Preface

This summer school will give you a complete immersion into the topic of blockchain from World-leading experts and practitioners in the field. Blockchain-based systems, with cryptocurrencies as the most prominent example, have disrupted and reshaped a wide range of digital affairs: from finance to supply chains, from digital identity to health. For the first time, block-chain and related distributed-ledger technologies allow to store sequential, trustful information without consensus being enforced by central authorities or trustees.

For a full understanding of Blockchain, all its implications and the potential for applications in practice, it is absolutely crucial to look at it from a multidisciplinary perspective. This is what the UZH Blockchain Center offers during three weeks of this summer school: Students will dive into the three key pillars of blockchain systems, namely technology, economics and legal aspects behind it. Building on this, advanced application fields, such as forensics and data analytics will be explored. To complete the overview, the most developed or emerging platforms will be discussed by the people behind them

But most importantly, the program is highly engaging and interactive, with theory and hands-on practice sessions offered by blockchain experts from around the world.

Main learning objectives

✓ Get to know how blockchain-based systems work

✓ Understand the economic incentives as the basis of blockchain-based systems

✓ Learn to critically assess the decisions taken when designing blockchain technologies

✓ Learn from experts in academia and industry, and obtain hands-on experience in both established and advancing technologies

✓ Engage in international and interdisciplinary collaborations with other students

