Course Outline

Virtual Exchange Spring Semester 2024

Course Title: Blockchain

Number of ECTS-Credits: 3

Format of the course:

☒ synchronous online course (FIX timeslots)

☐ asynchronous online course (NO fix timeslots)

☐ mix of synchronous and asynchronous online course

☒ synchronous hybrid course (students can choose online OR on campus in FIX timeslots)

☐ asynchronous hybrid course (students can choose online OR on campus in NON-fix timeslots)

☐ mix of synchronous and asynchronous hybrid course

☐ other, namely:

Number of Students accepted

☒ Total number of students is limited to 50

☐ Total number of students is unlimited

☒ Total number of virtual exchange students is limited to 20

☐ Total number of virtual exchange students is unlimited

Do Virtual Exchange students need an FHNW E-Mail Account for this course? ☒ yes ☐no

Responsible lecturer: Walter Dettling

Link to lecturer's profile at FHNW: https://www.fhnw.ch/en/people/walter-dettling

Table of Contents

1. Course content

- Historical view on blockchain
- Cryptographic methods
- Decentralisation principles
- Blockchain mechanism, proof of work, proof of stake
- Principles of Bitcoin, Ethereum and Cardano
- Cryptocurrencies, tokens, smart contracts
- Defi
- Centralised and decentralised crypto exchanges

2. Learning objectives

Knowledge and understanding
Difference between centralised and distributed transaction systems, cryptographic basics, functionality of proof of work and proof of stake, different types of crypto tokens (Native Tokens, NFT, etc.), functioning and role of smart contracts.

Application of knowledge and understanding
Creating transactions, using wallets, mining blocks in bloxxgame simulation, use decentralised applications.

Ability to make judgements
Assess the advantages and disadvantages of blockchain for electronic payment transactions, understand and assess crypto-assets, assess the importance of crypto-assets for investment.

Communication
Use of correct vocabulary in blockchain related topics, ability to express yourself in a qualified manner about blockchain.

Self-learning skills
Reading and understanding further publications about blockchain, request targeted support for complex topics.

3. Prior knowledge and entry requirements

- As this module requires participants to be able to discuss complex issues fluently, a good level of English is required min. B2/C1 (CEFR), IELTS 5.5, TOEFL iBT 46-59 or equivalent
- There are no further formal entry requirements for this course.

4. Course structure and dates

Monday, February 12th – Friday, February 16th
Daily 8.30 am – 5.00 pm with breaks for lunch, etc.; (Central European Time CET)

The module is a intensive program, which will be a mix of lectures and teaching talks, videos, group works (hybrid), intensive use of Bloxxgame for consolidation and practical application of blockchain knowledge.

5. Assessment

☒ Assessment with (online) practice test
☐ Final written test on campus can be replaced for remote students with an additional assignment
☐ Final written test on campus can be replaced for remote students with oral testing

6. Literature

Nakamoto S (2008) Bitcoin : A Peer-to-Peer Electronic Cash System
Schär F., Berentsen A.(2020): Bitcoin, Blockchain, and Cryptoassets: A Comprehensive Introduction.

7. Grading

☒Pass-fail

☐According to swiss grading system (see below)

Mark	6.0	5.5	5.0	4.5	4.0	below 4
In words	excellent	very good	good	satisfactory	pass	fail