

# Syllabus

## **FINTECH and BLOCKCHAIN**

*Institute of Economic Studies, Charles University*

*Period: May 21<sup>st</sup> - May 23<sup>rd</sup>, 2024*

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*Office Hours: By appointment - Online*

### **Course Objectives:**

This course covers recent developments in the area of financial innovation (FINTECH), such as Blockchain, digital currencies, peer-to-peer method of identifying ownership, and smart contracts. Its goal is to analyze the emergence of Blockchain and related innovations as highly disruptive technologies for the financial industry, business laws, accounting and monetary economics (central banking). To fully understand the implications of such technologies, we will cover various related topics such as the nature of money, legacy payment and banking, basics of crypto technology, digital currency systems, peer-to-peer transactions, governance and regulation of emerging technologies, double entry bookkeeping, and financial exchanges. We will also focus on several digital currencies, their “intrinsic value,” the reasons for their recent popularity, and the microstructure of their trading. Finally, we will survey various ventures that begun to capitalize on these innovations.

### **Learning Goals:**

To enhance students’ understanding of the most recent and most promising financial innovations that will change the nature of the professional jobs that would be available in the future for students majoring in finance, accounting, and other business areas. The course also intends to create a bridge between business, law, and computer science. Students majoring in these areas would be equipped with a basic knowledge in each other’s fields, which should enhance the quality of their communications after entry into their corresponding careers.

After completing the course, the students will be able to:

- understand the nature of Blockchain technology
- discuss the FINTECH applications currently being explored for a wide variety of uses and functions
- examine why peer-to-peer method of identifying ownership and network-based bookkeeping creates a form of trust
- analyze the reasons behind the popularity of stateless digital currencies and discuss their implications for the future of the monetary policy set by a country’s central bank
- apprehend the regulatory and governance challenges facing corporations, central banks, trading exchanges, and various government institutions dealing with this disruptive technology

- illustrate how various corporations and banks try to co-opt the Blockchain technology into their existing business models
- understand how the Initial Currency Offerings (ICOs) work and discuss why recently they became a popular form of external financing for some firms

**Pre-requisites:**

There are no specific pre-requisites for this course. However, it is expected that participating students have some basic knowledge of computer technologies, financial institutions, accounting, and business law. As such, the course is more suitable for master students and some exceptional senior level undergraduates.

**Class procedure:**

The course consists of 6 classroom lectures. The students' participation in lectures and exercises sessions is not mandatory but highly desirable. Each lecture can involve some pre-class reading and occasional in-class discussions.

**Course Materials:**

1) Book: Narayanan, A., Bonneau, J., Felten, E., Miller, A., Goldfeder, S.: *Bitcoin and Cryptocurrency Technologies* 2016. It is available in hardcover for purchase and a draft of the manuscript can be downloaded at: [https://lopp.net/pdf/princeton\\_bitcoin\\_book.pdf](https://lopp.net/pdf/princeton_bitcoin_book.pdf)

2) Additional Material: A list of academic articles will be provided by the professor during the lecture. The articles will also be available for download through Moodle page of the course.

**Grading and Assessment:**

Your grade for the course will be determined by an exam at the end of the course. The exam will be comprehensive and will cover all the lectures, in-class discussions, academic papers, and other material provided by the professor during the course. The topic and other details about the exam will be provided during class. The date of the exam will be announced later on.

## Course Outline\*

Topic	Readings
1. Introduction to FINTECH	<ul style="list-style-type: none"> <li>• The Economist, 2015, “The Great Chain of Being Sure About Things.”</li> <li>• Das, 2019, “Future of FinTech”</li> </ul>
2. The Blockchain Technology	<ul style="list-style-type: none"> <li>• Narayanan, et al. (2016)’s Book, Chapter 5</li> <li>• Goldman Sachs’ Profile in Innovation: Blockchain</li> <li>• Harvey (2014), “Cryptofinance” (optional)</li> <li>• Nakamoto (2008) (optional)</li> </ul>
3. Bitcoin and other Cryptocurrencies	<ul style="list-style-type: none"> <li>• Narayanan et al, Chapters 8, 10</li> <li>• Gandal et al., 2018, “Price manipulation in the bitcoin ecosystem”</li> <li>• J.P. Morgan Report – “Decrypting Cryptocurrencies: Technology, Applications and Challenges”</li> <li>• Ethereum, a Virtual Currency, Enables Transactions That Rival Bitcoin’s. New York Times, March 27, 2016.</li> </ul>
4. Capital Markets and Initial Coin Offerings (ICO); Tokenization	<ul style="list-style-type: none"> <li>• Howell, Niessner, and Yermack, 2020, “Initial Coin Offerings: Financing Growth with Cryptocurrency Token Sales”</li> <li>• Hu, Parlour, and Rajan, 2020, “Cryptocurrencies: Stylized Facts on a New Investible Instrument”</li> <li>• Catalini and Gans, 2018, “Initial coin offerings and the value of crypto tokens”</li> <li>• Outlier Venture – “All you need to know about Initial Coin Offerings”</li> <li>• Busgang &amp; Nanda 2018, “The Hidden Costs of Initial Coin Offerings”</li> </ul>
5. Monetary Policy & Cryptocurrencies	<ul style="list-style-type: none"> <li>• Raskin and Yermack, 2016, “Digital Currencies, Decentralized Ledgers, and the Future of Central Banking”</li> <li>• BIS Report, Feb6, 2018, “Money in the digital age: what role for central banks?” a speech by Agustín Carstens.</li> <li>• BIS Report, Nov15, 2018, “Money in a digital age: 10 thoughts” a different speech by Agustín Carstens.</li> <li>• Higginson, Nadeau, and Rajgopal (2019) – “Blockchain’s Occam problem”</li> <li>• Fung and Halaburda, 2017, “Central Bank Digital Currencies: A Framework for Assessing Why and How,” Staff Discussion Paper, Bank of Canada. (optional)</li> </ul>