

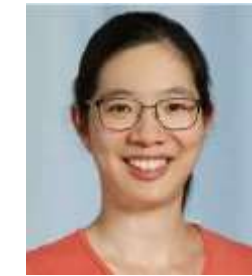
A large, leafy tree stands in the foreground, partially obscuring a multi-story building with red and white horizontal stripes. The building has arched windows and a classical architectural style. In the lower part of the image, a black metal fence runs across the frame, with a few people sitting on a bench behind it. The scene is brightly lit, suggesting a sunny day.

Welcome to the Department!

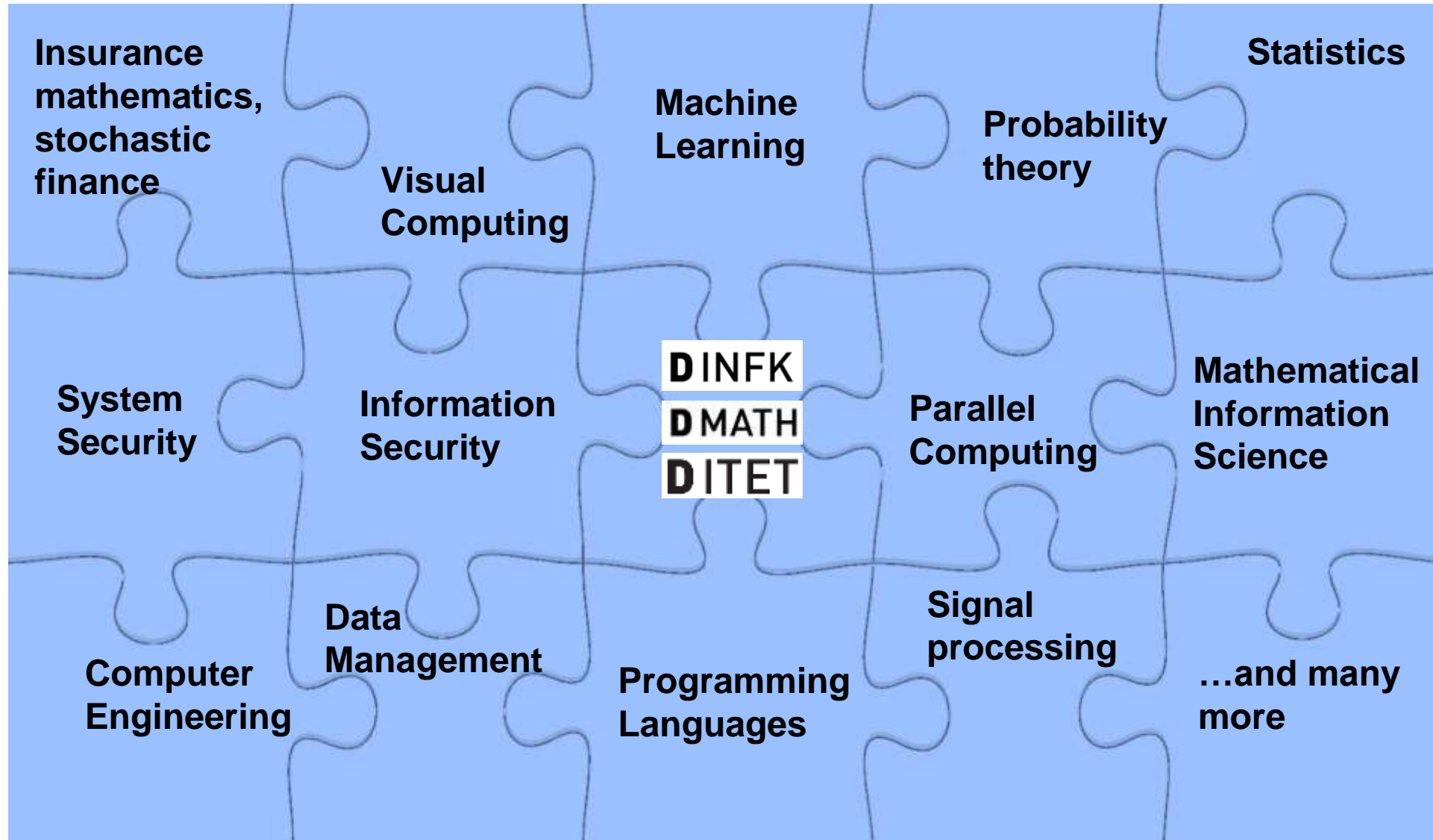
**Prof. Dr. Dennis Hofheinz**  
Director of Studies

16 September 2024

# Core Faculty Data Science



# Broad Spectrum of Topics in Research and Education



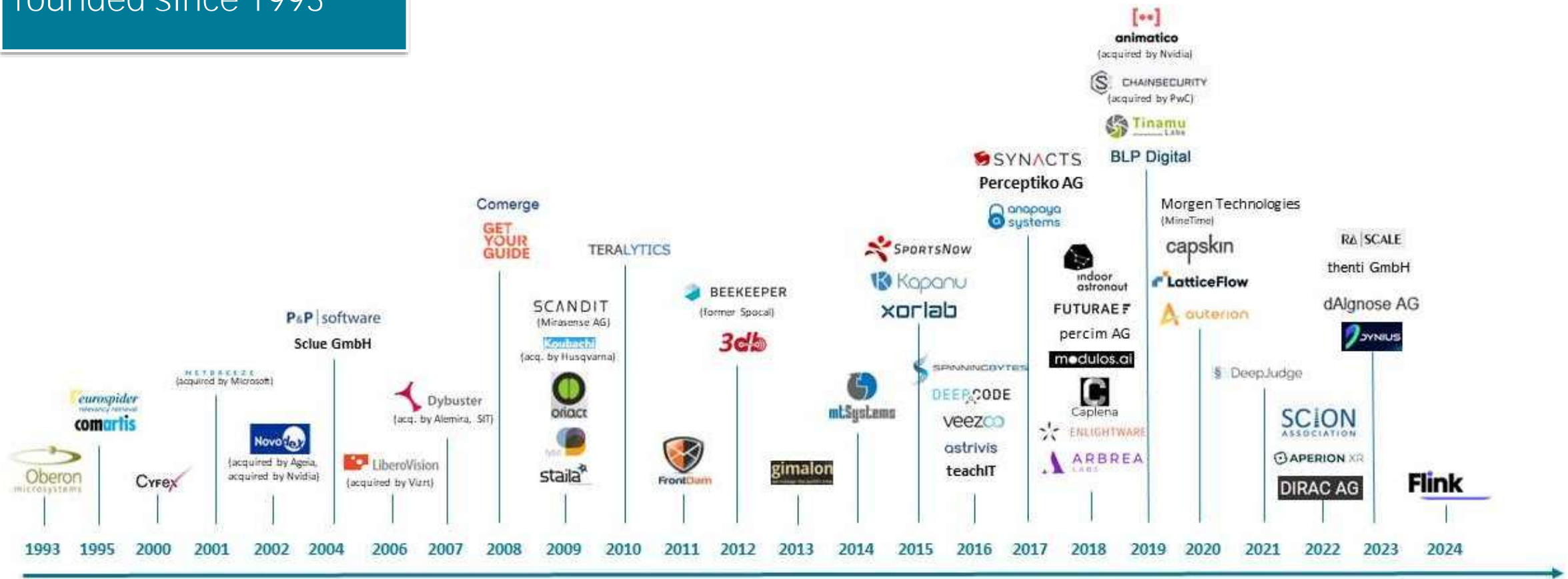
# Top-Ranked CS Departments Worldwide



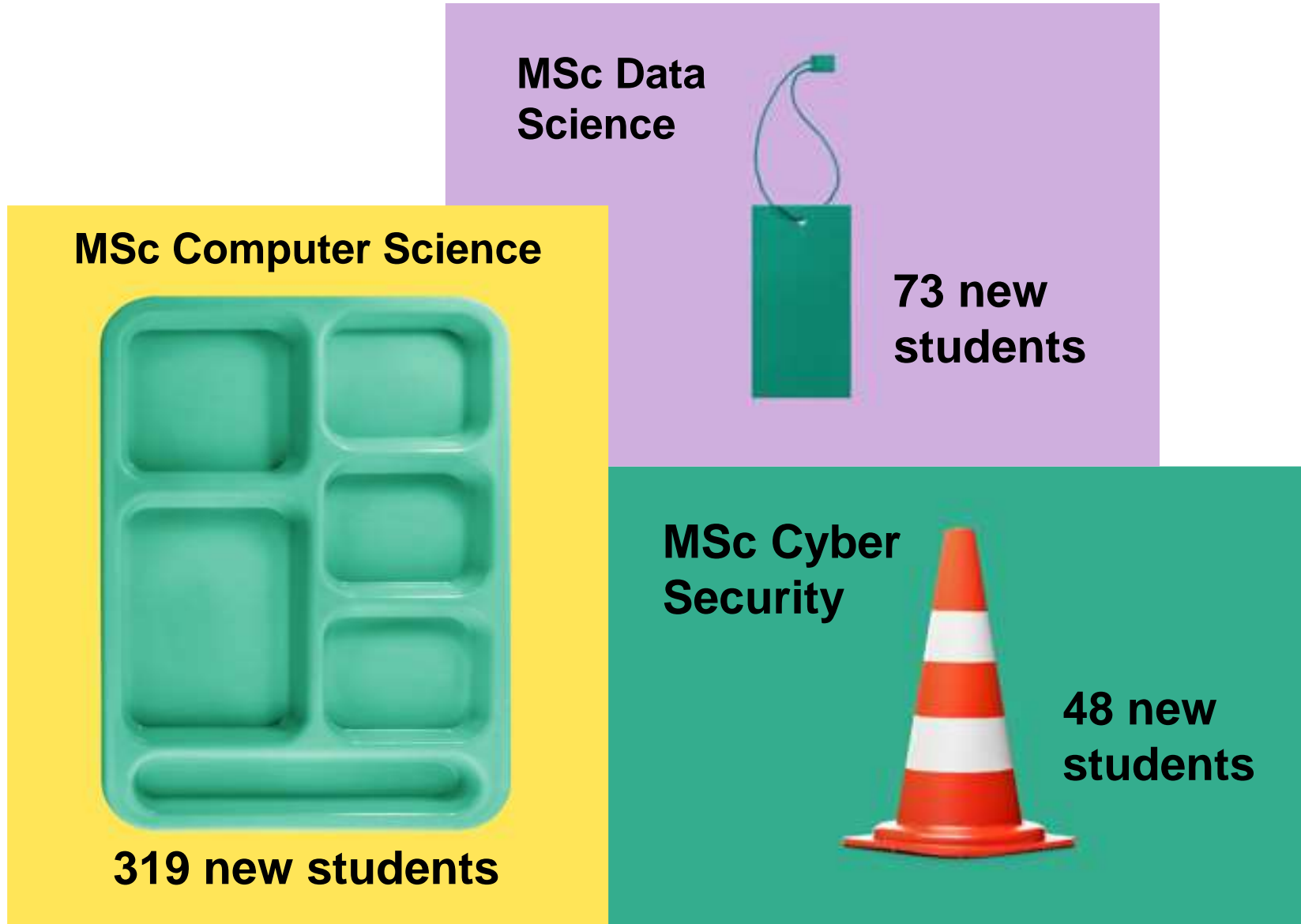
Rank 2024	Institution	Country
1	University of Oxford	United Kingdom
2	Stanford University	United States
3	Massachusetts Institute of Technology	United States
4	Carnegie Mellon University	United States
<b>5</b>	<b>ETH Zurich</b>	<b>Switzerland</b>

