



u^b

^b
UNIVERSITÄT
BERN

Prof. Dr. Christian Cachin
Institute of Computer Science

Prof. Dr. Mirjam Eggen
Institute for Civil Law

Dr. Christian Sillaber
Institute for Civil Law

Spring 2023

Seminar Civil Law and Computer Science

Distributed Trust in Finance

Fact Sheet

1. Overview

Summary

This interdisciplinary seminar is offered jointly by the Institute for Civil Law and the Institute of Computer Science. Students of computer science and law will work closely together on questions that arise from tensions between the progressing digitalization of the world and the existing law. The goal is to provide assessments and to develop solutions for the problem from both perspectives. Participants will work in interdisciplinary groups to realize a mock business case and solve technical and legal problems. After either selecting a provided business model (or bringing one of their own), students will design, discuss and build a prototype capable of demonstrating the technical viability of the business case. In addition to the engineering challenge, the teams will demonstrate compliance of their business model (and prototype) with applicable laws and regulations where law students take the role of a general counsel and support the project's ambitious goals.

Learning outcome

Students are able to

- read and critically analyze legal and/or technical background in the area;
- discuss material in the technical and/or the legal domain;
- demonstrate how to work in a team and contribute to questions beyond their own discipline;
- relate to their own scientific work, if applicable;
- give a scientific presentation, in terms of structure, level of content, and presentation techniques;
- manage their time during the preparation of their work, when operating in teams or independently.

2. Topic

In spring 2023, the Institute for Civil Law and the Institute of Computer Science will hold an interdisciplinary seminar on the topic "Distributed Trust in Finance". Students of computer

science and law will work closely together on a case study concerning the decentralized finance (“DeFi”) ecosystem. While traditional finance relies on intermediaries to manage and process financial services, DeFi operates in a decentralized environment using public, permissionless blockchains.

The goal of the case study driven seminar is to explore how the characteristics of the underlying open-source software protocols and smart contracts can be used to (re-)create financial applications. Participants will work in interdisciplinary groups and relate their work to practical problems that arise when regulators and practitioners aim at the intersection of blockchain, digital assets, and financial services.

In doing so, participating students will hopefully build – at least at the prototype level – and discuss truly innovative DeFi systems to enable new service arrangements.

Process:

- All participating student teams will select a business model to implement as a prototype.
- Computer science and law students collaborate to achieve “market-readiness”.
- **Law students:** The goal of the case study is to convince a regulatory committee of the legality of your project. In the first presentation, you have to demonstrate that your project is not obviously breaking any laws and that you have an (at least rudimentary) understanding of applicable rules and legal implications for your project. Afterwards, you have to submit written documentation of your project’s adherence to relevant law(s) (seminar paper) and present your arguments in a final presentation.
- **Computer science students:** The project serves to demonstrate some of the relevant functionality of the business case, as proof of concept. It should not be a simplistic project, like taking some existing code from the Internet and changing a few parameters. The project should not be overly complex though. Taking inspiration from past seminar projects, a smart contract for sealed-bid or for Vickrey auctions running on a blockchain gives a good impression of the expected complexity.

3. Logistics

Participants

Both students of law as well as students of computer science can participate. The number of participants is limited to 12 students (ideally 6 per field of expertise). Successful participation gives 5 ECTS points.

In order to participate in the seminar, law students do not need to have any previous knowledge of computer science, just as computer science students do not need to have any previous knowledge of law.

Participating law students must have in-depth knowledge of either civil law (OR AT/BT), privacy law, or company law. Master students have priority.

Participating computer-science students should have knowledge in computer security and cryptography. Master students have priority; they can get credit in the same way as with any seminar in the "Swiss Joint Master of Science in Computer Science." Bachelor students with Major "Informatik" may not credit this seminar as a "Bachelor teaching unit" (according to Art. 9 Abs. 7 Studienplan Informatik); however, they may credit it as an early Master teaching unit (in the sense of Art. 9 Abs. 9 Studienplan Informatik) or as a "Freie Leistung." Bachelor students with Minor "Informatik" cannot credit the seminar.