Content

Blockchain-based Systems

Technology

Economics / Business

Law / Regulation
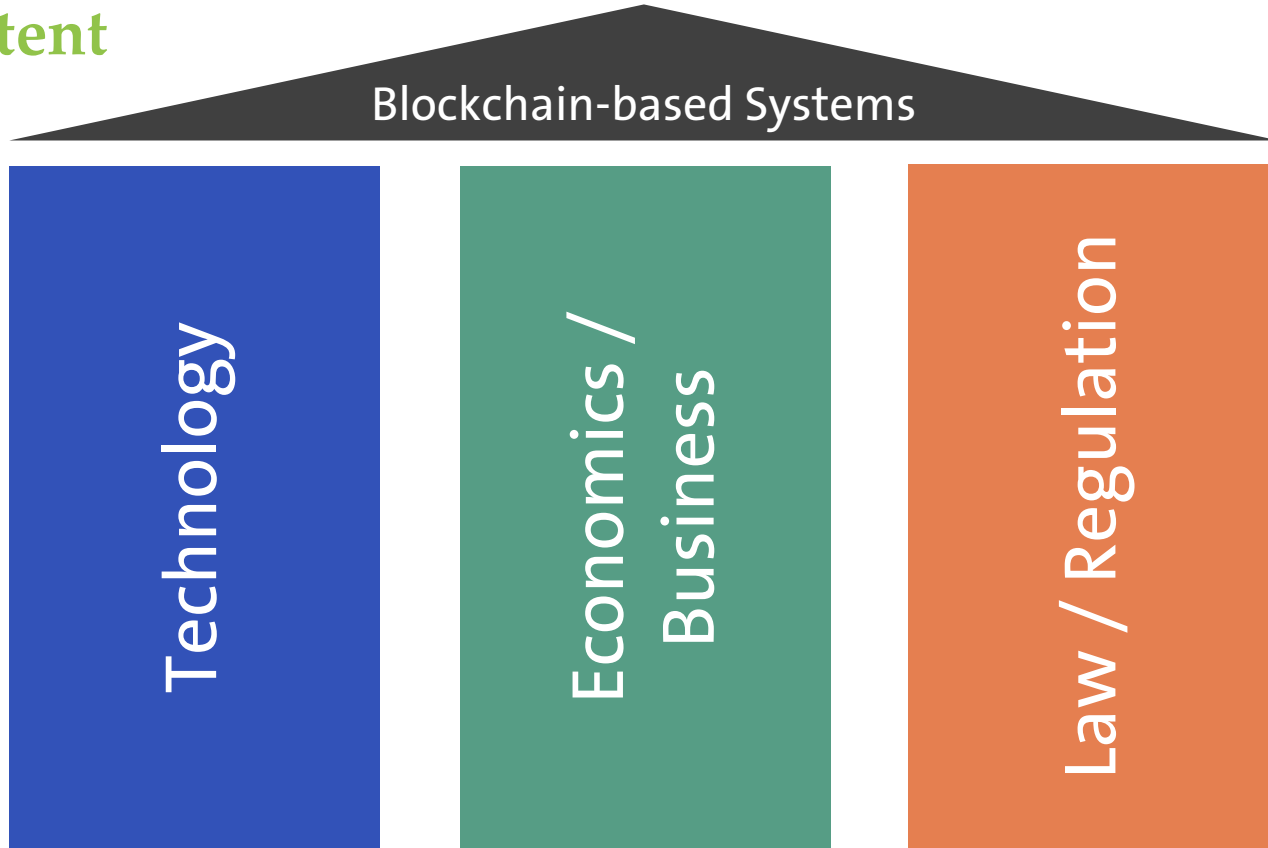
Content: Technology

Blockchains are complex techno-economic systems that revolutionize multiple industries. The various forms of this technology have evolved over the last few years. In this summer school, students will learn the main shared elements of blockchain systems, while gaining a broad overview of the technological landscape and future trends.

Technology

Topics:

- Functioning of public and private blockchains and distributed ledger

- Smart contracts and digital autonomous organizations

- Solving scalability riddles

Economics / Business

Content: Economics

Blockchain systems are based on economic incentives that ultimately determine their functioning. In most cases, these incentives are placed by design, but others have remained hidden to the designers, to only surface upon system deployment. In general, the effect of these rewards has been opposed to the initial intentions. In this summer school, the students will understand the typical pitfalls and how to avoid them.

Topics:

• The processes of token creation and distribution

• The foundations of centralization and accumulation in cryptocurrencies

• The different business models around blockchain applications

Law / Regulation

Content: Law and Regulation

Blockchains and - its most widely known application - cryptocurrencies allow to transfer property in a digital, decentralized manner which is still uncommon with regulatory bodies dominating commerce worldwide. They further provide the possibility to sign digital and automatically enforced contracts – so called smart contracts. In this summer school, students will learn about the various regulatory frameworks and how they compare to each other.

Topics:

- Legal implications of smart contracts

- Comparison of various regulatory frameworks

- Token issuance mechanisms

Teaching and Learning Methods

- **Live Sessions –** Learn from at least two live sessions per day by lecturers from academia and selected speakers from industry

- **Test your knowledge** – Following some sessions, you will have an assignment (individual and group) to assess and deepen the knowledge

- **Hands-on sessions** – Interact with our lecturers and benefit from their expertise

- **Q&A sessions every day** – Ask your questions to our teaching team at UZH

- **Wrap-up** – Get an interactive recap of the program at the end of each week

- **Group work** – Interact with other students and work together on your final project

- Receive personalised mentoring for your final project

(All course content will be provided via one platform. You will get an invitation to join this platform before the summer school starts.)

Assessment

In order to get the 6 ECTS credits for this summer school you will have to:

- Students without programming knowledge will need to perform a basic introduction to general programming before the start of the program (workload approx. 20 hours).

- You must attend all mandatory sessions in person

- Participate actively in the daily interactive sessions (hands-on sessions / Q&A / mentoring and wrap-up sessions)

- Work in groups with other students and hand in your final project in time

→ You will receive your Transcript of Records (stating your grade with „pass" or „fail") and a Certificate of Attendance by the end of July 2023.

Schedule and Classes

→ Estimated workload per day: 2 hours of lectures, 1 hour of Q&A session, 4-6 hours of self-paced learning/homework (individually or in groups)

→ Estimated workload per week: 30 - 35 hours

→ We aim at offering you an course that is as interactive as possible.

→ Make sure that you have caught up with all required course work for the specific day before the hands-on sessions and the Q&A.