# Start Your Own Company

58 D-INFK Spin-offs  
founded since 1993



# D-INFK Master's Programmes



# 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

**Master's Programme in Data Science**  
Dr. Ghislain Fourny



A joint programme across three departments

**D INFK**

Computer Science

**D MATH**

Mathematics

**D ITET**

Electrical Engineering

Master's programme  
in *Data Science*

ETH has 16 departments,  
identified with four letters  
(D-AAAA)

# Who's who

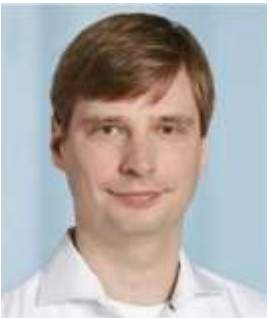


Prof. Kenny Paterson  
*Head of the Computer  
Science Department*

Dr. Ghislain Fourny  
*Study Coordinator*

Questions on planning your studies  
and course catalog

[ghislain.fourny@inf.ethz.ch](mailto:ghislain.fourny@inf.ethz.ch)



Prof. Dennis Hofheinz  
*Director of Studies*  
Examination regulations  
Validation of examination  
results

Bernadette Gianesi  
*Studies Administration*

Main point of contact

[bernadette.gianesi@inf.ethz.ch](mailto:bernadette.gianesi@inf.ethz.ch)



# Mentors (Core Data Science Faculty)



Appointed at the start of the studies

Discuss and approve your *learning agreement*

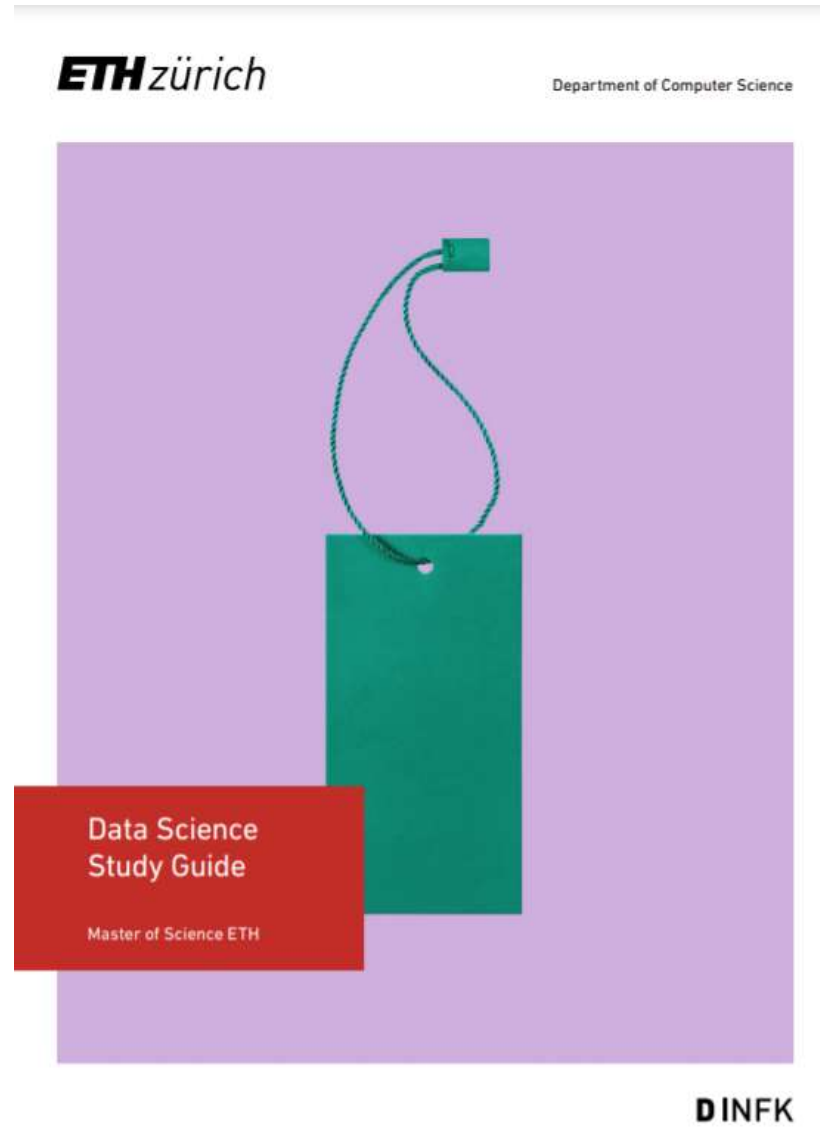
...and many more Professors who can supervise Master's theses.



# The Master's Programme

# Study Guide

**Read it!**



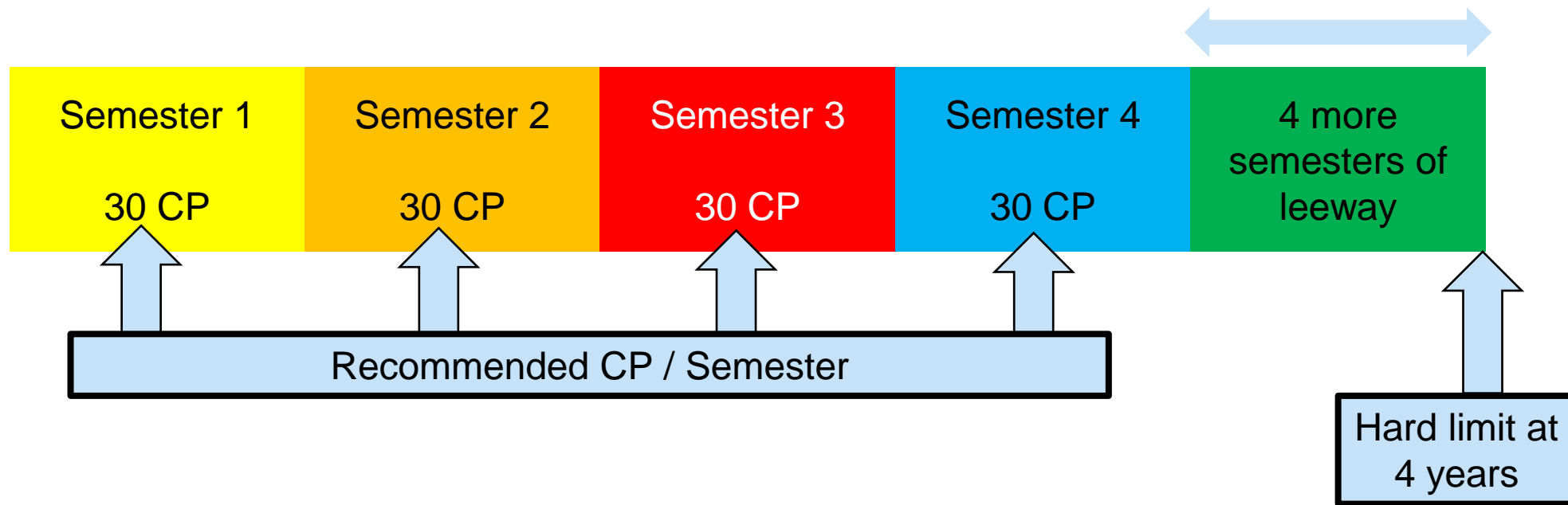
# European Credit Transfer System (ECTS)

Course completed successfully

→ **full amount** of ECTS credits is awarded



# 120 Credit Points



The last semester focuses completely on the Master's thesis.

# Grading System

6	Excellent
5.75	Excellent
5.5	Very good
5.25	Very good
5	Good
4.75	Good
4.5	Satisfactory
4.25	Satisfactory
4	Pass
3	Poor
2	Extremely poor
1	Not measurable

**Pass: grade  $\geq 4$**

**Fail: grade  $< 4$**

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



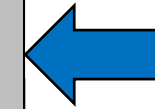
# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
Core Courses	32
Data Analysis	16
Data Management und Processing	16
Electives	28
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0
Data Science Lab	10
Seminar	2
Science in Perspective	2
Master's Thesis	30

# Programme Structure

**Master in Data Science**

120



Minimum required  
credit points



# Programme Structure

## Master in Data Science

120

### Core Courses

32

Data Analysis

16

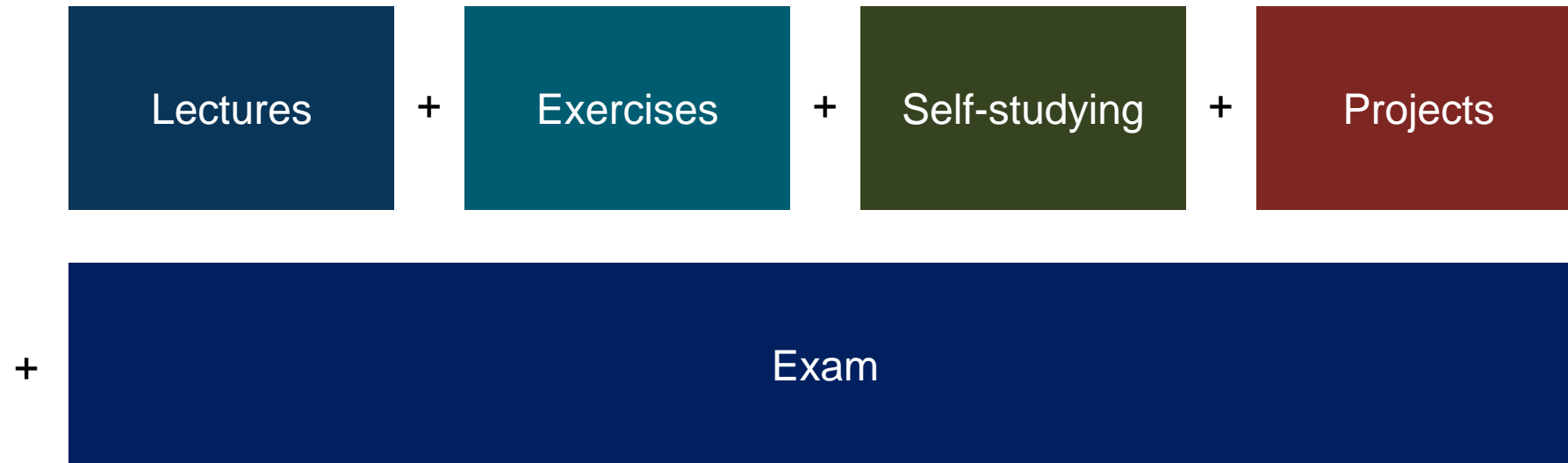
Data Management und Processing

16

# Core courses

High level of competence in Data Science

*Solid and sound knowledge basis.*



# Core courses

Roughly:

At least *two* here

## *Data Analysis*

- Advanced Machine Learning (10)
- Probabilistic Artificial Intelligence (8)
- Mathematics of Information (8)
- Mathematics of Data Science (8)
- Computational Statistics (8)

At least *two* here

## *Data Management and Processing*

















- Big Data (10)
- Data Management Systems (8)
- Optimization for Data Science (10)
- Algorithmic Foundations of Data Science (10)
- Advanced Algorithms (9)

# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
<b>Core Courses</b>	<b>32</b>
Data Analysis	16
Data Management und Processing	16
<b>Electives</b>	<b>28</b>
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0

# Electives – Subject Specific Electives

The electives provide a broader education with a higher level of customizability

Data Science Master 					
▶ Master Studies (Programme Regulations 2023)					
▶ ▶ Electives					
▶ ▶ ▶ Subject-Specific Electives					
Number	Title	Type	ECTS	Hours	Lecturers
261-5130-00L	Research in Data Science  	W	6 credits	13A	Professors
252-3005-00L	Natural Language Processing  	W	7 credits	3V + 3U + 1A	R. Cotterell
263-2400-00L	Reliable and Trustworthy Artificial Intelligence 	W	6 credits	2V + 2U + 1A	M. Vechev
263-3210-00L	Deep Learning  	W	8 credits	3V + 2U + 2A	T. Hofmann
263-5005-00L	Artificial Intelligence in Education 	W	3 credits	1V + 0.5U	M. Sachan
263-5056-00L	Applications of Deep Learning on Graphs   <small>  Does not take place this semester.</small>	W	4 credits	2G + 1A	G. Rätsch
263-5300-00L	Guarantees for Machine Learning   <small>  Does not take place this semester.</small>	W	7 credits	3V + 1U + 2A	F. Yang
263-5351-00L	Machine Learning for Genomics  	W	6 credits	2V + 2U + 1A	V. Boeva
263-5902-00L	Computer Vision 	W	8 credits	3V + 1U + 3A	M. Pollefeys, S. Tang, F. Yu

# Electives - Interdisciplinary Electives



Bridge the *gap* with other **disciplines**  
**cultures**  
**mindsets**

**8-12** credits

Data Science would not exist without

# Data



# Electives - Interdisciplinary Electives



## *Course compilations*

- Computational Biology, Bioinformatics, and Biomedicine
- Computer Networks
- Finance & Insurance
- Geographic Information Systems
- Law, Policy, and Innovation
- Neural Information Processing
- Robotics
- Social Networks
- Transport Planning and Systems
- Weather and Climate Systems

# Electives – Additional Electives

**D INFK**  
**D MATH**  
**D ITET**

**Any** Master's level course offered by the three departments!



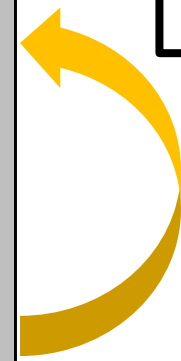
**Any** interdisciplinary elective (from any category)

# Programme Structure

<b>Master in Data Science</b>		120
Core Courses		32
Data Analysis	16	
Data Management und Processing	16	
Electives		28
Subject-specific Electives	20	
Interdisciplinary Electives	8	
Additional Electives	0	

16 up to you

Does not sum up:  
**freedom**



# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
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Data Management und Processing	16
Electives	28
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0
Data Science Lab	10

# Data Science Lab



Apply your knowledge and skills to  
*Interdisciplinary* projects

Groups of three students  
+  
Presentation

# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
Core Courses	32
Data Analysis	16
Data Management und Processing	16
Electives	28
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0
Data Science Lab	10
Seminar	2

# Seminar



*Read* and *understand* publications

*Present* a research paper

Get involved in *discussions*

# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
Core Courses	32
Data Analysis	16
Data Management und Processing	16
Electives	28
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0
Data Science Lab	10
Seminar	2
Science in Perspective	2



# Science in Perspective



*Humanities* and *Social Sciences*

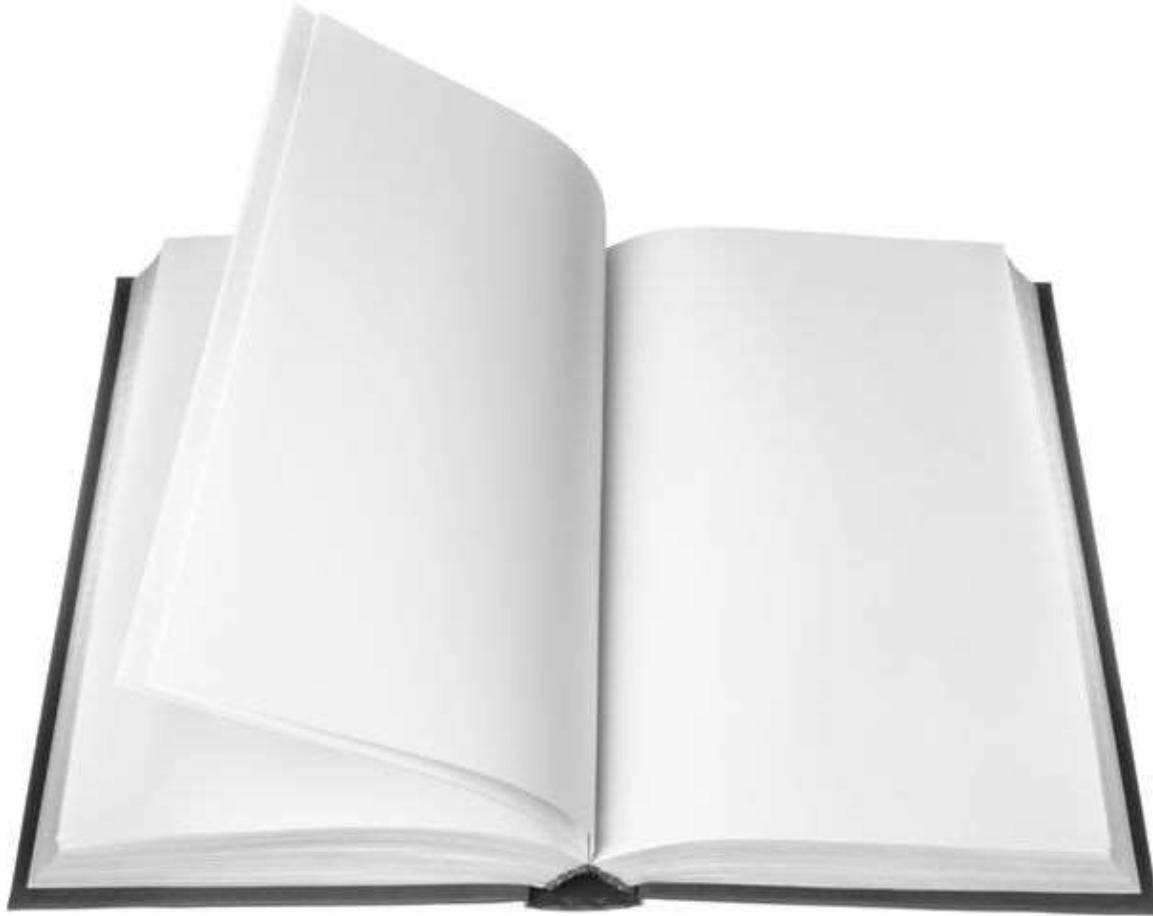
*Language* courses 851-xxxx-xx  
( $\leq 3$  credits including ETH BSc)

Coordinator's pick:  
*Big Data, Law, and Policy*

# Programme Structure

<b>Master in Data Science</b>	<b>120</b>
Core Courses	32
Data Analysis	16
Data Management und Processing	16
Electives	28
Subject-specific Electives	20
Interdisciplinary Electives	8
Additional Electives	0
Data Science Lab	10
Seminar	2
Science in Perspective	2
Master's Thesis	30

# Master's Thesis



This is the *final step!*

6 months of *research*  
and *complex problem*  
*solving*

(And think about your future... maybe a doctorate?)

# General recommendations

- Stick to *30 credits* per semester (don't overload)
- Start with the *core courses*
- *Data Science Lab* after interdisciplinary courses, ideally in the same field

At least 8 CP must have been obtained under Data Analysis and 8 CP under Data Management.

Interdisciplinary courses do not need to have been taken prior to the Data Science Lab

# Exchange programs



Prof. Dr. **Bernd Gärtner**



**Brigitte Marti**

- Only for students with a ETH bachelor degree
- Not in the first semester
- Recommended: exchange in the second semester

*(No credits for "core core" courses and Data Science Lab)*



Plan your studies

# Learning Agreement

[www.mystudies.ethz.ch/Functions](http://www.mystudies.ethz.ch/Functions)

## Programme

Confirmation of matriculation for Autumn Semester 2023 valid until 3 March 2024

Standard  Extended (e.g. for Immigration Office)

Download PDF

To check the digital seal, the saved file must be opened with the free Adobe Acrobat Reader.



Save the matriculation certificate in a safe place for multiple use.

Tutor **Prof. Dr. A. Bandeira**

Compose your individual learning agreement in accordance with your tutor

Learning Agreement →

# Create your learning agreement

Not registered  
  Registered  
  Passed  
  Repetition failed  
  No more available  
  Failed

**Sem** Semester **A**: Autumn Semester **S**: Spring Semester

**Completion of mandatory courses** Declare how mandatory courses will be or have been completed: **Yes**: In this programme **Bachelor**: In the Bachelor or another ETH programme **Other university**: At another university **No**: Not planned in this programme

**Not regular** Category assignment differs from that in the Course Catalogue.

**Changes** **New**: Newly added, **Moved**: Moved to another category, **Modified**: Text modified, for external course units only.