Registration

The registration period begins after the information event (see Schedule below). Registrations will be considered in the order in which they are received. Participation in the seminar will be confirmed to the students promptly. If participation is confirmed, withdrawal from the seminar is no longer possible.

Please send your registration to semir.hermidas@ziv.unibe.ch. The following information must be provided with the registration:

- Name
- Address
- Matriculation number
- Number of completed semesters
- Desired proof of academic achievement (Bachelor or Master program, Major or Minor)
- For Bachelor students in Law only: proof of active participation in the workshop "Einführung in die juristische Arbeitstechnik"

Written papers

The participants will work in groups on different topics. Each group consists of at least one law student and one computer science student. Together they will work on a solution for their topic, the law student from a legal perspective, the computer science student from a technical perspective, and write a paper about their results. The groups are free to submit two separate papers (one regarding the legal aspect, the other regarding the technological one), or to combine their results in one paper. The solution should demonstrate results of the collaboration across the disciplines.

If the participants submit two individual papers, each must be 10-15 pages long. If they combine their results in one paper, it must be 20-30 pages long. In this case, however, the students must indicate the author of each chapter and the legal and technical parts must be of comparable length.

Law students:

Regarding the formal requirements and the evaluation criteria, reference can be made to the corresponding guidelines and regulations of the Law Faculty (available at: https://www.rechtswissenschaft.unibe.ch/studium/studienprogramme/bachelor_rechtswissenschaft/index_ger.html).

Computer Science students:

The paper must contain the declaration of consent (available at: https://www.philnat.unibe.ch/studium/formulare/index_ger.html).

Oral presentation

On March 31st, all groups will present their first results in an oral presentation. On May 12th, all groups will present their final results in an oral presentation. The first presentation should be approx. 15 minutes, followed by a short discussion. The final presentation should be approx. 30 minutes, followed by a 10-minute discussion. Active participation of the students is expected – the seminar is not a lecture. Participation in the discussions will be included in the evaluation.

On May 5th, each group must submit a PowerPoint presentation.

Language

The spoken language of the seminar will be English. However, the papers can be written in English and/or German (it is acceptable that one part of the paper is written in English and the other in German).

Please note that the level of the spoken English during the presentation will of course not be evaluated.

Evaluation

Students are evaluated individually, but it is also taken into account whether the groups have worked as a team and whether a collaborative effort is evident.

4. Schedule

- **30.11.2022 17:30: Information Session**

Place: Room S 201 UniS (Zoom for exchange students)

Professor Eggen, Professor Cachin and Dr. Sillaber will give general information about the seminar and answer questions. Interested students who would like to participate via Zoom can contact Semir Hermidas by e-mail (semir.hermidas@ziv.unibe.ch) and will then receive the login details for the Zoom meeting.

Please note: Participation in the information session does not automatically mean registration for the seminar!

- **30.11.2022 18.00: Start of the registration period**

Students who would like to participate in the seminar can register per e-mail. For further information see Registration above.

- **24.02.2023 13:00-16:00: Kick-off session**

Place: Room 304 H4

The seminar will start with an overview of DeFi and blockchains. The professors will introduce the students to the different topics they can choose from. Furthermore, the teams are formed and the next phases discussed.

- **31.03.2023 09:00-17:00: First Presentation**

Place: Room 331 H4

Each group will give an oral presentation about their topic and present their results for phase one, which is followed by a short discussion with all seminar participants.

- **05.05.2022, 12:00: Submission of the presentation and draft seminar paper**

Each group must send their presentation and draft seminar paper to the following e-mail address: semir.hermidas@ziv.unibe.ch

- **12.05.2023 09:00-17:00: Final Presentation**

Place: Room 216 Mittelstrasse 43

Each group will give an oral presentation about their topic and present their results, which is followed by a short discussion with all seminar participants.

- **31.05.2023 12:00: Final Submission**

Each group must send their final seminar paper to the following e-mail address: semir.hermidas@ziv.unibe.ch