EPFL

# Welcome Day IC Master programs

Prof. Karl Aberer

September 6, 2024
Room CM 1 1

École
polytechnique
fédérale
de Lausanne

# Agenda

- Curriculum
  - Overview
  - Specializations and Minors
  - Courses outside study plan
  - Registration courses, exams, absences, links, …
- Projects
- Mandatory internship
- Master's project (PDM)
- Contacts

# IC Master programs

Computer Science (IN)
go.epfl.ch/master-IN

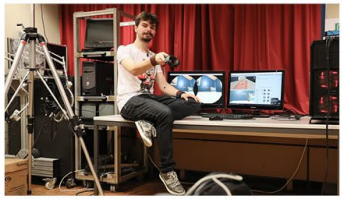
Communication Systems (SC)
go.epfl.ch/master-SC

Data Science (DS)
go.epfl.ch/master-DS

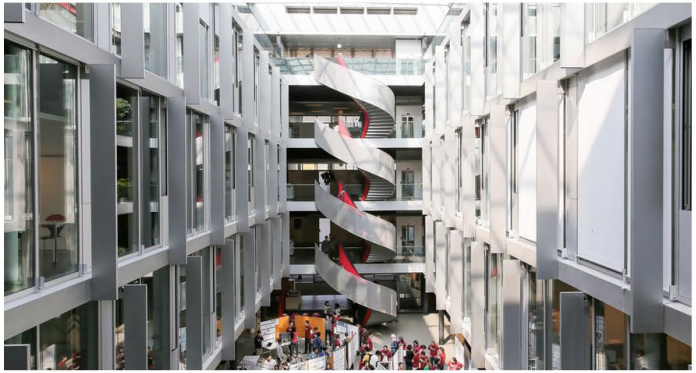
Cyber Security (Cyber)
go.epfl.ch/master-cyber

