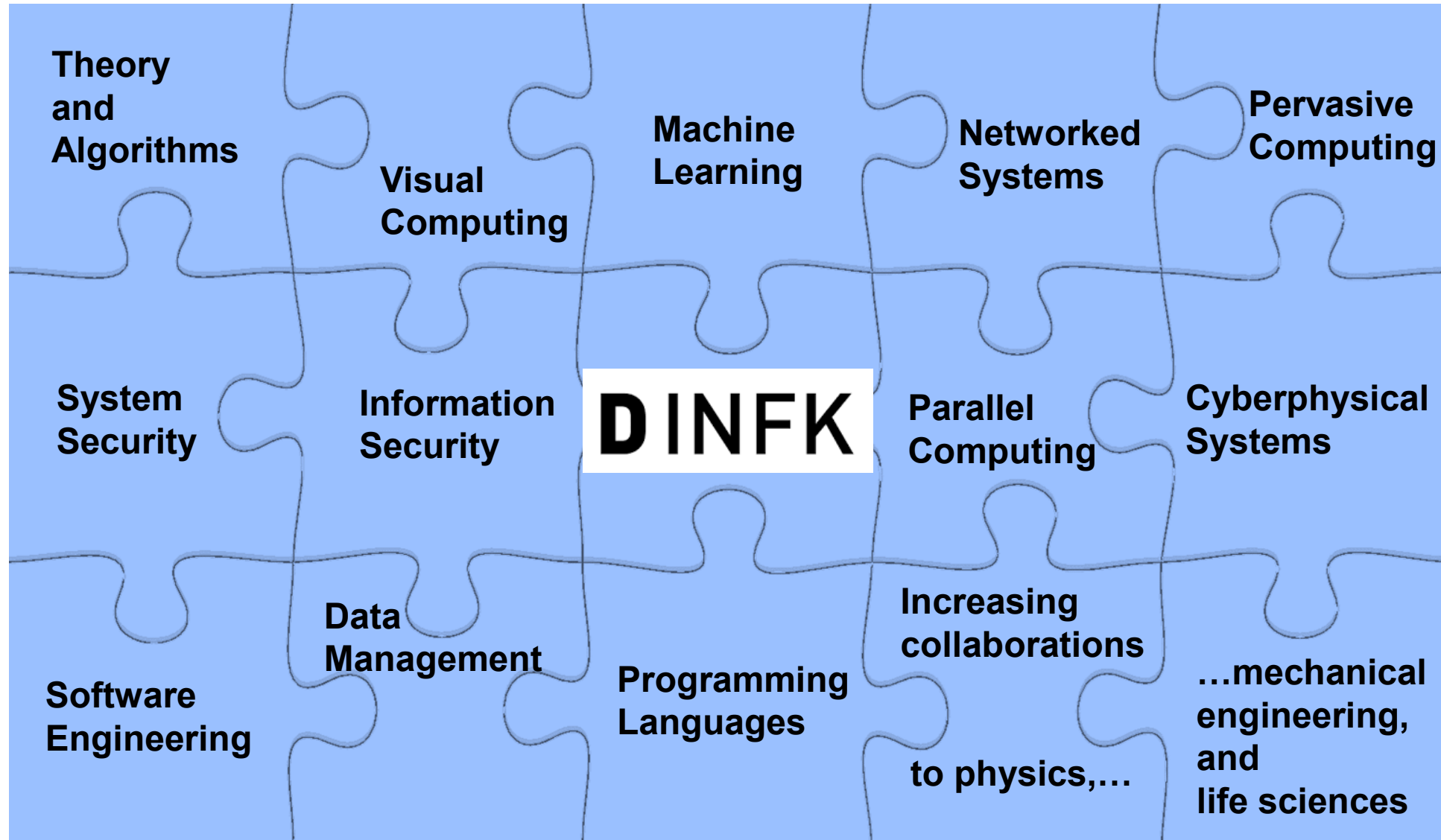# Welcome to the Department!

