UNIVERSITY of NICOSIA

Course Syllabus

Course Code	Course Title	ECTS Credits
BLOC-528	Token Economics	10
Prerequisites	**Department**	**Semester**
BLOC-511	Digital Innovation	Fall/Spring
Type of Course	**Field**	**Language of Instruction**
Elective	Token Economics	English
Level of Course	**Lecturer(s)**	**Year of Study**
2nd Cycle	Christos A. Makridis	2nd
Mode of Delivery	**Work Placement**	**Corequisites**
Face to face	N/A	N/A

Course Objectives:

The primary objective of this course is to empower students with a comprehensive understanding of token economics—that is, how tokens facilitate the creation and exchange of value on distributed ledger technologies (DLTs). We will start with the fundamentals, distinguishing between security and utility tokens, and explain how tokens can provide incentives for users on DLTs.

We will also explore how to think about how to set the initial supply of coins in an exchange, how general applications of DLTs can use coins to create incentives, and how to think about and forecast the price of coins over time. The course also introduces some quantitative tools and theoretical models from economics to anchor best practices and modeling approaches for token valuation and allocation.

The course is structured around the following broad sections:

1. Define (digital) tokens and discuss how they form the basis of web3 projects.
2. Establish the benchmark models used for monetary policy evaluation and examine how the emergence of tokens changes these models.
3. Examine how to effectively use coins to achieve value creation and sustain a functional web3 ecosystem, coupled with regulatory compliance and other external factors.
4. Address practical questions about the design and evaluation of token strategies.

Learning Outcomes:

Upon completion of this course, students are expected to be able to:

1. Distinguish the key building blocks of DLT and blockchain technology (including Layer 1 and 2 technology), and how they relate to and allow for token ecosystems.
2. Assess the value of and difficulties associated with decentralization and when and why it is important for token ecosystems.
3. Appraise the design of tokens in web3 ecosystems and how to evaluate and monitor their effects to achieve value creation (e.g., optimal supply).
4. Analyze how tokens are influenced by both project-specific and external factors and how to navigate the idiosyncratic shocks that take place in the lifecycle of a project.
5. Analyze how to classify tokens and token ecosystems according to various criteria, and which classifications are important for which purpose.
6. Examine how tokens interact with other web3 objects, like NFTs, and how platforms can use them to encourage engagement and value creation (and how some platforms and exchanges have executed poorly or been pure scams).
7. Analyze the factors that influence the demand and supply for tokens, as well as quantitative frameworks and specific methodological approaches for forecasting the evolution of token prices and quantities.
8. Analyze the relevant regulatory factors that are at play when launching and evaluating tokens with a cross-country perspective.

Course Content:

1. Course Introduction & Fundamentals
2. Supply and Demand Framework in Digital Markets.
3. Monetary Policy Models & Tokens
4. Counterfactual Simulation and Token Economies
5. Launching a Token, Part 1
6. Launching a Token, Part 2
7. Investigating Examples of Layer 1 and 2 DLT Technologies
8. Compliance and External Factors
9. Tokens in the Broader Ecosystem

10. Economics of Security Tokens
11. How Tokens Obtain Value
12. Catch Up and Review

Learning Activities and Teaching Methods:

Lectures, Discussions with guest speakers from the industry ecosystem, Interactive activities (mainly quizzes), Assignment (whitepaper).

Assessment Methods:

12 Interactive Activities (2 per week), 1 Main Assignment (writing of a whitepaper), Final Exam

Required Textbooks / Readings:

1. Lectures' Slides
2. Makridis, C. A., & Liao, G. Y. (2023). Democratizing effects of digital ledger technologies: Implications for economic mobility. Frontiers in Blockchain, 6, 972183.
3. Voshmgir, S. (2020). Token Economy: How the Web3 reinvents the internet (Vol. 2). Token Kitchen.

Recommended Textbooks / Readings:

1. Narayanan, A., Bonneau, J., Felten, E., Miller, A., & Goldfeder, S. (2016). Bitcoin and cryptocurrency technologies: a comprehensive introduction. Princeton University Press.
2. Auer and Bohme (2020), "The technology of retail central bank digital currency," BIS working paper.
3. BIS (2020), "Central bank digital currencies: foundational principles and core features"
4. Chen et al. (2019), "A Brief Introduction to Blockchain Economics"
5. Brunnermeier et al. (2021), "The Digitalization of Money," BIS Working Papers.
6. Makridis et al. (2022), "The Rise of Decentralized Cryptocurrency Exchanges: Evaluating the Role of Airdrops and Governance Tokens"
7. He et al, IMF Discussion Paper, "Virtual Currencies and Beyond: Initial Considerations"
8. Fernandez-Villaverde et al. (2021), "Central bank digital currency: Central banking for all?" Review of Economic Dynamics.
9. Kang, Kee-Youn, and Lee, Seungduck. 2022. Money, Bitcoin, and Monetary Policy. Journal of Money, Credit, and Banking.

10. Chiu, Jonathan, and Koeppl, Thorsten. 2022. The economics of cryptocurrency: Bitcoin and beyond. Canadian Journal of Economics, 55(4).
11. Uhlig, Harald. 2022. The lasting influence of Robert E. Lucas on Chicago economics.
12. Kang, Kee-Youn, and Lee, Seungduck. 2022. Money, Bitcoin, and Monetary Policy. Journal of Money, Credit, and Banking.
13. Chiu, Jonathan, and Koeppl, Thorsten. 2022. The economics of cryptocurrency: Bitcoin and beyond. Canadian Journal of Economics, 55(4).
14. Uhlig, Harald. 2022. The lasting influence of Robert E. Lucas on Chicago economics.
15. Cong et al. (2021), “Token-based platform finance,” Journal of Financial Economics
16. Howell et al. (2019), “Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales,” Review of Financial Studies
17. Cong et al. (2021), “Crypto Wash Trading”
18. Liu and Tsyvinski (2020), “Risks and Returns of Cryptocurrency,” Review of Financial Studies
19. Andreas Park (2021), “The Conceptual Flaws of Constant Product Automated Market Making” https://portal.northernfinanceassociation.org/viewp.php?n=2240040264
20. Coindesk: https://www.coindesk.com/markets/2017/03/03/a-framework-for-valuing-crypto-tokens
21. Liu, Tsyvinski, and Wu (2022), “Common Risk Factors in Cryptocurrency.” Journal of Finance.
22. Levy, Curt. 2021. Regulation By Enforcement Is Stifling Cryptocurrency.
23. Levy, Curt. 2021. Latest Developments in SEC “Regulation” of Cryptocurrency.
24. Voshmigr: “Steemit, Hive & Reddit: Tokenized Social Networks” and “Basic Attention Token: Advertising Reinvented,” Pages 433-461 of PDF
25. “Should we ban ransomware payments? It’s an attractive but dangerous idea” online: https://cointelegraph.com/magazine/banning-ransomware-payments-attractive-dangerous-idea/
26. Lommers, Kristof, Christos Makridis, and Lieven Verboven. "Designing Airdrops." Available at SSRN 4427295 (2023).