Category	Number	Course Title	Sem	ECTS credits			Completion of mandatory course	Not regular	Changes
				Planned	Needed	Missing			
<b>Core Courses and Electives</b>				0	76	<b>76</b>			
<b>Core Courses</b>				0	32	<b>32</b>			
Data Analysis				0	16	<b>16</b>			
Data Management				0	16	<b>16</b>			
<b>Electives</b>				0	28	<b>28</b>			
Subject-Specific Electives				0	20	<b>20</b>			
Interdisciplinary Electives				0	8	<b>8</b>			
Additional Electives				0	0				

- Data Science Lab, Seminar, Science in Perspective, Master's Thesis are **not** part of the learning agreement
- Interdisciplinary Electives must be chosen from one compilation only – minimum 8 credits, minimum 2 courses



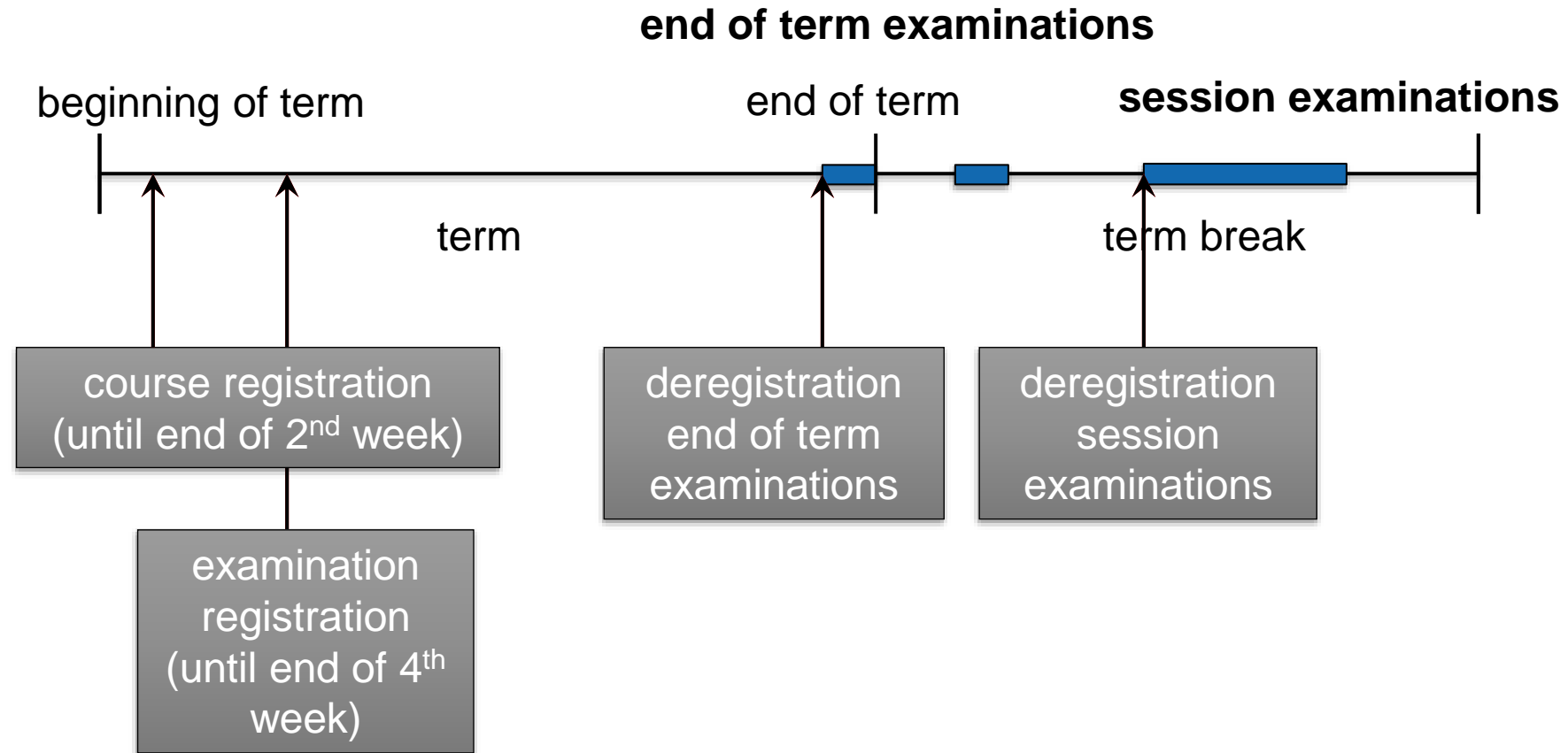
# Learning Agreement

- Submit your learning agreement *after* discussing with your tutor.
- The first version of the learning agreement must be submitted and approved within four weeks after the first semester has started.
- The final version must be submitted before registering for the master's thesis.

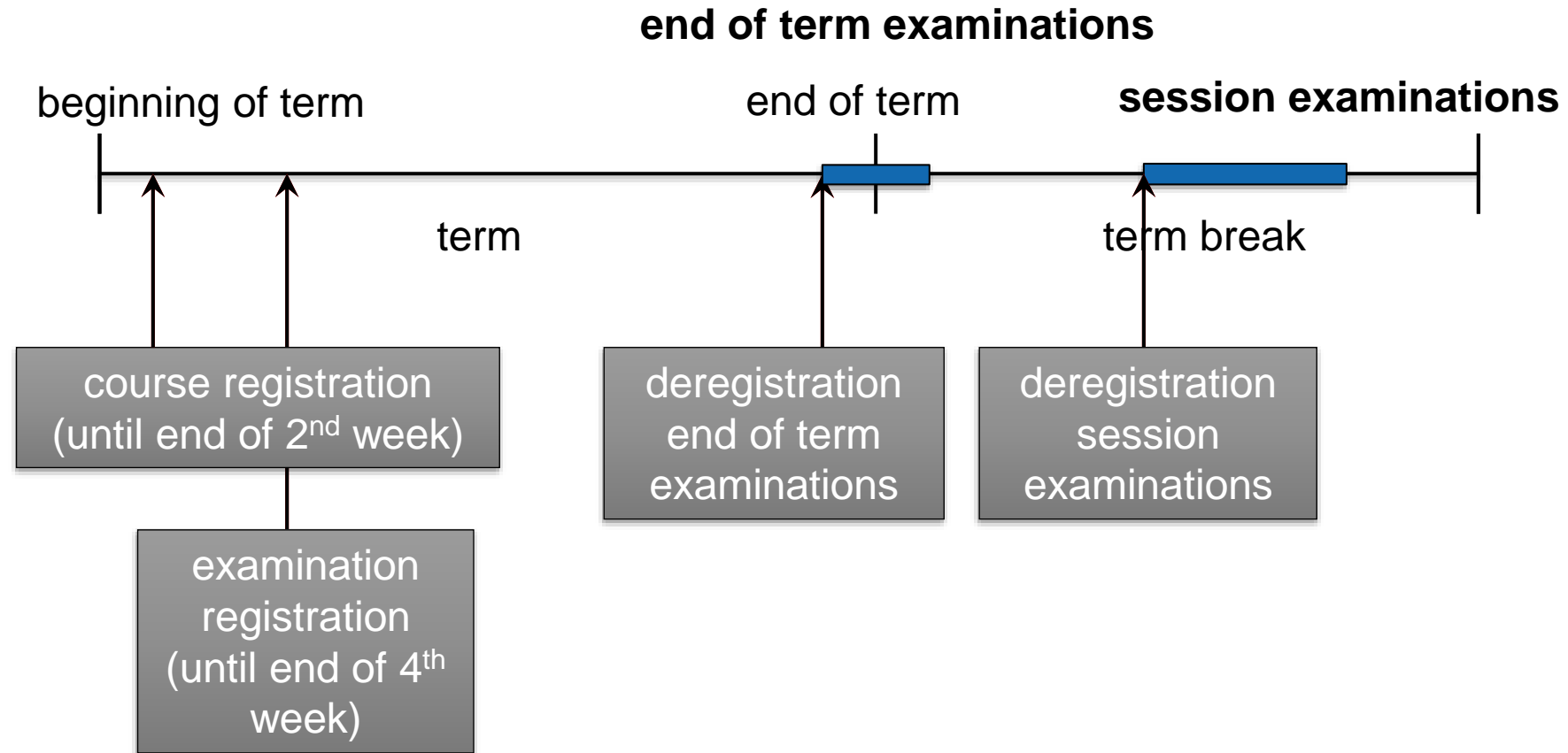


# Academic Year

# Autumn Semester



# Spring Semester

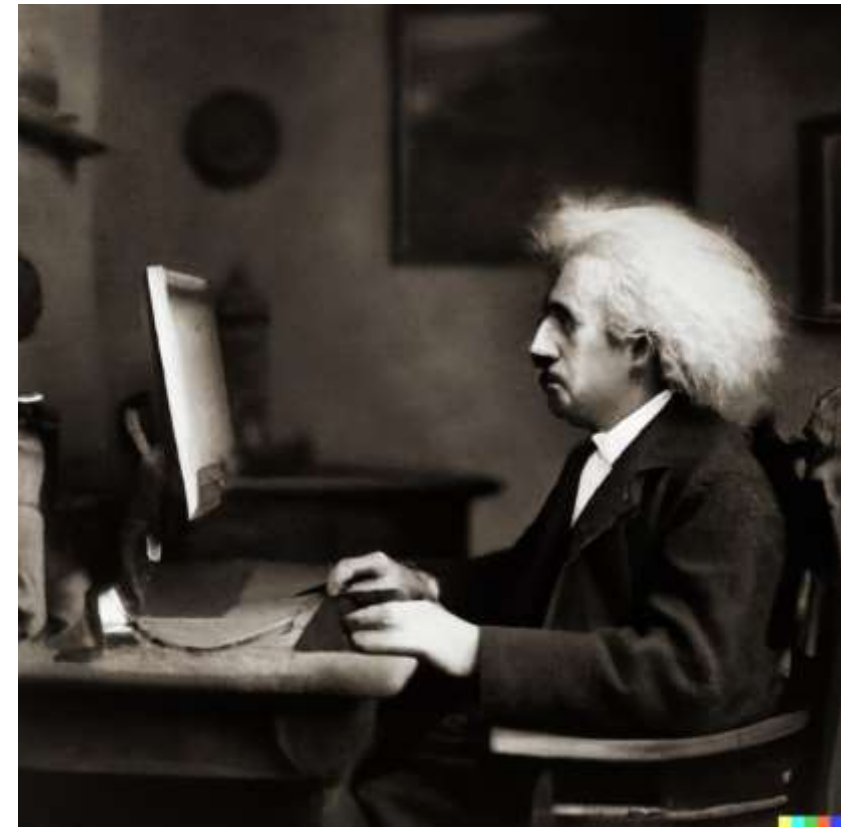


# Deadlines

Important deadlines (course registrations, exam registration and deregistration, etc.) are always announced ahead of time via *e-mail*