# School of Computer and Communication Sciences - IC

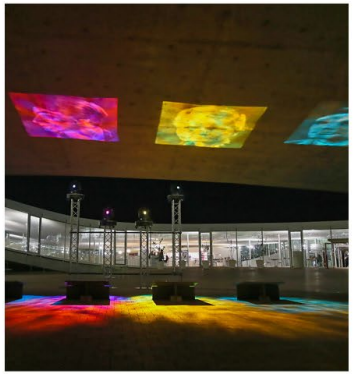
**Master students**
**955**



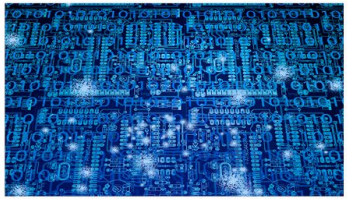
**54+6 joint**
**Professors**



**Bachelor students**
**1493**



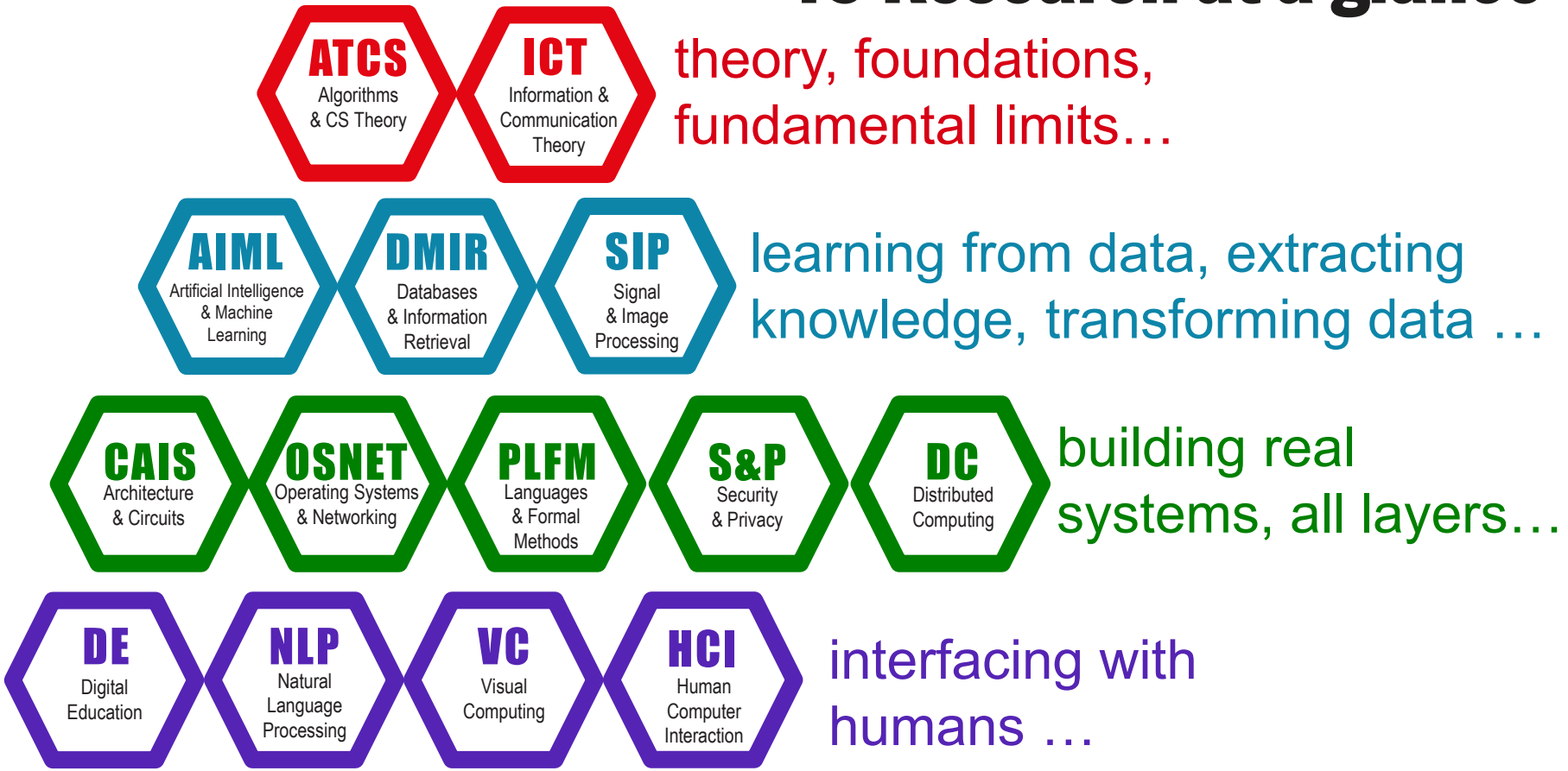
**266**
**PhD students**



# School of Computer and Communication Sciences - IC

- Internationally highly ranked
- 54 (+ 6 joint) professors
- From peer schools
- Internationally recognized
- Strong industrial liaison
- Core + interdisciplinary science: Collaboration with Life Sciences, Mathematics, Microengineering, Electrical Engineering, etc.
- Doctoral program (EDIC)

# IC Research at a glance



# You are about to ....

**Join a fantastic peer group of students**: take full advantage, make friends, form study groups, network, enjoy the diversity!

**Interact with renowned and the next generation of scientists**: take full advantage, ask questions, challenge their thinking!