Zhendong Su
Director of Studies

18 September 2023

The Cyber Security Faculty

Broad Topics in Research and Education

Worldwide Top-Ranked CS Department

Rank 2023	Institution	Country
1	University of Oxford	United Kingdom
2	Massachusetts Institute of Technology	United States
3	Stanford University	United States
4	**ETH Zurich**	**Switzerland**
5	Carnegie Mellon University	United States

Start Your Own Company

Establishment of Academic ETH Spin-offs

53 D-INFK Spin-offs founded since 1993
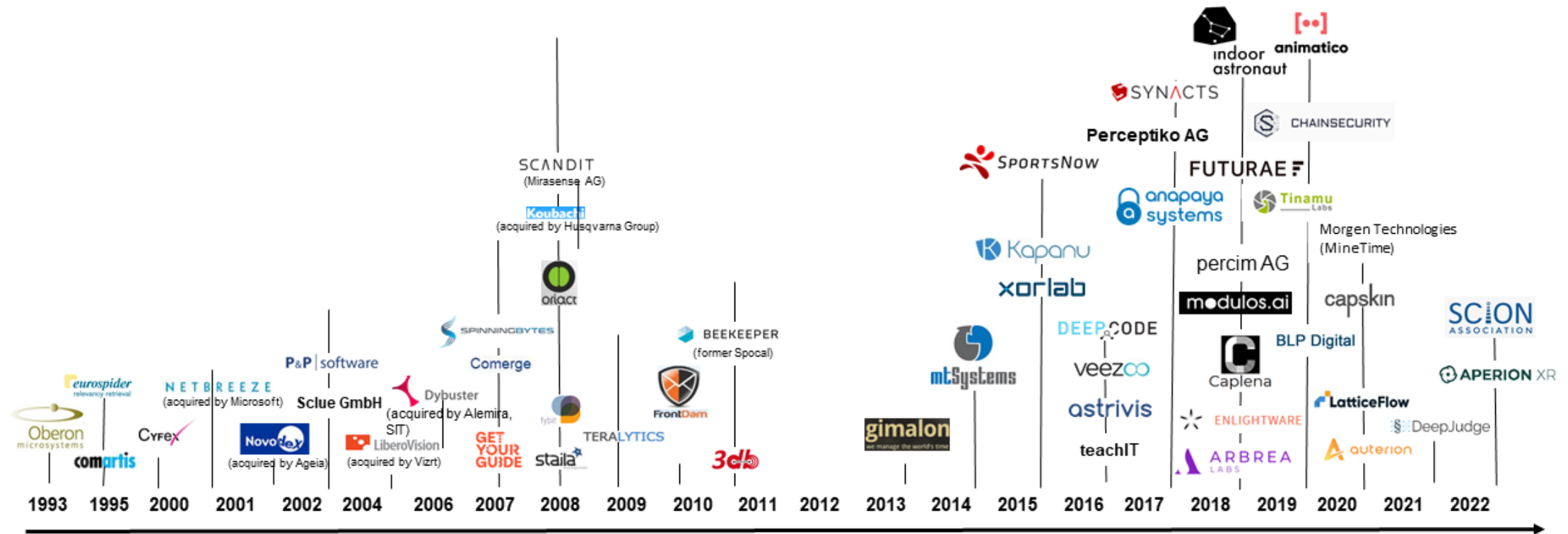
D-INFK Master Programes

MSc Data Science

75 new students

MSc Computer Science

287 new students

MSc Cyber Security

37 new students

Some Quick Advice

- Take advantage of the unique opportunity of studying at ETH

- Attend classes, interact with your peers, TAs, and faculty

- Work hard, practice self-reflection, seek help when needed

- Make this not only a degree, but a major step in your life and career

- Stay positive and have fun!

Getting started

**Joint Degree Master's Programme
Cyber Security ETHZ / EPFL**

Who's who?