[albert.einstein@student.ethz.ch](mailto:albert.einstein@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

# Course times



3 pm – 4 pm

actually means

*3:15 pm – 4:00 pm*

- **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

# Exam times



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

3 pm – 4 pm

really means

*3pm – 4pm*



# Student Portal

<https://ethz.ch/students/en.html>



Student portal

News

**Studies**

Doctorate

Continuing Education

Advice

Service

Careers

Campus



## Studies overview

## Administrative

General

Study-specific

International students

## Financial

Semester invoice

Scholarships

Loans

Solidarity fund

See overview

## Courses

Course Catalogue

Web-based platforms

Lecture recordings

Teaching: Evaluation

See overview

## Performance assessments

Types of examination

Continuous Performance Assessments

Examination levels

Examination scheduling

See overview

Study abroad

Student Project House

Degree programmes

Co-determination

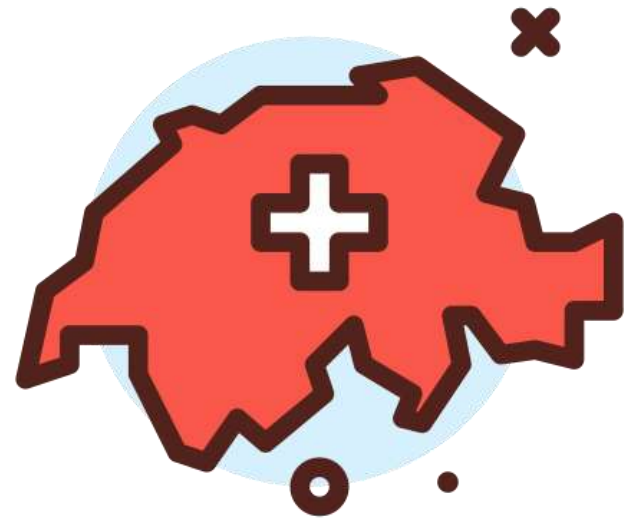
**All the best for your studies**

# ETH Data Science Survival Guide

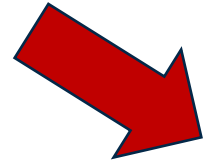
**Andreas Spanopoulos**  
16th September, 2024



# Structure of the presentation



Switzerland



Zurich  
OR  
“Züri”

## We will talk about:

- Switzerland
- Zürich
- ETH

NOTE: This is a perspective of a single student.

My goal is to provide a nudge towards existing opportunities...

**ETH** zürich

# A short introduction

## Andreas

- Greek / Italian
- BSc CS, Athens, Greece (UoA)
- Currently 3rd semester DS
- Hobbies:
  - sleep
  - food
  - volleyball
  - occasionally RL



*Pictures taken prior to the making of bad decisions...*

# Exploring – Cities in Switzerland

## Personal Favorites:

- Lugano
- Geneva
- Grindelwald
- Lucerne

## Others:

- Bellinzona
- Lausanne
- Bern
- Montreux (Christmas Market)
- ....

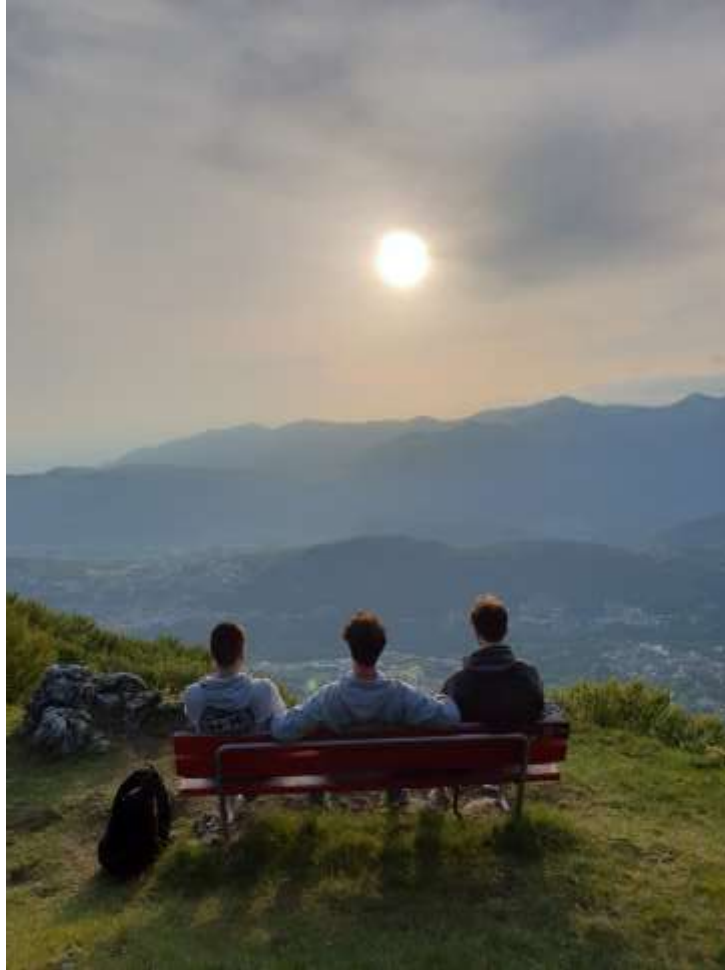


# Exploring – Skiing and Hiking in Switzerland

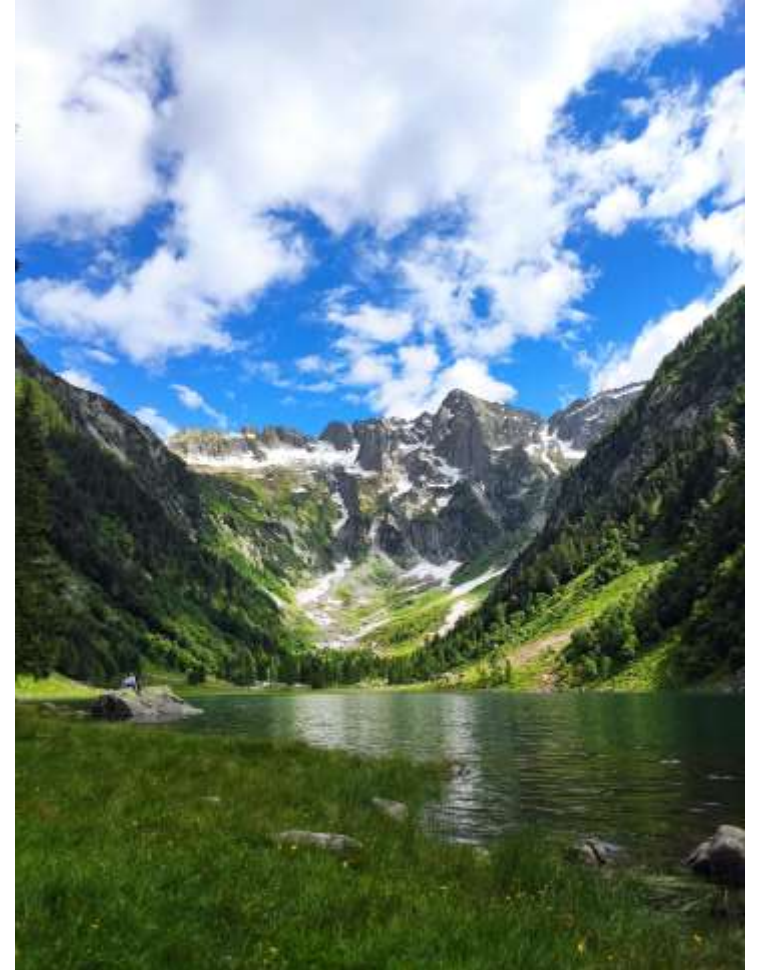
Davos (Graubünden)



Denti della Vecchia (Ticino)



Val Cama (Graubünden)



# Exploring – Skiing and Hiking in Switzerland

- Where can you go skiing and hiking in Switzerland?