**Get a great chance to learn and prepare for life**: explore new fields, learn new concepts, think outside the box!

**Explore your abilities and push your limits**: in your classes, in your projects, in your extracurricular activities!

**Make a unique contribution**: through your projects and personal interactions!

# Curriculum

# Our four Master programs

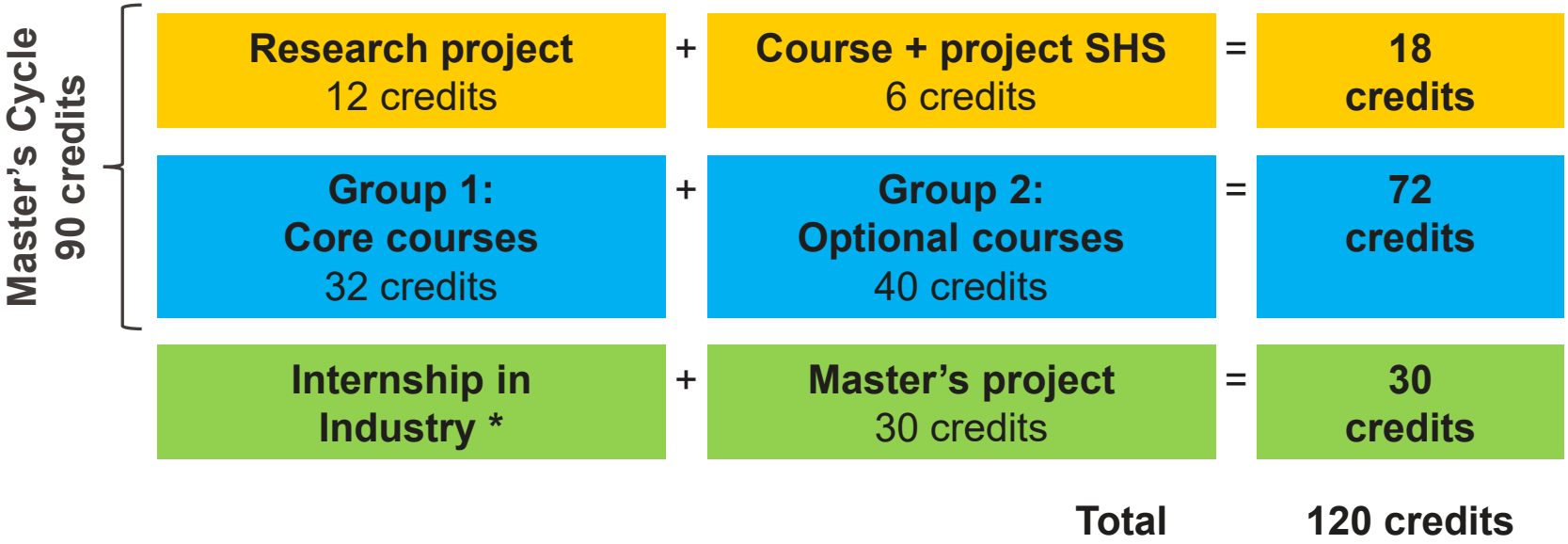
- Our 4 Master's are **designed to be flexible** to allow students to tailor their courses to their ambitions.
- The main difference between the 4 Master's lies in the **choice of Group 1 (Core)** courses.
- The choice of **Group 2 courses (Options)** is very similar across the 4 Master's.
- For Cyber Security, the **depth requirement** must be fulfilled.

| Group 1 – Core courses (min. 32 credits) | IN | Cyber | SC | DS |
|---|---|---|---|---|
| Advanced computer architecture | 8 | 8 | | |
| Advanced probability and applications | | | 8 | |
| Advanced topics on privacy enhancing tech. | | 8 | | |
| Algorithms II | 8 | 8 | 8 | 8 |
| Applied data analysis | | | | 8 |
| Cryptography and security | 8 | 8 | 8 | |
| Decentralized systems engineering | 8 | 8 | | |
| Distributed algorithms | 8 | 8 | 8 | |
| Foundations of Data Science | | | | 8 |
| Foundations of software | 8 | 8 | | |
| Information security and privacy | 8 | 8 | 8 | 8 |
| Information theory and coding | | | 8 | |
| Machine learning | 8 | 8 | 8 | 8 |
| Mobile networks | | | 8 | |
| Modern digital comm.: a hands-on approach | | | 8 | |
| Modern natural language processing | 8 | | | 8 |
| Optimization for Machine Learning | | | | 8 |
| Statistical signal and data processing through apps. | | | 8 | |
| Statistics for Data Science | | | | 8 |
| Systems for data management and data science | 8 | 8 | | 8 |
| TCP/IP networking | 8 | 8 | 8 | |
| ETHZ courses counting as breadth requirement | | X | | |
| **Minimum 32 credits** | **~32** | **~32** | **~32** | **~32** |