Tentative Schedule Week 1 (2 – 8 July 2023)

Time/Date	Sun, 2 July	Mon, 3 July	Tue, 4 July	Wed, 5 July	Thu, 6 July	Fri, 7 July	Sat, 8 July
Exact times of live sessions tbc		Social Program					
		Introduction to the Course	Q&A	Q&A	Q&A	Q&A	
			Cryptocurrencies	Economics of Blockchains	Cryptoeconomics	Economics of Blockchains	
	Welcome and Introduction for all Summer Schools	Q&A	Blockchain Platforms	Smart Contracts	Industry I	Token Regulation	Day off
		Introduction to Blockchain	**Hands-on sessions with speakers**	**Hands-on sessions with speakers**	**Hands-on sessions with speakers**	**Wrap up Week I**	
		Blockchain Technology	Q&A	Q&A	Q&A	Q&A	
		Q&A					
					Social Program		

Academic / Theory Section (podcast or live)
Industry Section (podcast or live)
Introduction / Wrap-up Section (interactive)
Hands-on Section with speakers (interactive)
Social Program

→ The Welcome and Introduction on Sunday, 2 July 2023 is mandatory.

(Program subject to change)

Tentative Schedule Week 2 (9 – 15 July 2023)

Time / Date	Sun, 09 July	Mon, 10 July	Tue, 11 July	Wed, 12 July	Thu, 13 July	Fri, 14 July	Sat, 15 July
Exact times of sessions	Optional Social Program (tbc)	Q&A	Q&A	Q&A	Q&A	Q&A	Day off
		Industry II	Industry IV	Industry V	Industry VI	Industry VII	
		Cryptoeconomics	Governance	Data Protection	Consortium Blockchains	Blockchain Analytics	
		Hands-on sessions with speakers	Hands-on sessions with speakers	Hands-on sessions with speakers	Hands-on sessions with speakers	Project Selection	
		Q&A	Q&A	Q&A	Q&A	Q&A	
					Social Program		

Legend
Academic / Theory Section (live or podcast)
Industry Section (live or podcast)
Wrap-up and Project Selection (interactive)
Hands-on Section with speakers (interactive)
Social Program

→ Select the topic of your final project by the end of this week.

(Program subject to change)

Tentative Schedule Week 3 (16 – 21 July 2023)

Time / Date	Sun, 16 July	Mon, 17 July	Tue, 18 July	Wed, 19 July	Thu, 20 July	Fri, 21 July
Exact times of live sessions tbc	Optional Social Program (tbc)	Q&A	Q&A	Q&A	Q&A	Q&A
		Cryptoeconomics II	The communities	Industry IX	Mentoring Final Project	Wrap-Up
			Inndustry VIII	Data Protection		
		Mentoring Final Project	Mentoring Final Project	Mentoring Final Project	Q&A	Goodbye Event
		Q&A	Q&A	Q&A	Hand in Projects	
					Social Program	

Academic / Theory Section (live or podcast)
Industry Section (live or podcast)
Wrap-up and Project Selection (interactive)
Mentoring Final Project (interactive)
Social Program

→ Use your „free" time to work in groups on your final project.

→ The Social Program on the weekends is optional. The Goodbye Event (Graduation Ceremony) on 21 July 2023 is mandatory.

(Program subject to change)

Lecturers and Guest Speakers from Academia

Profit from the expertise of multiple Professors from the University of Zurich and other leading experts from academia!

Check our website for details on already confirmed lecturers:

https://www.summerschools.uzh.ch/programs/deep-dive-into-blockchain/

Ecosystems in the programme

Check out who participated in our 2020 – 2022 programs! The 2023 program is set to include another amazing set of platforms and industry partners.

neo   Polkadot.   web3 foundation   HYPERLEDGER FABRIC

Tezos   CARDANO   IOTA   Algorand

For the comprehensive and regularly updated list visit our website:
https://www.summerschools.uzh.ch/programs/deep-dive-into-blockchain/

Your Team at the University of Zurich

Your Course Director

Prof. Dr. Claudio J. Tessone

Your contact at Global
Student Experience

Nina Richard

Contact

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