lecture 3: How the Blockchain Works -Task 2: Protecting Ownership	DD Chapters 12, 13
	Thu	Lecture 3: How the Blockchain Works -Task 3: Storing Transaction Data	DD Chapters 14, 15
Week 5 (10/1) **Quiz 2 Due 10/6 11:59 pm**	Tue	Lecture 3: How the Blockchain Works -Task 4: Preparing Ledgers to Be Distributed in an Untrustworthy Environment -Task 5: Distributing the Ledgers	DD Chapters 16, 17
	Thu	Lecture 3: How the Blockchain Works -Task 6: Adding New Transactions to the Ledgers	DD Chapter 18
Week 6 (10/8)	Tue	Lecture 3: How the Blockchain Works -Task 7: Deciding Which Ledgers Represent the Truth -After Tasks 6 & 7: Paying for Integrity	DD Chapters 19, 20
	Thu	Lecture 3: How the Blockchain Works -Summary: Bringing the Pieces Together	DD Chapter 21
Week 7 (10/15) **Quiz 3 Due 10/20 11:59 pm**	Tue	Refresher: Python Programming & Postman API Platform	
	Thu	Lab 1: Create a Blockchain	

Week 8 (10/22) **Coding 1 & Mid-term Review Due 10/27 11:59 pm**	Tue	Lecture 4: Limitations and How to Overcome Them	DD Chapters 22, 23
	Thu	Lecture 5: Using the Blockchain, Summary, and Outlook	DD Chapters 24, 25
Week 9 (10/29)	Tue	Lecture 6: Cryptocurrency -Topic 1: Bitcoin Mining	Supplementary Materials (IB Chapters 6, 7, 9)
	Thu	Lecture 6: Cryptocurrency -Topic 2: Bitcoin Transactions & Wallets	
Week 10 (11/5) **Quiz 4 Due 11/10 11:59 pm**	Thu	Lab 2: Create a Cryptocurrency	
Week 11 (11/12) **Coding 2 Due 11/17 11:59 pm**	Tue	Lecture 6: Cryptocurrency -Topic 3: Alternative Coins	
	Thu	Lecture 7: Smart Contract -Topic 1: Ethereum	Supplementary Materials (IB Chapters 10, 11, 12)
Week 12 (11/19)	Tue	Lecture 7: Smart Contract -Topic 2: Other Concepts	
Week 13 (11/26) **Quiz 5 & Mini Project Due 12/1 11:59 pm**	Tue	Lecture 8: Other Blockchain Applications in Business	Supplementary Materials
	Thu	Lecture 8: Other Blockchain Applications in Business	
Week 14 (12/3)	Tue	Lecture 8: Other Blockchain Applications in Business	
	Thu	Lecture 8: Other Blockchain Applications in Business	
Week 15 (12/10)	Tue	Course Review Final Presentation Overview	
Week 16 (12/17) **Final Presentation Due 12/19 11:59 pm**		Final Presentation	

Important Dates:

Sep 9th: Last Day to Add/Drop a Class for 100% Refund

Sep 30th: Last Day to Withdrawal for 50% Refund

Oct 21st: Last Day to Withdrawal for 25% Refund

Nov 11th: Last Day to Withdraw from Classes

Academic Integrity:

"Academic Integrity is the cornerstone of higher education and is central to the ideals of this course and the university. Cheating is strictly prohibited and devalues the degree that you are working on. As a member of the NJIT community, it is your responsibility to protect your educational investment by knowing and following the academic code of integrity policy that is found at: NJIT Academic Integrity Code.

Please note that it is my professional obligation and responsibility to report any academic misconduct to the Dean of Students Office. Any student found in violation of the code by cheating, plagiarizing or using any online software inappropriately will result in disciplinary action. This may include a failing grade of F, and/or suspension or dismissal from the university. If you have any questions about the code of Academic Integrity, please contact the Dean of Students Office at dos@njit.edu"

Generative AI Policy:

Student use of artificial intelligence (AI) is permitted in this course for certain assignments and activities. It is not permitted to be used in **Coding Assignments**, as doing so would undermine student learning and achievement of course learning outcomes. Additionally, if and when students use AI in this course, the AI must be cited as is shown within the NJIT Library AI citation page for AI. If you have any questions or concerns about AI technology use in this class, please reach out to your instructor prior to submitting any assignments.

Tips for Better Grades:

Grades are a reflection of the level of understanding of course content. Therefore, to achieve a grade of A or B in this class, students are expected to:

- Attend 100% of classes and be respectful to other students by turning off or muting your electronics.
- Turn in all course assignments in a timely and professional manner.
- Come to the instructor's office hours if you have any questions.
- Take the bonus pop-up quizzes!

Email Etiquette:

- Put the course name FIN 306 in the subject line.
- Identify the subject of the e-mail with a brief but descriptive summary of the topic.

- Expect a 24- to 48-hour window for email responses.

Virtual Office Hours:

Join Zoom Meeting

https://njit-edu.zoom.us/j/4324855189?pwd=waRshamUGWeKabCjobhhBPNnPAioQR.1

Meeting ID: 432 485 5189

Passcode: JixingZoom