# Tips to build your study plan …

- **Review course offerings** (this takes time, but you must do it). Go see the courses in Week 1 and then decide (don't wait until Week 10 to make your choice). Choose courses that interest you!
- **Ensure you have enough credits in the different groups** / where you need to take them.
- Decide if you want to do a **minor or a specialization** (not mandatory).
- Master's cycle **over 3, 4, or more semesters**?
- **Cyber Security students**, when do you want to do your exchange semester at ETH Zurich?
- Create a **study plan to distribute your courses, projects, and your mandatory internship** over the semesters.
- **Adapt your study plan as needed**. Remain flexible and adjust your plan to accommodate new opportunities or challenges.

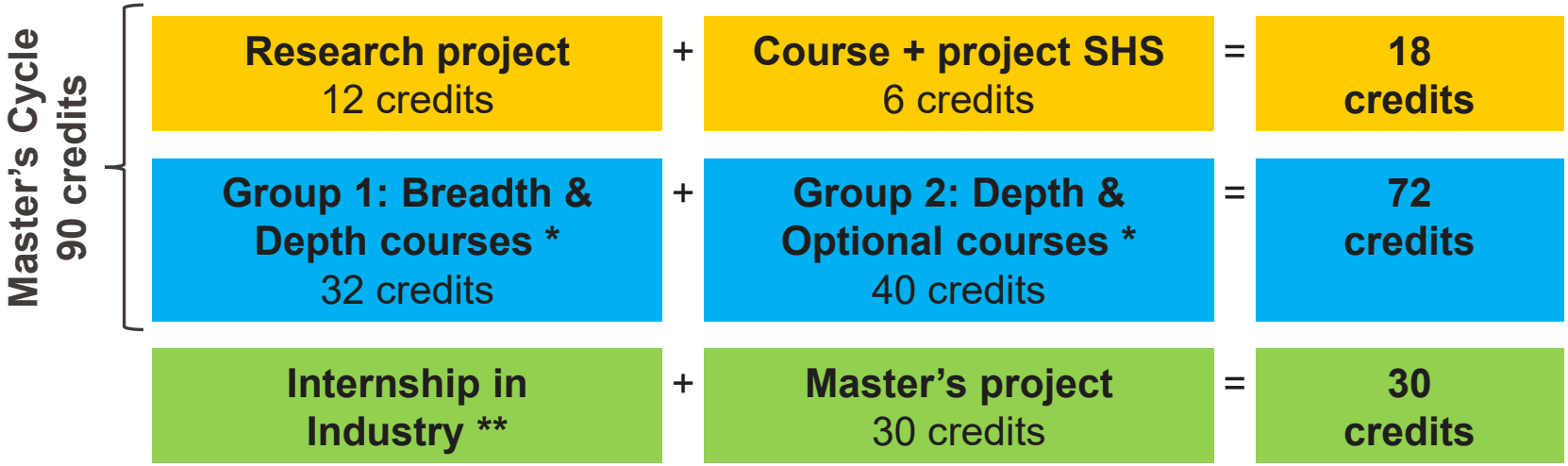
# Structure Master IN, SC, DS




* The internship can also be combined with the Master's project.

- **IN-SC:** Specialization or minor possible (30 credits included in the 72 credits of courses).
- **DS:** Minor possible – no specialization (30 credits included in the 72 credits of courses).

# Structure Master Cyber




**Total** **120 credits**

* To satisfy the "depth requirement" at least 30 of the 72 credits must be tagged "depth" (security courses), which may be part of Group 1 or 2 and may be taken at EPFL or ETHZ.

** The internship can also be combined with the Master's project.

- The research project and the master thesis must be in the field of cyber security.
- No specialization or minor possible.

