Module Outline

Module Title : Digital Assets and Blockchain in Finance
Class Date : From 13/6/2022   To 17/6/2022
Semester : Special Term 1 Academic Year 2022/2023
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Overview

This course introduces students to non-technical fundamentals and economics of digital assets and blockchain. After learning the basics, we will discuss blockchain applications in finance. Industry experts will give guest lectures on the real-world applications and answer question from students.

Module Objectives

This course empowers students with the understanding of digital assets, blockchain, and their applications in the finance industry. Through lectures, discussions, and case studies, students will gain insights into various real-world applications of digital assets and blockchain. The course is focused on non-technical understanding of how blockchain and digital assets can help improve business as well as the most recent ideas, techniques, and trends in blockchain and digital assets.

Assessment

The final course grade will be computed based on the following weights:

Assessment Components	Weightage
Pre-readings and assignments	10%
In-class participation	30%
Test	30%
Team presentation	30%
Total	100%

In-class participation:

Students are required to keep a video on with their real name on the screen.

In-class participation grades will be allocated on the basis of quality of participation. In evaluating class participation, I will look for comments that are thoughtful and lead the discussion forward. Excellent participation involves enhancing the class experience for your classmates by answering questions that I ask of you or the class, making relevant comments, posing valuable questions, and participating when your classmates make presentations. Peer-learning is the bedrock of executive education; please take advantage of your classmates' knowledge and experience.

Test

Test will consist of multiple-choice questions and will cover all assigned readings and problems as well as material covered and discussed in class. All questions will be designed to test your analytical and problem-solving skills, and your knowledge of conceptual and qualitative material. It is an open-book test and will be taken on the last day. If you have a medical emergency, please let me know.

Team presentations

The objective of the team presentation is to identify, analyze, and present the existing real-world application of blockchain (preferably in finance industry). Please note that I am not asking you to propose your own blockchain application, but rather the one that is already existing, being developed, or proposed in the real world. You can choose to critique a useless blockchain application (we can learn from failures of others as well), but I would much prefer a valuable solution.

The ideal presentation would provide clear description of the problem, the blockchain application, and the proposed solution. Presentation should explain how blockchain solves the existing real-world problem (or an anticipated problem). More specifically, how blockchain provides better, faster, cheaper, safer, etc, solution to a problem. Presentations do not have guidelines (except time limit – to be shared later). The team decides format of the presentation. Keep these in mind:

- You should explain why it is an interesting problem and a valuable solution.
- While you should try to present a valuable solution, do not be overly defensive about it.
- Focus on economics of it, not technical details. Leave tech issues to programmers.
- Be aware of the issues/limitations of the solution and consider laying them out explicitly.
- Be aware of the strict time limitations; practicing helps.
- Focus more on the substance of your presentation and less on fancy slides.
- Be prepared for questions.

The benefits of identifying your own topic are numerous; I would encourage you to take this seriously. However, if the team cannot find a topic, I will assign the topic to your team, but will subtract 15% from the grade. If I do not receive the tentative outline of the presentation by the deadline, I will automatically assign the topic to your team (and subtract above-mentioned percentage).

After the team presentation in class, please submit your presentation (one document per team) to LumiNUS (NUS learning portal) within 24 hours after the presentation. Presentations will be graded as a team (not individually). The NUS EMBA Programmes Office will assign students to teams roughly 3 weeks before the course begins).

DEADLINES

I encourage each team to start thinking about the project at least 2 weeks before the course (i.e., **you should start thinking about it by Monday, May 30**).

Each team must submit a short (half-page) tentative outline of the presentation before the class begins (**Deadline: Friday, June 10 at 12 noon**). There is no need for any analysis in this outline, I just want to make sure that you identified an appropriate topic and started thinking about it.

Each student should submit a summary of each of required case studies (maximum one page per case study) one week before the class begins (**Deadline: Friday, June 10 at 12 noon**). All summaries should be in one document (each summary should start on a new page). There is no need for any analysis.

Each student is strongly encouraged to do other pre-readings, but no written assignments or submissions are necessary.