Who's who: Studies Administration

The main point of contact for almost all issues related to MSc Cyber Security (if not, will find the right person), in particular issues concerning

- administration
- semester in Lausanne
- military service (Swiss only)
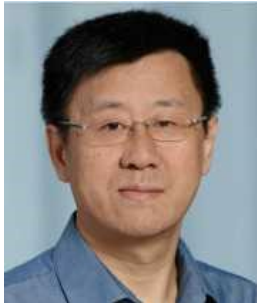
➔ master@inf.ethz.ch

Who's who

Prof. Kenneth Paterson
Head of Department

Prof. Zhendong Su
Director of Studies

Prof. David Basin
Programme Director

Dr. Ralf Sasse
Study Coordinator

Brigitte Marti
Studies Administration

Who's who: Faculty (Core)

Information Security	System Security	Applied Cryptography	Network Security	Secure & Trustworthy Systems	Secure and Private AI
Prof. Dr. David Basin	Prof. Dr. Srdjan Capkun	Prof. Dr. Kenny Paterson	Prof. Dr. Adrian Perrig	Prof. Dr. Shweta Shinde	Prof. Dr. Florian Tramèr
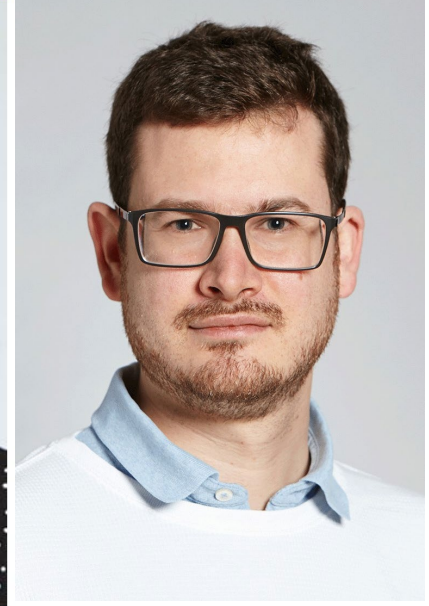
Who's who: Faculty (Adjunct)

Information Security and Cryptography	Foundations of Cryptography	Computer Security Group COMSEC
Prof. Dr. Ueli Maurer	**Prof. Dr. Dennis Hofheinz**	**Prof. Dr. Kaveh Razavi**

Information

Master in Cyber Security   www.inf.ethz.ch/master-cybsec

Forms and Documents   https://inf.ethz.ch/studies/forms-and-documents.html
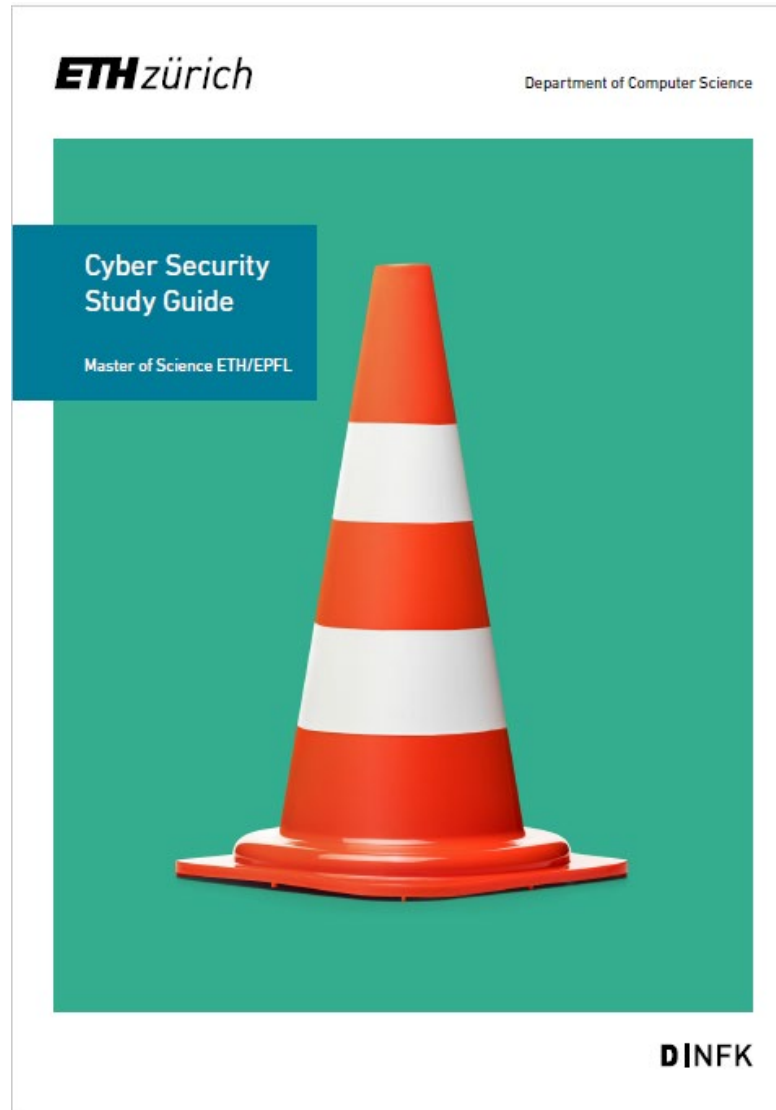
- Study guide

