הפקולטה לניהול ע"ש קולר
אוניברסיטת תל אביב

Coller School of Management
Tel Aviv University

The Leon Recanati Graduate School of Business Administration

1231.3860.01 – Advanced Blockchain

בלוקצ'יין למתקדמים

Prerequisites: 1231.3859.01

Spring Semester – 2021/22

(first half)

Day	Hour	Final Task	Lecturer	Email	Telephone
Sunday	15:45-18:30	Final Project	Dr. Jacob Mendel	jacob4x4@gmail.com	054-4547369

Teaching Assistant (TA): **Dr. Rafael Hod** (PhD, MBA)

Office Hours: By appointment

The obligation to attend classes is at the discretion of the lecturer

Course Units

1 course unit = 4 ECTS units

The ECTS (European Credit Transfer and Accumulation System) is a framework defined by the European Commission to allow for unified recognition of student academic achievements from different countries.

Course Description

This course provides students with a business economic understanding of blockchain technology, how it works and how it relates to the new digital economy. Covering essential areas and using business cases regarding blockchain technology, how it's disrupting different domains such as: fintech, digital government activities, eHealth, Smart Cities etc., and how to use blockchain technology to create new business opportunities. The students will learn to analyze and quantify the changes that blockchain will have on various industries. In addition, building blockchain projects to solve business problems or improve business process. The teaching methodology will include deep analysis of business cases and lectures by industry thought leaders.

However, blockchain is technical in nature. If you have any concerns about the nature of this course, do not hesitate to reach out to the facilitators. The course can be taken by anyone who is interested in understanding blockchain technology and fulfill the course prerequisites. This course is advanced technology and business level and required basic finance and technologies terminology understanding.

Course Objectives

Upon course completion, students will develop a clear understanding of the blockchain technology and their economic impact on different industries use cases. The students will acquire a range of skills allowing them to assess and work effectively with blockchain technology in different fields.

- Understanding the economic impact of blockchain technology
- Business challenges and problems when adopting blockchain technology
- Better understanding of business needs and the connection to blockchain technology.
- Evaluate blockchain technical solutions and their economic impact
- Understand how blockchain is applied to different aspects of the business and how to overcome different barriers
- Expose the students to blockchain industry implementation thought industry leaders

Evaluation of Student and Composition of Grade*

Percentage	Assignment	Date	Group Size/Comments
10%	In class active participation	Throughout the course**	Individual
20%	Group Assignment	Will be provided at the beginning of the course	Groups of 2-3 students
70%	Final Project	2 weeks after the course ends	Groups of 2-3 students

This class relies on active yet judicious student participation. Students will have the opportunity to discuss the role of ethics in business in a safe environment with their peers. Our goal is that everyone will contribute to the discussion, having a good participation grade. Above-average participation grades will denote consistent, timely and astute observations, answers, or comments, which clearly elevate everyone's learning experience. Below-average participation grades will denote either lack of participation or excessive/disruptive comments that prevent others from getting the most of the class. Note that your participation grade will also be affected if you miss any class session(s), unless justified (such as in case of reserve duty).

* According to University regulations, participation in all classes of a course is mandatory (Article 5).
* Students who absent themselves from classes or do not actively participate in class may be removed from the course at the discretion of the lecturer. (Students remain financially liable for the course even if they are removed.)

**In case of participation via Zoom, the student must submit a short document (one page of Word or PPTX) until the same date at Midnight, noting 5 points that have been learned that session.

Course Assignments

Students are required to submit one written assignment and the final project.

Should a student become unable to complete an assignment or course requirement, s/he must notify the TA of the course in advance via email

Grading Policy

In the 2008/9 academic year the Faculty instituted a grading policy for all graduate level courses that aims to maintain a certain level of the final course grade. Accordingly, this policy will be applied to this course's final grades.
Additional information regarding this policy can be found on the Faculty website.
https://coller.tau.ac.il/MBA-students/programs/2021-22/MBA/regulations/exams

Evaluation of the Course by Student

Following completion of the course students will participate in a teaching survey to evaluate the instructor and the course, to provide feedback for the benefit of the students, the teachers and the university.

Course Site (Moodle)

The course site will be the primary tool to communicate messages and material to students.

You should check the course site regularly for information on classes, assignments and exams, at the end of the course as well.

Course materials may be available on the course site.

Please note that topics that are not covered in the course material but are discussed in class are considered integral to the course and may be tested in examinations.

All communication related to the course must be done via "A personal communication box" in Moodle.

Course Outline*

Session	Topic(s)	Comments
1	An introduction to economics problems and how to solve them with blockchain technology	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module
2	Blockchain in practice (data protection, privacy and security, cryptocurrency and blockchain technology)	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module Geth, Installing Geth
3	Blockchain - Smart Contracts, Wallets	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module Solidity
4	Blockchain - Smart Contracts, Wallets (Continue)	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module Function visibility, modifiers, fallback function, Inheritance
5	Blockchain cost benefit / Guest Lecture	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module
6	Blockchain Use Cases / Implications of blockchain on traditional business and organization activities	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module Blockchain Use Cases / Students Use Case presentation
7	Drawbacks & Challenges of Blockchain Technology The future of blockchain technology, AI, and digital privacy	Preparation guidelines The reading materials will help you to expand your knowledge of the materials presented in this module Summary and Students Use Case presentation

*Subject to change

Required Reading

- Blockchain A Practical Guide to Developing Business, Law, and Technology Solutions; Joseph J. Bambara Paul R. Allen (2018)
- Building Blockchain Projects, develop real-time practical DApps using Ethereum and JavaScript; Narayan Prusty (2017)
- The Blockchain Alternative, Rethinking Macroeconomic Policy and Economic Theory; Kariappa Bheemaiah (2017)
- Blockchain Economics, Joseph Abadi and Markus Brunnermeier, 2018 (Session 5-7)
- Blockchain-based database to ensure data integrity in cloud computing environments. Gaetani, Edoardo & Aniello, Leonardo & Baldoni, Roberto & Lombardi, Federico & Margheri, Andrea & Sassone, V. (2017). (Session 6-7)
- Distributed ledger technology: beyond block chain, A report by the UK Government Chief Scientific Adviser, 2016 (Session 1-3)
- Distributed Ledger Technology & Cybersecurity, Improving information security in the financial sector, ENISA, 2016 (Session 3-5)
- Banking on Blockchain: Costs Savings Thanks to the Blockchain Technology; Luisanna Cocco, Andrea Pinna and Michele Marchesi (2017) (Session 2-4)
- Blockchain Technology Innovations, K. Coperich, E. Cudney, H. Nembhard (2017) (Session 6- 7)
- Fintech: Ecosystem, business models, investment decisions, and challenges; In Lee, Yong Jae Shin (2018) (Session 1)
- The IoT electric business model: Using blockchain technology for the internet of things, Yu Zhang, Jiangtao Wen, 2017(Session 5-7)

Recommended Reading

- The future of financial infrastructure, an ambitious look at how blockchain can reshape financial services, The future of financial infrastructure, World Economic Forum, 2016
- Blocks and Chains, Introduction to Bitcoin, Cryptocurrencies, and their Consensus Mechanisms, Aljosha Judmayer Nicholas Stifter Katharina Krombholz Edgar Weippl, 2017
- Mastering Bitcoin, Programming the Open Blockchain, Andreas M. Antonopoulos, 2017