

- Faculté des sciences économiques
- [www.unine.ch/seco](http://www.unine.ch/seco)

## Financial Technology (5AF2048)

Filières concernées	Nombre d'heures	Validation	Crédits ECTS
<b>Master en finance</b>	<b>Cours: 2 ph</b>	Voir ci-dessous	3

ph=période hebdomadaire, pg=période globale, j=jour, dj=demi-jour, h=heure, min=minute

### Période d'enseignement:

- Semestre Automne

### Equipe enseignante

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### Contenu

The course Financial Technology provides an introduction to blockchain technology and its applications in financial markets. The first and still one of the major financial applications of blockchain are cryptocurrencies. Since the advent of Bitcoin in 2009, the market capitalization of cryptocurrencies has grown to more than USD 1 trillion. Nevertheless, blockchain is used more and more for use cases above and beyond cryptocurrencies.

In the first part of the course, we study the basics of blockchain technology and tokenization. What makes blockchain special? How does public key cryptography work? What is tokenization? How is it possible to achieve consensus in a decentralized database? What are smart contracts? The focus is on the Bitcoin Blockchain, but we also take a look at other blockchain protocols, esp. Ethereum.

In the second part of the course, we focus on applications of blockchain technology in financial markets, including stablecoins, central bank digital currencies, and decentralized finance.

### Forme de l'évaluation

Grading is based on the following components:

- 20%: Oral participation
- 30%: Group presentation (which will be allocated during the first lecture)
- 50%: Final: 2-hour written exam during the exam session at the end of the semester.

No connected devices are permitted during the final exam. In case of violation of these rules, the students are in a situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

### Modalités de rattrapage

Retake exam: 2-hour written exam (100%) during the exam session.

No connected devices are permitted during the final exam. In case of violation of these rules, the students are in a situation of fraud and the unauthorized items will be removed. The exam could be deemed as failed.

### Documentation

The main textbook for the course is:

Bitcoin and Cryptocurrency Technologies: A Comprehensive Introduction by Arvind Narayanan, Joseph Bonneau, Edward Felten, Andrew Miller, and Steven Goldfeder. Princeton University Press; Illustrated Edition (19. Juli 2016).

Additional, topic-specific reading material and references will be provided during the kick-off session.

### Pré-requis

Basic understanding of balance sheets and monetary theory.

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### **Forme de l'enseignement**

Lectures: see the schedule on Pidho

### **Objectifs d'apprentissage**

Au terme de la formation l'étudiant-e doit être capable de :

- Examine blockchain and distributed ledger technology, including public key cryptography and consensus algorithms
- Explore the Ethereum ecosystem, including addresses and smart contracts
- Analyse the main building blocks of the Bitcoin ecosystem, including wallets, addresses, transactions, etc.
- Compare different applications of blockchain technology in financial markets, including stablecoins, central bank digital currencies and decentralized finance
- Discover the concept of tokenization, how it can be applied to money and assets, and what it means for the evolution of our financial system

### **Compétences transférables**

- Discuss the implications of your learnings with your lecturer
- Present the findings of your analysis in front of your classmates