Course Code
Blockchain and Digital Currency
Module 3, 2025-26

Course Information

Instructor: Haiyang Zheng
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Office Hour: Tuesday & Friday 8:30 to 9:30

Teaching Assistant:
Phone:
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Classes:
Lectures:
Venue:

Course Website:

1. Course Description

1.1 Context

Course overview:
This course provides an in-depth exploration of blockchain technology and digital currencies. We begin by examining the mechanics of Bitcoin, followed by a deeper dive into the blockchain concepts and technologies involved in Bitcoin mining. Next, we analyze Ethereum, comparing it to Bitcoin in terms of operation, use cases, and associated risks. The course also covers the history of digital cryptocurrencies, emerging trends in Decentralized Autonomous Organizations (DAOs) and Decentralized Finance (DeFi), and the growing role of central bank-issued digital currencies. Throughout, the course offers a comprehensive understanding of blockchain and digital currencies, emphasizing the underlying technology, historical context, new development directions, and relevant laws and regulations.

Prerequisites:

Students should have good Java programming skills and have taken the Introduction to Fintech and Information Security courses.

AI Tools Usage:
Students are prohibited from using AI tools to generate code or complete reports/ppt for homework assignments and projects. However, students may use AI tools to assist in finding references, supplementing materials, and refining writing and formatting.

1.2 Textbooks and Reading Materials

No official textbook, reading materials will be distributed during classes.

2. Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment (YES with details or NO)
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	YES
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	YES
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	YES
	2.2. Students will be able to apply leadership theories and related skills.	NO
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	YES
	3.2. Our students will practice ethics in the duration of the program.	YES
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	YES
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	YES
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	YES
	5.3. Our students will demonstrate competency in critical thinking.	YES

2.2 Course specific objectives

See section 1.1 Context.

2.3 Assessment/Grading Details

Attendance 5%, Assignments 20%, Midterm 35%, Final Project 40%

Attendance is required and the final project presentation is a must.
The level of background knowledge may vary among students, but it will be ignored in grading. Grading will be strictly based on outcome, not on effort or progress.

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

AI tools requirements：Using AI tools to complete assignments or assessments without the approval of the course instructor will be regarded as an act of academic dishonesty. Depending on the severity of the situation, penalties will be implemented in accordance with the provisions of the Peking University Graduate Student Handbook.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

3. Topics, Teaching and Assessment Schedule (Tentative)

Week	Dates	Topics
1		Bitcoin Protocol and Consensus: A High Level Overview
2		Bitcoin Working Mechanism: A Technical Overview
3		Bitcoin Vulnerability: Game Theory and Network Attacks
4		Ethereum Working Mechanism – Accounts
5		Ethereum Working Mechanism – Mining and Consensus
6		Smart Contracts and Their Applications
7		Midterm Exam and project proposals
8		DAO and DeFi
9		Advanced Topics

4. Miscellaneous