- Regulations of studies (in German)

- Tentative course list

- Semester and Master's thesis projects

- ….

Master's programme in Cyber Security

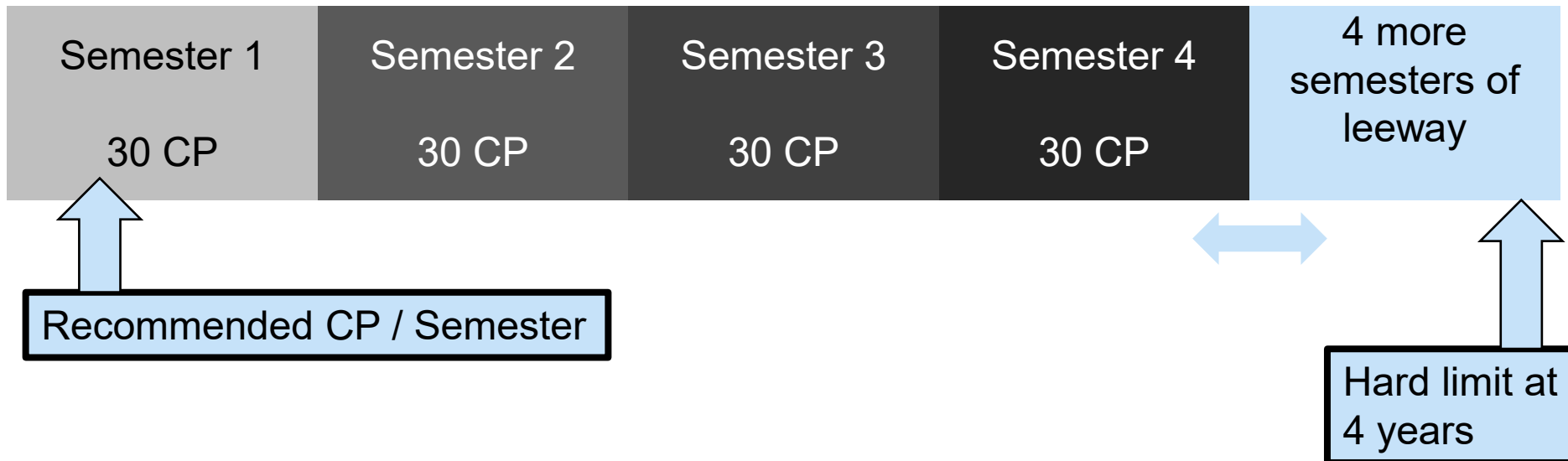# Study Guide

We recommend:

Read it!

Credit System

- ECTS credits (European Credit Transfer System)
- Course completed successfully → **full amount** of **credits** is awarded
- **30 credits** per **semester**

Master's programme: 120 credits

120 Credit Points

The Master's programme is designed to be completed within 4 semesters. The overall study duration must not exceed 8 semesters. The last semester focuses completely on the Master's thesis.

Semester 1	Semester 2	Semester 3	Semester 4	4 more semesters of leeway
30 CP	30 CP	30 CP	30 CP	

Recommended CP / Semester

Hard limit at 4 years

Grading System

6 Very good

5 Good

4 Sufficient

3 Insufficient

2 Poor

1 Very poor

- **Pass**: grade **≥ 4**

- **Fail**: grade **< 4**

- Resolution for individual grades: 0.25

Repetition of exams

Every examination or project can be repeated **once**.

