

Bitcoin and blockchain fundamentals

Technical analysis, application perspective and business implications of blockchain-based digital assets

Lecturer: Leonardo Maria De Rossi

Co-Lecturer: Nico Abbatemarco

Language

English

Course description and objectives

Blockchain, Bitcoin and cryptocurrencies: three terms used often without having precisely in mind where the boundaries among them are located. Some believe that blockchain is the most promising and revolutionary technology currently being researched in the IT field, others think that is only an overhyped phenomenon destined to explode in a market bubble. Regarding Bitcoin, some think it is 21st century's digital gold, non-country specific and censorship-resistant; others, that it represents an asset used only for illicit trafficking.

The course aims to provide a 360° knowledge of the basics of this new technological paradigm, analyzing the following topics:

- How does blockchain works?
- What are bitcoins and how can they be used?
- What is the application landscape of the blockchain technology?
- How it is possible to build a blockchain application that actually makes sense?

At the end of the course, the participants will be able to:

- Understand the concept of blockchain architecture;
- Use some of the most common software tools (i.e. wallet and blockchain explorers) needed to manage and exchange a cryptocurrency protocol;
- Comprehend the logic behind the development of an enterprise project based on blockchain.

Audience

The course is open to all Bocconi students. In particular, it is targeted to students:

- Who want to understand the fundamental aspects of blockchain technology, not only from a technical-functional point of view but also from an application one;
- Who wish to deepen their knowledge of cryptocurrencies' exchange, deposit and transfer tools;



- Who want to learn how to design the business model of a new blockchain application.

Prerequisites

Basic knowledge of Microsoft Windows and Microsoft Office applications (PowerPoint)

Duration

8 hours

Calendar

| Lecture | Date | Time | Room |
|---------|----------------|---------------|------|
| 1 | Fri 31/05/2019 | 14.30 - 16.00 | N38 |
| 2 | Fri 31/05/2019 | 16.15 - 17.45 | N38 |
| 3 | Fri 07/06/2019 | 14.30 - 16.00 | N38 |
| 4 | Fri 07/06/2019 | 16.15 - 17.45 | N38 |

Note: lessons will be held in the traditional room and **all the students have to bring their own device.**

Syllabus of the course

| Lecture | Topics | Book reference |
|---------|--|---|
| 1 | Blockchain: technical analysis <ul style="list-style-type: none"> - Definition: what is blockchain? - Blockchain technical pillars (cryptography, distributed computation, consensus mechanism, data architecture) - The fundamental characteristics of a blockchain solution (transparency, immutability, security) - Final work: team composition and rules explanation | Slide Chapter 1: What is the blockchain? |

| Lecture | Topics | Book reference |
|---------|--|--|
| 2 | Bitcoin <ul style="list-style-type: none"> - A brief historical overview: how was Bitcoin born? - Mining: definition, reality and myths - How to manage Bitcoin (software wallet) - Checking Bitcoin's history (blockexplorer) - How to exchange Bitcoin? (exchanges) - Hands-on: the Bitcoin testnet | Slide Chapter 3.1: Blockchain applications - cryptocurrencies |
| 3 | The blockchain application landscape <ul style="list-style-type: none"> - Application areas - Market analysis - ICO: what are they, and what for? | Slide Chapter 3: Blockchain applications |
| 4 | Final Contest <ul style="list-style-type: none"> - Designing a blockchain solution - The competitive advantages of a blockchain solution - When blockchain is needed, and when it is not - Final pitch by each team | Slide Chapter 5: Blockchain business implications |

Software used

Microsoft PowerPoint

Suggested bibliography

Salviotti, G., De Rossi, L. M., & Abbatemarco, N. (2019). *The Blockchain Journey: A guide to practical business applications*. EGEA.

Available seats

110