FIN 306-002: Blockchain Tech for Business

Spring 2025

(Updated on 1/21/2025)

Instructor: Jixing Li

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Class: Tue/Thu 2:30 pm - 3:50 pm

Classroom: In person - Tiernan Lecture Hall #1

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

Office Hour Notes: It is better to send an email before stopping by; Virtual option is also available, the information is at the end.

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 10 to 15), 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.
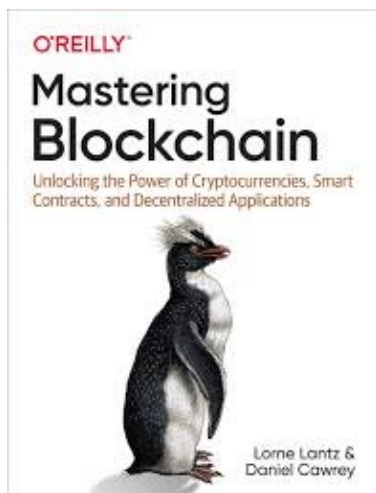
Course Materials:

Required Textbook: **Blockchain Basics: A Non-Technical Introduction in 25 Steps**, Daniel Drescher (2017), (Abbreviation: DD)
ISBN-13: 978-1484226032, ISBN-10: 1484226038, Apress.
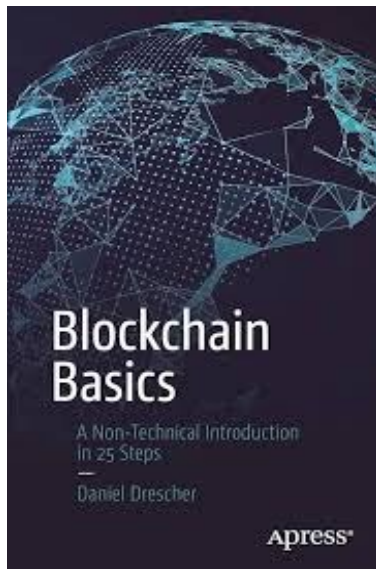
Optional Textbook: **Mastering Blockchain: Unlocking the Power of Cryptocurrencies, Smart Contracts, and Decentralized Applications**, Lorne Lantz & Daniel Cawrey (2020), (Abbreviation: LLDC)
ISBN-13: 978-1492054702, ISBN-10: 1492054704, O'Reilly.

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=PLQVvvaa0QuDcOdF96TBtRtuQks ErCEBYZ)

Grading:	**Percent of Final Grade**
1. Class Participation	7%
2. 5 Quizzes (6% each)	30%
3. 2 Coding Assignments (10% each)	20%
4. Midterm Review	3%
5. Group 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%

Class Participation:

Your participation score is based on an overall assessment of your contribution to the class. Attendance is part of class participation and will be recorded intermittently. Other than attendance, you are encouraged to

raise questions, answer questions, share thoughts, and discuss topics. Please be respectful of the learning environment in classroom.

Quizzes:

Quizzes are delivered via Canvas. The format of the quizzes is multiple-choice, true/false, and multiple-answer questions. Quizzes are available at the beginning of the quiz week (Week 2, 4, 6, 11, 14) and must be completed by Sunday at 11:59 pm of that week. Students have **two** attempts at 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.

Midterm Review:

At the end of Week 10, you will complete a brief review of your class participation and a reflection on what you learned in the first half semester.

Group Project:

To start this project, students first need to make groups with the size of 2 or 3 people. Please let me know the students in your group by the end of Week 6. If you have difficulties in finding a group, please also let me know before that so the I can help you.

In this project, student groups will have three weeks (Week 10, 11, 12) to write a report on cryptocurrency in terms of its introduction, past, present, and future. Detailed requirements for this 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 individual online presentation, students will utilize all the knowledge and skills they learned from the class to make a presentation about a **specific** blockchain application 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 (1/21) **Academic Engagement Due 1/28 11:59 pm**	Tue	Introduction: About the Course	
	Thu	Lecture 1: Terminology and Technical Foundations	DD Chapters 1, 2, 3
Week 2 (1/28) **Quiz 1 Due 2/2 11:59 pm**	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 (2/4)	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 (2/11) **Quiz 2 Due 2/16 11:59 pm**	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 (2/18)	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 (2/25) **Quiz 3 Due 3/2 11:59 pm**	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 (3/4)	Tue	Refresher: Python Programming & Postman API Platform	
	Thu	Lab 1: Create a Blockchain	
Week 8 (3/11) **Coding 1 Due 3/16 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 (3/18)	Tue	Spring Recess - No Class	
	Thu	Spring Recess - No Class	
Week 10 (3/25) **Midterm Review Due 3/30 11:59 pm**	Tue	Lecture 6: Cryptocurrency -Topic 1: Bitcoin Mining	Supplementary Materials (LLDC Chapters 2, 3)
	Thu	Lecture 6: Cryptocurrency -Topic 2: Bitcoin Transactions	
Week 11 (4/1) **Quiz 4 Due 4/6 11:59 pm**	Tue	Lecture 6: Cryptocurrency -Topic 3: Bitcoin Wallets	
	Thu	Wellness Day - No Class	
Week 12 (4/8) **Group Project Due 4/13 11:59 pm**	Tue	Lecture 6: Cryptocurrency -Topic 4: Alternative Coins	
	Thu	Lab 2: Create a Cryptocurrency	
Week 13 (4/15) **Coding 2 Due 4/20 11:59 pm**	Tue	Lecture 7: Smart Contract -Topic 1: Ethereum	Supplementary Materials (LLDC Chapter 4)
	Thu	Lecture 7: Smart Contract -Topic 2: Other Concepts	
Week 14 (4/22) **Quiz 5 Due 4/27 11:59 pm**	Tue	Lecture 8: Other Blockchain Applications in Business	Supplementary Materials
	Thu	Lecture 8: Other Blockchain Applications in Business	
Week 15 (4/29)	Tue	Lecture 8: Other Blockchain Applications in Business	
	Thu	Lecture 8: Other Blockchain Applications in Business	
Week 16 (5/6)	Tue	Course Review Final Presentation Overview	

	Thu	Reading Day - No Class	
Week 17 (5/13) **Final Presentation Due 5/13 11:59 pm**		Final Presentation	

Important Dates:

Jan 27th: Last Day to Add/Drop a Class for 100% Refund

Feb 17th: Last Day to Withdrawal for 50% Refund

Mar 10th: Last Day to Withdrawal for 25% Refund

Apr 7th: 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"

Requests for Absence Verification:

Students who miss class due to bereavement, medical concerns, military activity, legal obligations, or university-sponsored events must provide the Office of the Dean of Students (DOS) with official and verifiable documentation related to the absences **within 14 days of the first date of absence** and complete an online Student Absence Verification Request.

Student Absences for Religious Observance:

NJIT is committed to supporting students observing religious holidays. Students must notify their instructors in writing of any conflicts between course requirements and religious observances, ideally by the end of the second week of classes and no later than two weeks before the anticipated absence. For questions or additional guidance, please review the policy or contact the Office of Inclusive Excellence at inclussiveexcellence@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 on the subject line.
- Identify the subject of the e-mail with a brief but descriptive summary of the topic.
- I will try to reply to your email as soon as possible but it could also take up to 24 to 48 hours.

Virtual Office Hours:

Join Zoom Meeting

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

Meeting ID: 432 485 5189

Passcode: JixingZoom