Mobile app for hiking trails



© Vemaps.com



# Exploring – Beyond Switzerland (by Train and/or FlixBus)

- **Munich (~3.5h)**

SAVE THE DATE

**Oktoberfest**

21/09 - 06/10

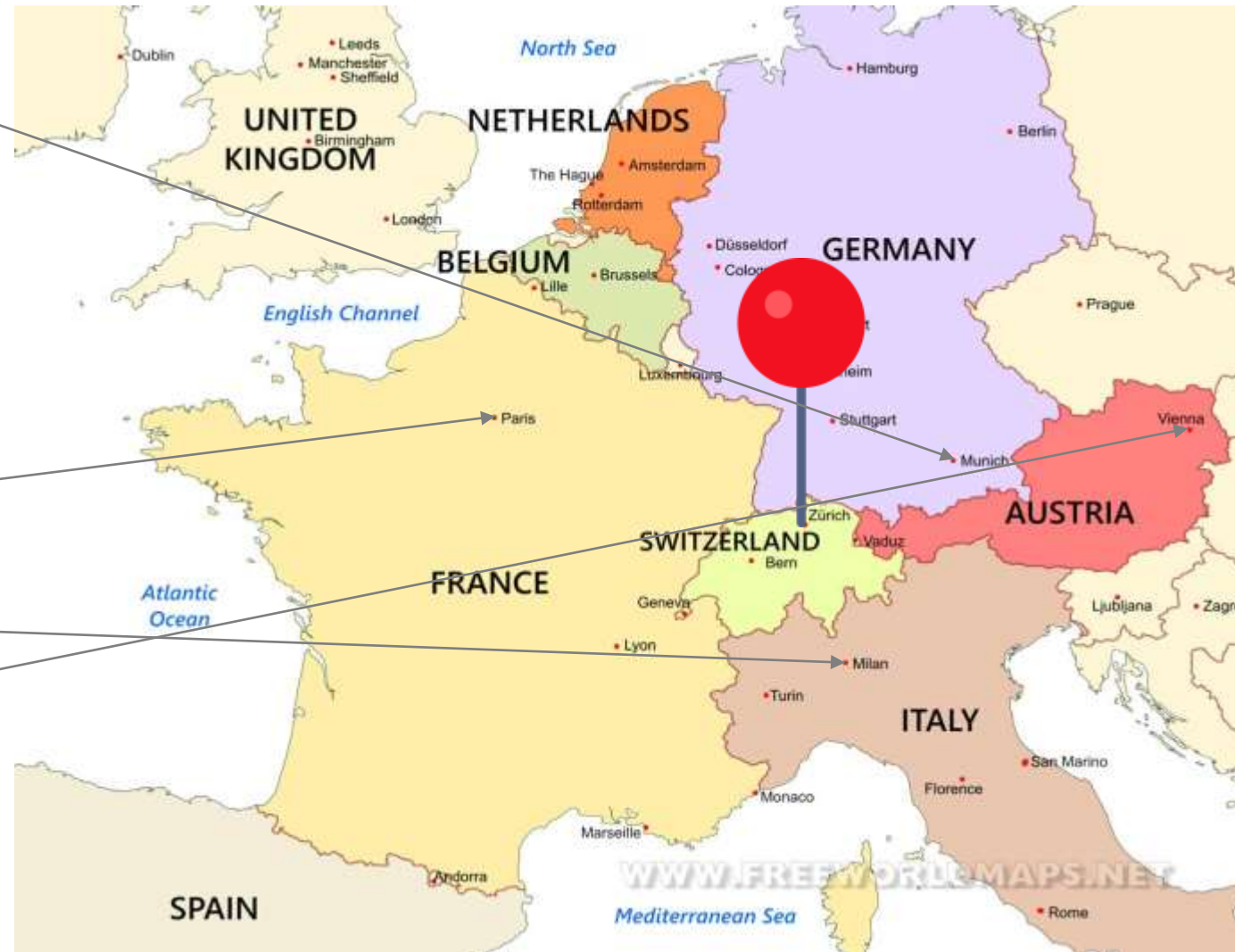
Highly recommended  
to experience this at  
least once!

- **Paris (~4h)**

- **Milan (~4h)**

- **Vienna (~8h)**

- ...



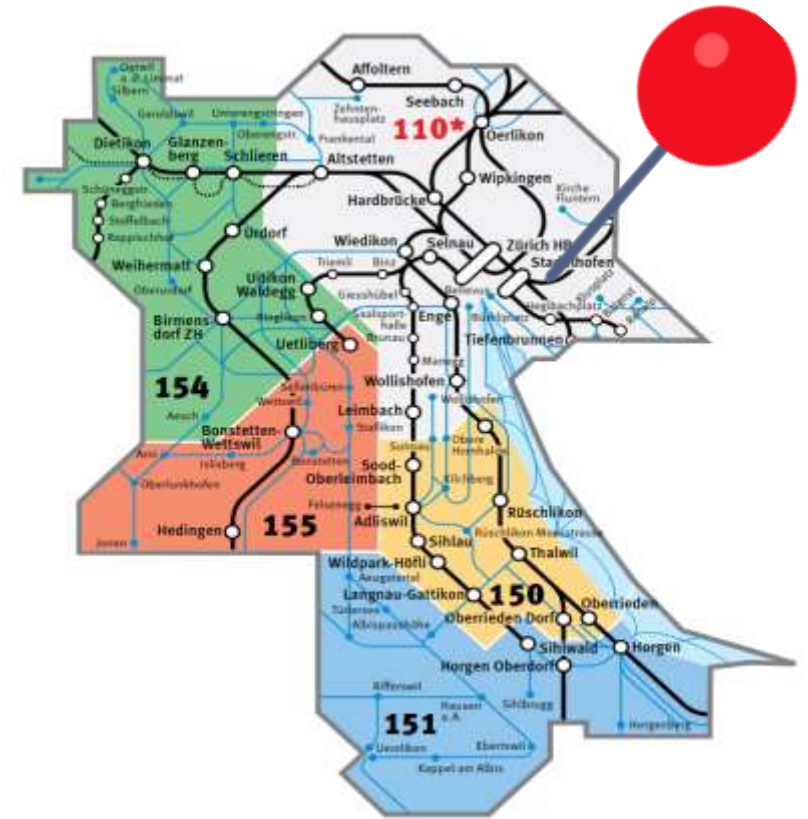
# Exploring – Deals for travelling with trains (SBB)



- SBB “Halbtax”
  - 50% on all SBB tickets
  - 120 CHF/year (100 CHF/year from 2nd year onwards)
- SBB “Night GA” (Best Deal)
  - **Free travel** in **all of Switzerland** between 19.00 and 05.00 (07.00 on public holidays)
  - 99 CHF/year (must be under 25 on the day of purchase)
- SBB “Snow’n’Rail”
  - Train ticket deals + **day ski pass** in selected locations
  - Limited number of tickets released at the **~first day** of each month (~December – April)
- SBB “Friends Day Pass for Youth”
  - Day pass that can be used by **up to 4 people** (all under 25) for 80 CHF

# Getting Around in Zurich

- Public Transport on the ZVV grid
  - Zone 110: **63 CHF/month, 568 CHF/year** ==> Expensive
- PubliBike (Bike Sharing for regular and e-bikes)
  - Student Deal: **70 CHF/year**
- ETH e-Link (Bus between ETH campuses every 10-20 minutes)
  - **Free** for students (~16 min. itinerary)



**Tip:** How to make it cheap?



Das GA Night: freie Fahrt ab 19 Uhr für 99 Franken im Jahr.



ETH e-Link  
(free)



SBB Night GA  
(99 CHF/year)



PubliBike  
(70 CHF/year)



**169 CHF/year**

# Activities in Zurich

*BQM in Spring*

*Zurich is **very expensive**, so the best activities include **being with friends** and **being outdoors***

- Take advantage of the Lake and River **to swim** whilst it's still warm
- Don't buy (many) drinks at bars or parties ==> **Pre-drink at home**
- ...with a few exceptions:
  - **bQm** (ETH uni bar central campus)
  - **Alumni Lounge** (ETH uni bar @ Höngg campus)
  - A select few bars in Zurich, e.g. "**El Lokal**", "**Bierwerk Züri**"
- Wednesdays: **free entrance** to some museums (e.g. Kunsthaus)
- Thursdays: Student night in Zurich; **reduced/free** entry to most clubs
- Other activities: **Escape rooms**, **Laser Tag**, **Cinema** (discount!)
- VIS events (more on this soon!)

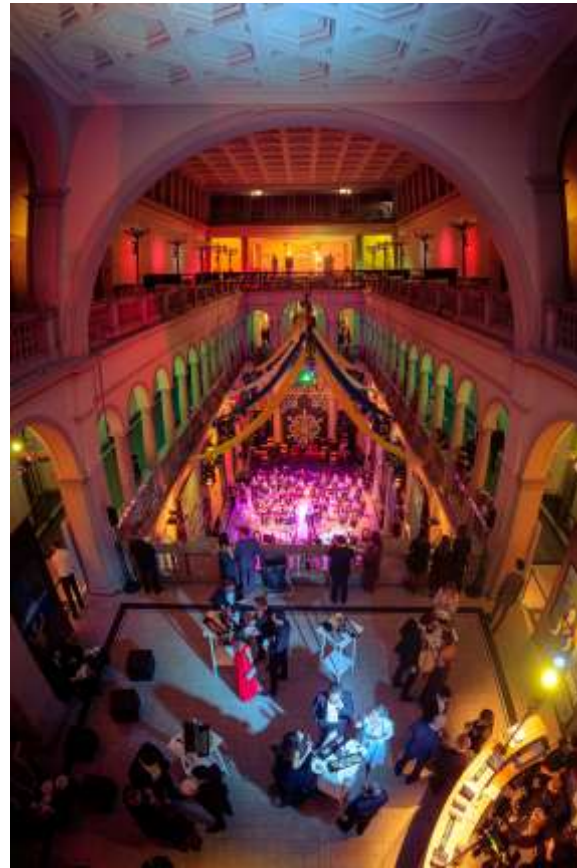


# Some Festivals / Occasions in and around Zurich

Erstifest (Fresher's party)



Polyball (student prom)



Street Parade



Christmas Market



and many more...

# Mobile Apps you should download (non-exhaustive list)

**SBB**

Trains & Schedules



**ZVV**

Public Transport



**ETH App**

Event Info, News



**ASVZ App**

Gym & Sports



**Mensa**

Daily Student  
Restaurant Menus



**Too Good to Go**

Cheap Surplus food from  
Restaurants & Grocery shops



# A few useful resources (non-exhaustive list)

- 2024 Master student WhatsApp group
- D-INFK Discord server
- CourseReview website
- Analytics Club
- VIS Website

D-INFK Discord server



<https://discord.gg/Aeg9TwbQ>

Course Review



<https://n.ethz.ch/~lteufelbe/coursereview/>

Last, but not least,  
let's talk a bit about ETH...



# ETH Vocabulary: VIS



- VIS = Verein der Informatikstudierenden
- In English: Student Association of Computer Science Students
- To become member: Select to pay small fee when enrolling in a new semester
- **Lots** of events, especially during the semester
- **Free** coffee or beer **once per day** (for members)
- MoEB - events for Master ohne ETH-Bachelor (MoEB) students -> most of you!



<https://vis.ethz.ch/en/>

# ETH Vocabulary: Legi

"Legi" (aka Student card)



- 24hr building access: CAB, CHN, HPH, HCI, ...
- Using printers
- Claiming discounts at student restaurants
- 1 **free** coffee OR beer per day @ CAB E32 (for VIS members)
- Must be validated at the beginning of each semester

A validation terminal in Hongg



# ETH Vocabulary: ASVZ

Sports association for

ASVZ @ ETH Höggerberg



## Volleynight

22. November 2024

The traditional ASVZ tournament guarantees a night full of game and fun. In the three categories FUN, AMATEUR and PRO, a total of 1,600 players fight: about points - so the competition is offered for each level of the appropriate competition.

