CS-464 **Human-centered security and privacy**

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Cursus	Sem.	Type
Computer science	MA2, MA4	Opt.
Cyber security minor	E	Opt.
Cybersecurity	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	Written
Workload	120h
Weeks	14
Hours	**4 weekly**
Courses	2 weekly
Exercises	2 weekly
Number of positions	

Summary

Safeguarding security, privacy, and online safety are critical sociotechnical challenges that require integrating computing and social science. This course introduces fundamentals of human-centered computer security and privacy while drawing on novel research about emerging threats to online safety.

Content

This course will investigate computer security and privacy from a human-centered perspective. Students will learn about core security and privacy technologies, societal and ethical challenges in online safety, and how to effectively study people's attitudes, opinions, and behaviors.

- Weeks 1-2: defintions of security, privacy, usability
- Weeks 3-5: usable authentification, privacy and online advertising; running and evaluating user studes
- Weeks 6-8: equity and inclusion in S&P; societal and ethical challenges in research
- Weeks 9-11: safety on social media, online threats; tools, interventions, and eduction
- Weeks 12-14: Emerging technologies, including smart devices, VR/MR, AI

Note that topics are tentative and will be explored at different depths. In class participation is strongly recommended.

Learning Prerequisites

Required courses

- Statistics
- Programming
- Computer security and privacy

Recommended courses

- Data science

Important concepts to start the course

- Programming experience (e.g., Python)
- Technical writing and communication
- Critical thinking and analysis

Learning Outcomes

By the end of the course, the student must be able to:

- Define a sociotechnical system, giving current and historical examples
- Adopt an adversarial mindset to analyze sociotechnical systems
- Understand technical attacks, defenses, and system designs
- Design and evaluate user studies
- Assess / Evaluate critically the societal impacts and ethics of sociotechnical systems

Teaching methods

- Lectures
- Practical homework assignments

Expected student activities

- In-class large and small group discussions
- Lead 1 in-class discussion (based on an assigned reading)
- Writing assignments

Assessment methods

- In-class quizzes
- Graded written exam

Supervision

Office hours	Yes
Assistant.e.s	Yes

Resources

Moodle Link

- https://go.epfl.ch/CS-464