Master's Programme Structure

Master ETHZ – EPFL in Computer Science Major in Cyber Security 120

Core Courses and Electives in Cyber Security	28

Core Courses	16
Core Electives	
Seminar	2

Core Courses and Electives in a Minor	18

Core Courses	8
Core Electives	

Inter Focus Courses	16

Semester Project	12

Free Electives	

Science in Perspective	2

Master's Thesis	30

Minimum required credit points

Core Courses and Electives in Cyber Security

Core Courses and Electives in Cyber Security	28
Core Courses	16
Core Electives	
Seminar	2

- High level of competence
- Provide essential knowledge in Cyber Security

Minor

Core Courses and Electives in a Minor	18
Core Courses	8
Core Electives	

The Minor is mandatory and has to be chosen from the Majors of the Master's programme in Computer Science (Regulation 2020).
Students must decide on <u>one</u> of the following:

- Data Management Systems

- Machine Intelligence

- Visual and Interactive Computing

- Theoretical Computer Science

Inter Focus Courses – The "labs"

Inter Focus Courses	16

- Cover all topics in computer science
- Teach algorithmic reasoning
- Methods of advanced system design

- You need ≥ 16 ECTS from Inter Focus Courses → two courses
- Two offered in autumn semester, two in spring semester
- Repetition typically requires re-enrolling → one year later

Recommendation: take them in the first year of studies

Semester Project
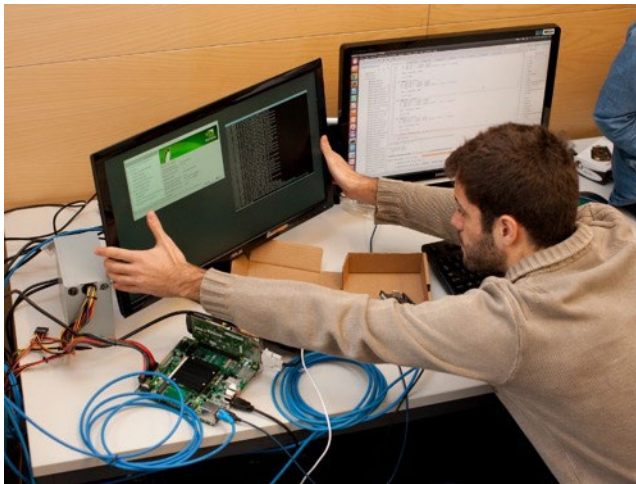
- Apply acquired knowledge and skills
- Solve independently a technical-scientific problem

Free Electives

- Courses offered by ETH, UZH, EPFL
- Master's level
- In the area of computer science or a closely related field

Science in Perspective

Science in Perspective	2

- Courses offered by the department D-GESS
- 851-xxxx-xx language courses (≤ 3 credits including ETH BSc)

Master's Thesis

- Finally!
- 6 months of research, problem solving, writing, …

Programme Structure

Master ETHZ – EPFL in Computer Science Major in Cyber Security 120

Core Courses and Electives in Cyber Security	28
Core Courses	16
Core Electives	
Seminar	2

Core Courses and Electives in a Minor	18
Core Courses	8
Core Electives	

Inter Focus Courses	16

Semester Project	12

Free Electives	

Science in Perspective	2

Master's Thesis	30

Does not sum up: freedom

Plan your Studies

Planning

Plan your Master's studies

- Establish a personal study plan
Template: https://inf.ethz.ch/studies/forms-and-documents.html

Where to get information or help:

- Mentor (Core Faculty member assigned to you)

- Study guide

- Studies administration

Studying

- Register for courses online: www.mystudies.ethz.ch
- Course list: www.vvz.ethz.ch