Schedule and Outline

Lecture	Topics and readings
June 13	**Blockchain and Digital Assets – Introduction** Cryptoassets, Ch. 1-3 1) *Note: An Introduction to Blockchain, UVA-F-1810* 2) *Case study: The Economics of Cryptocurrency, UVA-GEM-0190*
June 14	**Blockchain in Practice** 3) *Case study: The DAO Hack: A Blockchain Dilemma, Ivey 9B20E017* 4) *Case study: R3 Corda: A Distributed Ledger Technology for Financial Services, Ivey 9B18M141* *Guest lecture: Tod McDonald, Co-Founder, R3* Team consultations (if time permits)
June 15	**Blockchain and Raising Capital – ICOs and STOs** Cryptoassets, Ch. 16 5) *Case study: Yuser: Funding Start-up Growth with Token Issuance?, Ivey 9B20N038* *Guest lecture: David Packham, CEO, Chintai*
June 16	**Blockchain and Money – Stablecoins, CBDCs, and Monetary Policy** *Guest lecture: Brooks Entwistle, SVP and Managing Director (APAC and MENA), Ripple* Test
June 17	Team Presentations

REQUIRED PRE-READINGS
Introductory Materials and Non-Technical Short Videos:
- Explain Bitcoin Like I'm Five
- Blockchain explained [6 minutes]
- The Essence of How Bitcoin Works [5 minutes]
- Introduction to Bitcoin [37 minutes]
- Warren Buffett: Bitcoin Is An Asset That Creates Nothing | CNBC [6 minutes]
- Chamath Palihapitiya: I Am A Buffett 'Disciple' But He's Wrong About Bitcoin | CNBC [5 minutes]

Key documents
- Bitcoin: A Peer-to-Peer Electronic Cash System (Satoshi Nakamoto, 2009)
- The idea of smart contracts (Nick Szabo)

Required case studies (and notes):
- An Introduction to Blockchain, UVA-F-1810
- The Economics of Cryptocurrency, UVA-GEM-0190
- The DAO Hack: A Blockchain Dilemma, 9B20E017
- R3 Corda: A Distributed Ledger Technology for Financial Services, Ivey 9B18M141
- Yuser: Funding Start-up Growth with Token Issuance?, Ivey 9B20N038

RECOMMENDED READINGS
Technical videos:
- How Bitcoin Works Under the Hood [22 minutes]
- How Bitcoin Works in 5 Minutes [5 minutes]
- Ever wonder how Bitcoin (and other cryptocurrencies) actually work? [26 minutes]
- Bitcoin and Cryptocurrency Technologies (Coursera online course by Arvind Narayanan - Advanced)

Recommended Book
- Chris Bruniske and Jack Tatar, **Cryptoassets: The Innovative Investor's Guide to Bitcoin and Beyond** (2017)

Additional Books
- Arvind Narayanan et al., **Bitcoin and Cryptocurrency Technologies**, (2016).
    - a) [Coursera course by the same name run by Arvind Narayanan. Lectures also on YouTube.]
    - b) A full pre-publication draft can be downloaded for free:
      https://d28rh4a8wq0iu5.cloudfront.net/bitcointech/readings/princeton_bitcoin_book.pdf
- Cam Harvey et al., **DeFi and the Future of Finance** (2021)
- Paul Vigna and Michael J. Casey, **The Age of Cryptocurrency: How Bitcoin and Digital Money Are Challenging the Global Economic Order** (2015)
- Paul Vigna and Michael J. Casey, **The Truth Machine: The Blockchain and the Future of Everything** (2018)

Recommended case studies
- Bitcoin: Investment or Illusion, UVA-F-1819
- Don't Read Too Much into Bitcoin's Status in El Salvador, Ivey 9B21TE01
- Visa Inc.: Threat from Cryptocurrency?, Ivey 9B20M038
- Filecoin's ICO, ABCC-2018-014
- Getting Rich on Crypto, Ivey UVAQA0897

- Tezos: Governance in the Cryptocurrency World, F&A0549
- China Merchants Bank: Light Banking, Payments and Blockchain, Ivey 9B20N024
- TokenFunder: Democratizing Funding and Investing with Blockchain, Ivey 9B18M186
- A Note on China's Approach to Cryptocurrency and Blockchain Application in the Games Industry: Coco Game Currency, Ivey 9B20M071

Academic Honesty & Plagiarism

Academic integrity and honesty is essential for the pursuit and acquisition of knowledge. The University and School expect every student to uphold academic integrity & honesty at all times. Academic dishonesty is any misrepresentation with the intent to deceive, or failure to acknowledge the source, or falsification of information, or inaccuracy of statements, or cheating at examinations/tests, or inappropriate use of resources.

Plagiarism is 'the practice of taking someone else's work or ideas and passing them off as one's own' (The New Oxford Dictionary of English). The University and School will not condone plagiarism. Students should adopt this rule - You have the obligation to make clear to the assessor which is your own work, and which is the work of others. Otherwise, your assessor is entitled to assume that everything being presented for assessment is being presented as entirely your own work. This is a minimum standard. In case of any doubts, you should consult your instructor.

Additional guidance is available at:
- Administrative Policies
- http://www.nus.edu.sg/registrar/administrative-policies-procedures/acceptance-record#NUSCodeofStudentConduct
- http://nus.edu.sg/osa/resources/code-of-student-conduct