Registration start: 16. September 2024

sports  
all, gym)

fees

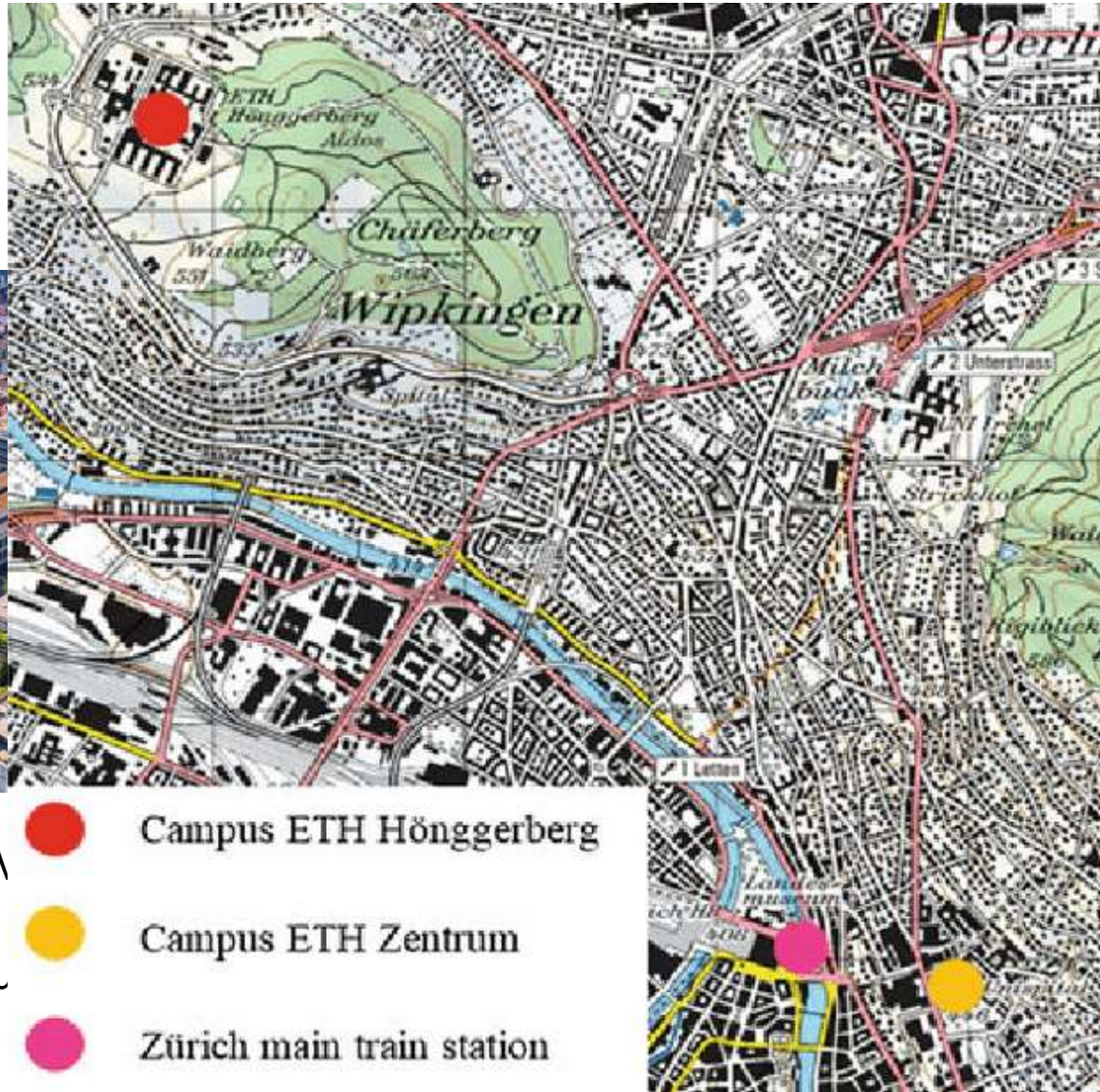
ASVZ



- Many locations: Zentrum, Hongg, Irchel, Winterthur, ...
- Various events during semester

# ETH Vocabulary: Zentrum vs Höngg




ETH Zentrum



ETH Hönggerberg



- ASVZ Polyterrasse & ASV
- CS, Math, Earth Science,
- Pretty much where all you

-  Campus ETH Hönggerberg
-  Campus ETH Zentrum
-  Zürich main train station

Höngg  
Chemistry, ..., buildings  
ounge

# Tips about your studies @ ETH: Courses & Exams

- **Enroll for more** courses than what you want/need ==> **deregister later** from unnecessary ones
- Pro tip: Attend **first** the **core** and other mandatory courses
  - **Core courses** help you develop **fundamental math skills** that might be needed later
  - **Do** the DS Lab, SiP & Seminar **ASAP** ==> in the 3rd semester you will have **pure freedom**
- Select **carefully** your teammates for projects. Make sure your **goals align**
- Check the **course review website** to gather useful info about courses. **Ask past students** as well!
- Some courses are **heavily theoretical**. Make sure to know what you're getting yourself into!
- Exam dates are published late ==> Can't really plan vacation in advance :(

# Tips about your studies @ ETH: Workload

- Two years is the **minimum** time to finish the MSc DS
  - Average study duration is > ~2.5 years ==> **Don't panic** if you end up needing an extra semester
  - Studies can be extended by at most 2 years
- Let's talk **ECTS**:
  - 30 ECTS is a **very good recommendation**
  - >30 ECTS is doable, but it's **likely going to be hard**
  - >>30 ECTS is tough, and you may have to sell your soul to the devil
  - An empirical rule of thumb: 1 ECTS  $\approx$  40 hrs of workload
- **Work-life balance?** Can be good, but you need a plan!
  - Plan carefully your schedule
  - **Try to save 1 day** per week for non-school related activities
  - While having a plan is good, don't overfit to it. Remember to **be spontaneous**. It's part of our nature :)
- Make sure to **allocate time for other activities** (sports, gym, netflix & chill, trips, ...)

# Tips about your studies @ ETH: Funding your studies

- Teaching Assistant (TA)
  - Perform well in a course ==> Chances are you'll be accepted for TA next year (if you apply)
  - ~30 CHF/hr (can work up to 15hrs/week during semester and 41hrs otherwise, with **Permit B**)
- Research Assistant (RA)
  - Have research experience in a topic? Check out various lab's pages and reach out to PhDs!
  - Usually a natural extension of a research project that went well
  - Same rate as TA
- ETH Junions
  - Link between ETH students and industry. Job openings are sent via email
- Student labs/groups, e.g. AMZ Racing
- Start-ups / ETH spin-offs: Always looking to bring in young talent!

# Tips about your studies @ ETH: Where to study?

Well, anywhere you like! -- **It's up to you** to discover the places you enjoy the most :) A few personal favorites:

ETH Bibliotek



CS Library






UZH Law Library

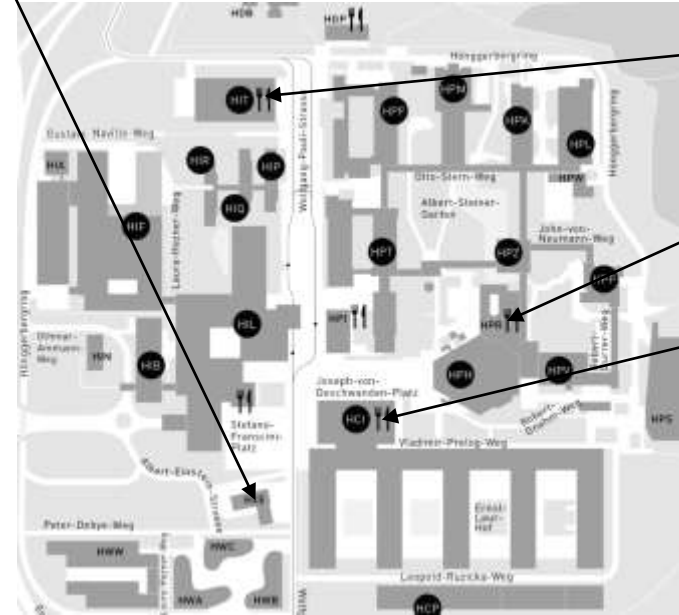
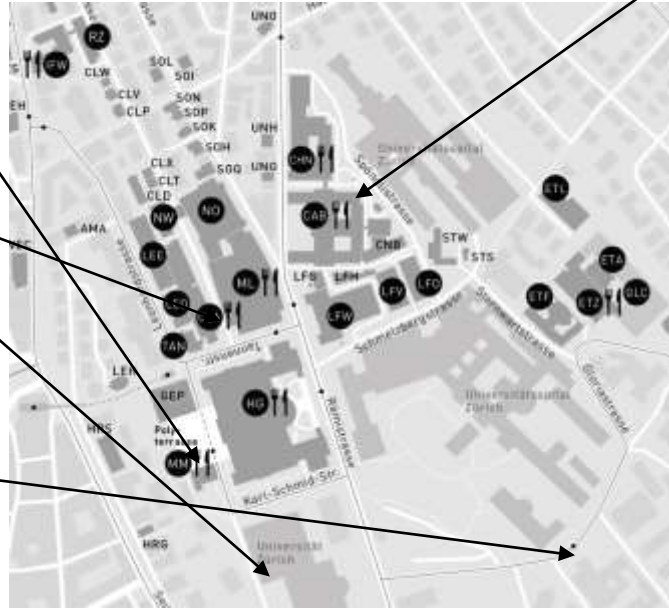






# Where to Eat



- Poly-Mensa 
- Clausius
- Uni-Mensa (x2) 
- Platte 

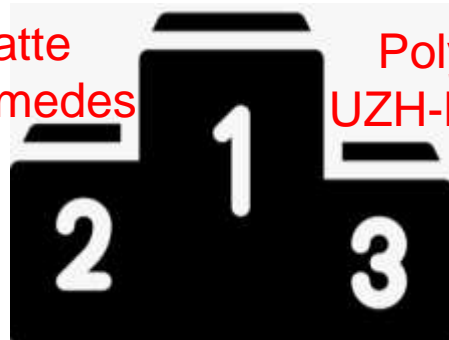


- Rice-Up 
- Food-Market
- Fusion

 *DAILY Vegan Option (Vegetarian option always available everywhere)*

- We receive student prices in all canteens of ETH as well as UZH
- UZH-Mensa is a bit cheaper

Rice up  
Food Market



Platte  
Archimedes

Poly-Mensa  
UZH-Mensa etc.

# Imposter Syndrome

- **Everyone** in this room deserves to be here!
- Getting Impostor Syndrome is **natural**, and **everyone** feels it at some point
- **Do not** compare yourself to others
  - Different backgrounds ==> different skills. **It's fine**
  - **Different workload**
  - Don't choose courses based on what peers are choosing
  - Your **only reference point** should be yourself from the day before
- When you feel down, you might not be thinking clearly
  - **Talk about it!** Family/friends can help you feel better



# Last, but not least...

Friendly reminder: **Cut some slack to yourself!**

It's **understandable** that you may want to become the best possible version of yourself.