Cyber Security Master					
▶ Field of Specialization					
▶ ▶ Core Courses					
Number	Title	Type	ECTS	Hours	Lecturers
252-0463-00L	Security Engineering ℹ️	W	7 credits	2V + 2U + 2A	D. Basin, M. Ochoa Ronderos
252-1414-00L	System Security ℹ️	W	7 credits	2V + 2U + 2A	S. Capkun, S. Shinde
263-4640-00L	Network Security ℹ️	W	8 credits	2V + 2U + 3A	A. Perrig, S. Frei, M. Legner, K. Paterson
▶ ▶ Electives					
Number	Title	Type	ECTS	Hours	Lecturers
227-0575-00L	Advanced Topics in Communication Networks ℹ️	W	6 credits	2V + 2U	L. Vanbever, R. Jacob
227-0579-00L	Hardware Security	W	7 credits	2V + 2U + 2A	K. Razavi
252-0811-00L	Applied Security Laboratory ℹ️ 🚨 Number of participants limited to 48.	W	8 credits	7P	D. Basin

Semester in Lausanne
https://www.epfl.ch/schools/ic/

Semester in Lausanne

During the course of the programme, one semester has to be spent at EPF Lausanne.

- Students enrolled at ETHZ must start the Master's programme at ETHZ
- Students must earn 20–35 CP at EPFL
- Master's thesis and Inter Focus Courses have to be taken at ETHZ
- Students receive a scholarship for their exchange semester
- Spring semester: support in searching accommodation by EPFL
- Eligible courses are published on the MSc Cyber Security website
- Study Plan for the exchange semester at EPFL has to be approved by the Studies Administration
- During the exchange semester, students are enrolled at ETHZ **and** EPFL – but pay tuition fee only at ETHZ

Semester in Lausanne

Study plan (= course list) and regulation (only in French) at EPFL:
https://www.epfl.ch/education/studies/en/rules-and-procedures/
https://edu.epfl.ch/studyplan/en/master/computer-science-cybersecurity/

Computer Science - Cybersecurity 2023-24

COURSES	LANGUAGE	MASTER 1 L	MASTER 1 E	MASTER 1 P	MASTER 2 L	MASTER 2 E	MASTER 2 P	SPECIALISATIONS/ORIENTATIONS	EXAM	CREDITS
Advanced computer architecture CS-470 / Section IN Ienne	EN	-	-	-	3h	-	2h		Summer session Written	8
Advanced topics on privacy enhancing technologies CS-523 / Section IN González Troncoso	EN	-	-	-	3h	1h	2h	▪ Depth requirement	Summer session Written	8
Algorithms II CS-450 / Section IN Svensson	EN	4h	3h	-	-	-	-		Winter session Written	8
Cryptography and security COM-401 / Section SC Vaudenay	EN	4h	2h	-	-	-	-	▪ Depth requirement	Winter session Written	8
Decentralized systems engineering CS-438 / Section IN Borsò	EN	2h	2h	2h	-	-	-		Winter session Oral	8

DINFK

Semester in Lausanne

Find information on the exchange semester at EPF Lausanne here:
https://inf.ethz.ch/studies/master/master-cybsec/semester_epfl.html

In particular, make sure you read the course transfer list with all EPFL courses, showing the corresponding course category at ETHZ.

Group 1

Code	Course	l	e	p	Semester	CP	Exam	Track D-INFK	Core/Core Elective
CS-450	Algorithms II	4	3		autumn	8	written	TI	Core
CS-470	Advanced computer architecture	3		2	spring	8	written	DMS	Core Elective
CS-523	Advanced topics on privacy enhancing technologies	3	1	2	spring	8	written	CybSec	Core Elective
COM-401	Cryptography and security	4	2		autumn	8	written	CybSec	Core Elective
CS-438	Decentralized systems engineering	2	2	2	autumn	8	oral	DMS	Core Elective
CS-451	Distributed algorithms	3	2	1	autumn	8	written	DMS	Core

Semester in Lausanne

Semester in Lausanne in the **spring semester 2024**:

Students have to decide until the end of the 4th semester week at the latest whether they want to go to Lausanne for the spring semester 2024.
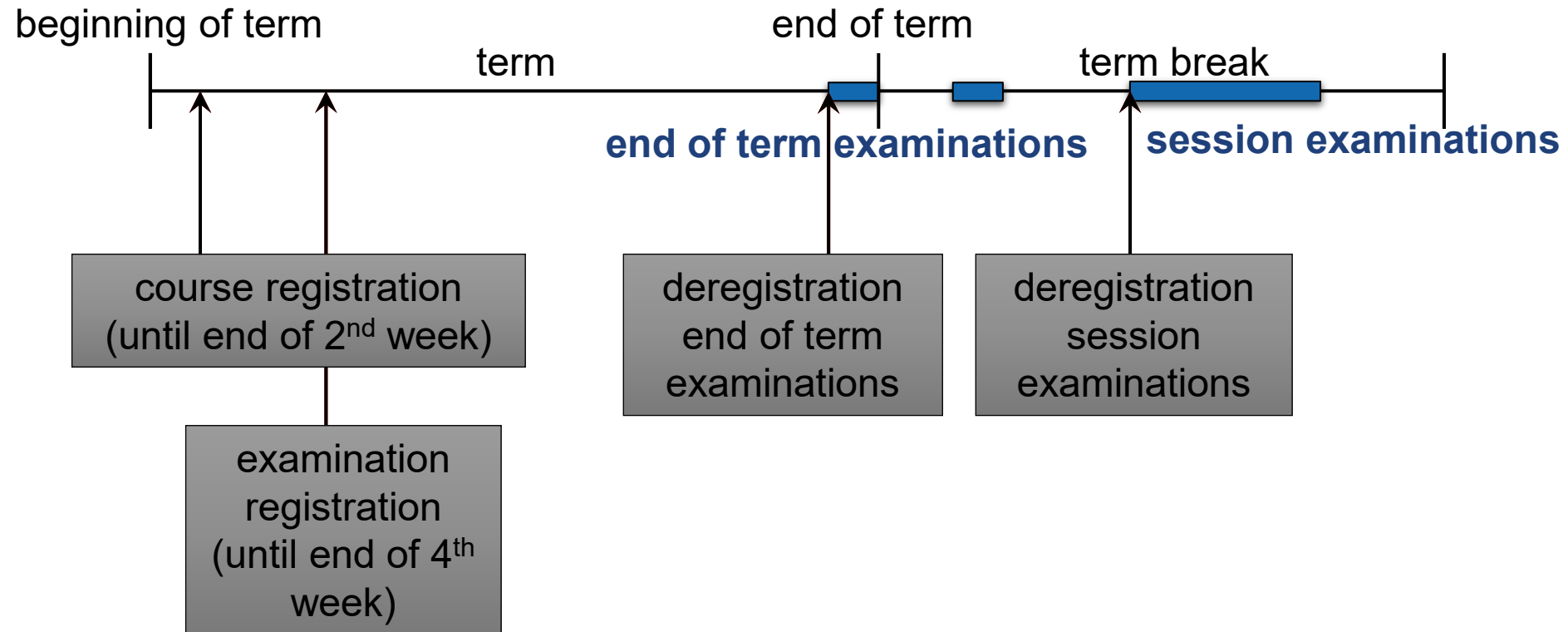
Send an email to master@inf.ethz.ch until
➔ **15 October 2023**
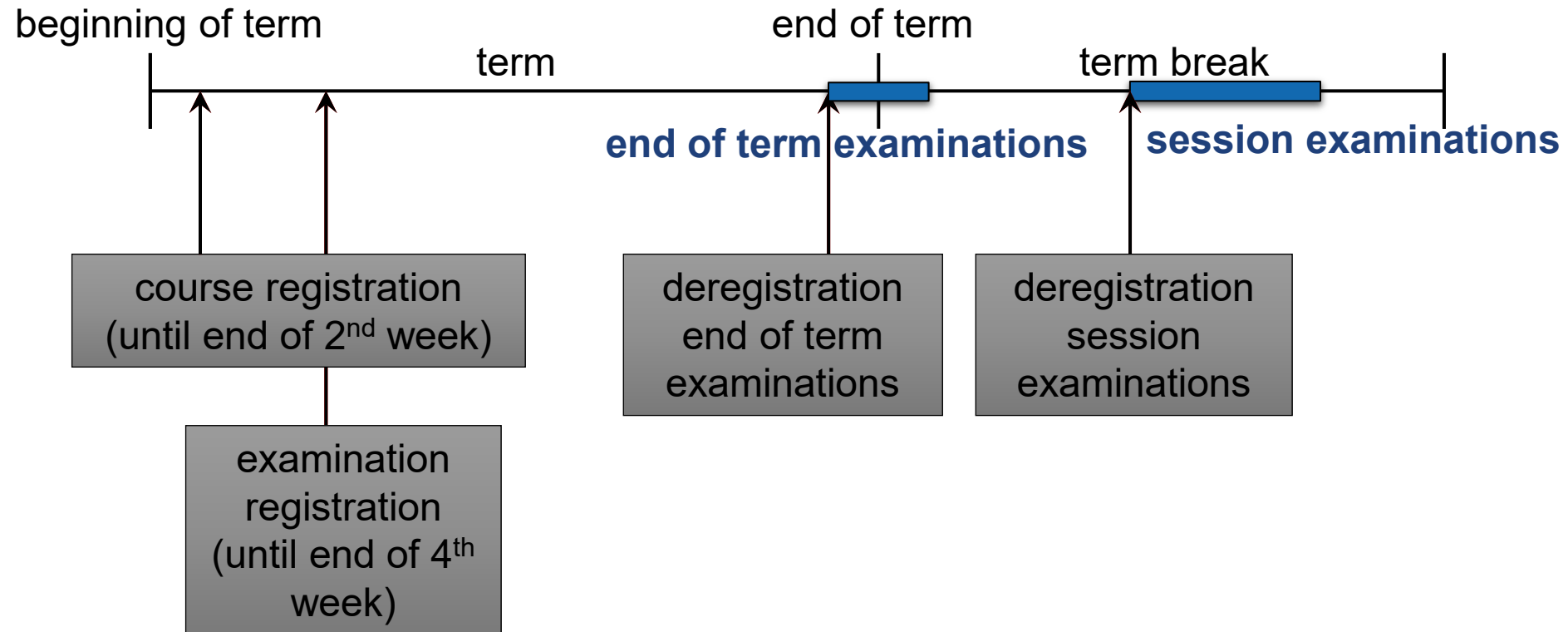in case you want to register for the exchange in the spring semester 2024.

Academic Year

Autumn Semester

Spring Semester

Deadlines

- Important deadlines (course registrations, exam registration and deregistration, etc.) are always announced ahead of time via e-mail to: xxxx@student.ethz.ch

- Make sure you read your e-mails!

Preparing Examinations

- Solve the *exercises* during the semester

- Solve *old examinations* (available from the student body, i.e. VIS)

- *Oral examinations*: Get minutes of former examinations from VIS

- If you have *questions*, ask your fellow students or the assistants

highly, highly, highly recommended
to attend all lectures and exercise sessions

Classes

- **At ETH Zentrum (here)**: Classes start a **quarter past** the indicated hour.

- **On Hönggerberg Campus**: depends on exact building course is in! See
  https://ethz.ch/students/en/studies/academic-support/course-catalogue/lectures-times.html

- Also check https://ethz.ch/students/en/studies/academic-support.html for general
  information – including lecture recording links, etc.

- Example (Zentrum): Class stated to take place from 8 to 10 (8–10)
  - start at 08:15
  - have in general a break from 09:00–09:15
  - end at 10:00

  This rule does *not* apply to exams, meetings, etc.

**7 November 2023
16.00–19.00**

ETH Library
InfoCenter
Rämistrasse 101, HG

More information at:
library.ethz.ch/rock-your-masters

- Get prepared to stay on time with your studies and your Master's thesis
- **Know where to find help** before the workload peaks
- Meet your peers, expand your **network**
- Enjoy **impro theatre** and a **free drink**

ETH *zürich*   ETH Library

Safety and Security at ETH Zurich

Content: Safety and Security at ETH Zurich

SGU
Sicherheit, Gesundheit und Umwelt

1. Department of Safety, Security, Health and Environment (SSHE) at ETH Zurich
2. Prevention
   - Security Measures
   - Examples
3. IT Security
4. Incidents / Emergencies
   - What to do in an Emergency
5. What do we expect from you?
6. Online Test

Please complete the training module within the first four weeks at ETH.
→ start the module **here**

All the best for your studies