That's probably why you chose to come here in the first place :)

But make sure to not **lose your true identity** during the process

Once in a while, try to:

- Take a step back to reflect on **what makes you happy**
- **Try out new things!** Get out of your comfort zone

The memories you create here will be **far more valuable** than a good grade in a course :)

# Have a Great Start at ETH and in Zurich!

Credits to **Sven Gutjahr & Tiago Hungerland** for providing last year's slides template.



# CSNOW

Network of Women in Computer Science



Mentoring

Social  
Events



Career  
Events



WhatsApp channel:



Newsletter:



<https://csnow.inf.ethz.ch/>





# Association of Computer Science Students at ETH

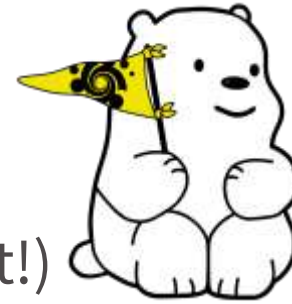
**Your Student Association; from Students, for Students**

Jonas Blank  
Präsident

Simon Ebner  
Vize-Präsident



# Who we are



- Students like you (+ Björn, our polar bear mascot!)
- Volunteers, who want to do fun stuff alongside their studies
- Kind people, who will stand up for you!



# Important Events the Fall Semester 2024

- 20. - 22.09. Master Welcome Weekend
- 24.09. VIS4U
- 26.09. VSETH Erstsemestrigenfest (ESF)
- 30.09 VIS General Assembly (GA)
- 4. - 6.10. Björn CTF
- 12.10. VIScon
- 26.10. Halloween Dinner
- 29.11. FIGUGEGL
- 7.12 VIS ESF
- 20.12 Winterbrunch





# Welcome Weekend



55  
CHF

September 20-22.



20.09.2024



# Mentoring Event



*Find your Mentor & Mentee!*





# SNOW DAYZ 2022

12. - 19. February  
Lenzerheide GR  
[www.vis.ethz.ch](http://www.vis.ethz.ch)

ergon  

# Foxtrail

31. März, 5.-




Gruppe 3  
14:20 Uhr



# VISKAS

12.05.2023  
18:00  
Katzensee

sponsored by  
**ergon**

VIS  
only

FREE  
Food & Drinks  
Swimming




## Beer Tasting

**11.3.22** 17:30  
**CAB D21** CHF 10



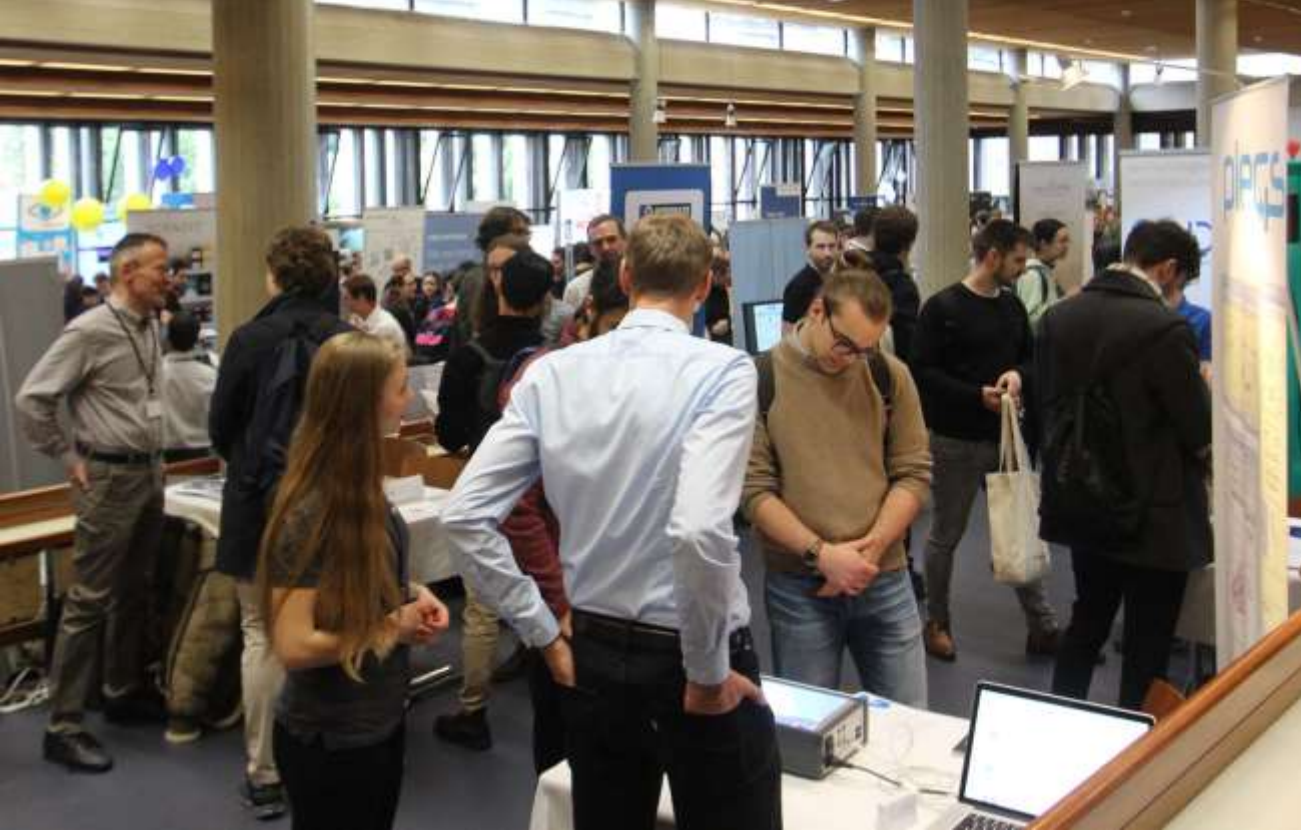
Roche

VIS  
Summer Brunch

VIS  
COFFEE

May  
31st







# VISIONEN – our Magazine

Will soon arrive in your mailboxes!



# Common Room – free Coffee and Beer





# Exam Collection (exams.vis.ethz.ch)

Community Solutions

HOME SCOREBOARD MORE SEARCH ACCOUNT

**Master**

**Biotechnology**

**Mathematical Modelling for Bioengineering and Systems Biology**  
Exams: 0 / 1  
Answers: 0 %

**Computational Biology and Bioinformatics**

**Computational Biology**  
Exams: 0 / 17  
Answers: 0 %

**Computational Statistics**  
Exams: 0 / 1  
Answers: 0 %

**Computational Systems Biology**  
Exams: 0 / 3  
Answers: 0 %

**Computer Simulation in Chemistry, Biology and Physics**  
Exams: 0 / 2  
Answers: 0 %

**Data Modelling and Databases**  
Exams: 10 / 13  
Answers: 81 %

**Evolutionary Dynamics**  
Exams: 0 / 8  
Answers: 0 %

**Mathematical Modelling for Bioengineering and Systems Biology**  
Exams: 0 / 1  
Answers: 0 %

**Numerical Methods for CSE**  
Exams: 24 / 30  
Answers: 80 %

**Spatio-Temporal Modelling in Biology**  
Exams: 0 / 2  
Answers: 0 %

**Synthetic Biology**  
Exams: 1 / 3  
Answers: 0 %

**Computational Science**

**Computational Biology**  
Exams: 0 / 11  
Answers: 0 %

**Machine Learning**  
Exams: 1 / 8  
Answers: 0 %

**Reliable and Trustworthy Artificial Intelligence**  
Exams: 1 / 7

Community Solutions

HOME SCOREBOARD MORE SEARCH ACCOUNT

**B (3 points)**

The bytecode verifier is more permissive than the Java type system. Add **one line** of code to the body of the method `multiply`, such that the method does no longer compile due to a type error. However, the corresponding updated bytecode should still successfully verify using the type inference algorithm, assuming that `MS = 2` (maximum stack size) and `MR = 5` (maximum number of registers). You are not allowed to define new classes, nor to create new objects.

Write below the additional line and its position (e.g., just before `int result = 0;`). Then briefly explain why the bytecode verifier accepts the modified program.

**Stephan Tschudi** @tschudi · 1 month ago

I suggest adding `int i = 1;` between the return statement and the cycle.

**Philippe Schläpfer** @philippe · about 1 year ago

We can add `result = true/false` anywhere after the declaration of `result` and before return.

**Robin Schmidiger** @robin · 9 months ago

Brief explanation:

In Java bytecode, variables (represented as registers in bytecode) don't have an explicit type. So they can store values of any type.

**Paul Deneot** @paul · 9 months ago

I don't think that the type inference algorithm succeed in this case, if we put `result = true` right after the declaration of `result` then `load` on line 2, 3, 10 will read a boolean type instead of an integer so the verification will fail.

On the other hand, I think that the bytecode will still be verified if we put `result = true` right before the declaration of `result` because it is overwritten by `int result = 0` so we don't risk reading a boolean with `load`.

**Add Answer** **Add Answer**

# University Politics

- We represent your interests with the department.
- Lecture Feedback
- Close contact to Head of Department and Directors of Studies
- Sounding board for new ideas
- Find help for your problems

# How to become a Member

On your myStudies select the VSETH membership under voluntary contributions.

## Voluntary contributions

Note: If membership is selected, the personal and address data required for member administration and other club activities will be forwarded to the respective club.

	Yes	No
Solidarity fund for foreign students (CHF 5.-)	<input checked="" type="radio"/>	<input type="radio"/>
SOSETH membership (CHF 5.-)	<input type="radio"/>	<input checked="" type="radio"/>
VSETH membership (CHF 10.-; for doctoral students CHF 35.-)	<input checked="" type="radio"/>	<input type="radio"/>

**Save**

# Participation is not enough? Get involved!

- Come to the General Assembly (it's held in English)
- Join one of our committees
- Help at events
- Join one of the university politics meetings and participate in the discussion

# VIS Socials

[instagram.vis.ethz.ch](https://www.instagram.com/vis.ethz.ch)



[whatsapp.vis.ethz.ch](https://www.whatsapp.com/group/vis.ethz.ch)

**VIS**

WhatsApp group



## Further Information

- Website: [vis.ethz.ch](http://vis.ethz.ch)
- Ask the board: [vis@vis.ethz.ch](mailto:vis@vis.ethz.ch)
- Ask the MoEB committee: [moeb@vis.ethz.ch](mailto:moeb@vis.ethz.ch)
- Ask your tour guide

# Up next: Campus Tour & BBQ





# Thank you!



**Fachverein**  
Verband der  
Studierenden  
an der ETH