# Master Cyber Security: exchange semester

- Students must pay rent for their housing during their exchange semester in Zurich.
- Students will receive a stipend of CHF 2,500.- to help cover housing costs for their semester in Zurich.
- Students planning their exchange in Zurich during the **spring semester** can benefit from pre-booked accommodation. For the **autumn semester**, there is no pre-booked accommodation, and students must search for housing on their own.

| | |
|---|---|
| **EPFL** | • **1st semester mandatory in Lausanne** |
| ETHZ | • One semester in Zurich<br>• 20 credits min.<br>• 35 credits max. |

Course listings for
EPFL – ETHZ accessible at:
go.epfl.ch/master-cyber

# Choice and duration of the Master's program

- **Change to another IC Master's program (IN, SC, DS, Cyber)**
  - You have been admitted to a specific Master's program for which you have enrolled. It is possible to switch to another program (e.g., IN => DS; SC => Cyber) **until the end of the 1st semester** for the following September, **subject to submission of an online application** (deadlines: December 15 or March 31).
- **Maximum duration of the Master's program**
  - For the Master's cycle (before the Master's project): **6 semesters (90 credits)**
  - For the Master's program (including the Master's project): **8 semesters (120 credits)**
- **A six-month internship during a semester does not count towards the maximum duration of 6 semesters.**
- **A semester "off" is not permitted during your Master's cycle**, except in special cases (e.g., medical reasons). If exceptionally approved for other personal reasons, the semester will count towards the maximum duration of the Master's cycle.

# Minors

- Minor group of obligatory or optional courses offered by another section.
- Equivalent to 30 ECTS substituting 30 ECTS in Group 2 (options).
- IC Master students cannot enroll in the IC minors (IN, SC, DS, Cyber).
- Only exception: DS students who can enroll in the Cyber Security minor.
- Cyber Security students cannot enroll in a minor.
- Deadline to register is the end of **1st semester** of Master's cycle.
- **Think carefully about your choice of a minor,** as there may be implications with recuperating credits if you decide to drop the minor later.

**Some examples:**

- Computational Biology
- Computational Science & Eng.
- Cyber Security (DS only)
- Engineering for Sustainability
- Financial Engineering
- Imaging
- Management, Technology & Entrepreneurship
- Mathematics
- Neuro-X
- Quantum Science & Eng.
- *and many more …*

**More information:**
**go.epfl.ch/IC-master-minors**

# Specializations

- A specialization is a combination of courses that allows a student to pursue a particular aspect of interest in their field of study.
- Equivalent to 30 ECTS acquired from Group 1 (Core) and/or Group 2 (Options) courses in the chosen specialization.
- IN and SC can choose **either** a specialization or a minor. DS and Cyber students **cannot enroll** in a specialization.
- Students can enroll in only **one specialization**.
- Deadline to register is the **end of the 1st semester** of the Master's cycle.

## List of specializations:

- Computer Engineering
- Computer Science Theory
- Cyber Security
- Data Analytics
- Foundations of Software
- Internet Information Systems
- Networking and Mobility
- Signals, Images and Interfaces
- Software Systems
- Wireless Communications

**More information:**
go.epfl.ch/IC-master-specializations

# Entrepreneurship

go.epfl.ch/entrepreneurship-training

## During your Master

- **IC Courses**
  - AI Product Development [CS-500]
  - Intro to IT Consulting [CS-491]
- **Minor in Management, Technology and Entrepreneurship**

Students can also take advantage of some of the offerings by the **Vice-Presidency for Innovation and the Innovation Park:**

- Startup Launchpad
- EPFL Changemakers
- Blaze EPFL Startup Accelerator
- Innosuisse Business Concept Training

# Courses outside the study plan

go.epfl.ch/IC-courses-outside-study-plan

- **Number of authorized credits**: 15 ECTS
- CS- and COM- codified courses listed in the study plans of the IC Master's programs are not considered outside the study plan and may be taken without prior approval.
- Students **enrolled in a minor cannot take courses** outside their study plan, except for CS- and COM- codified courses given by IC.
- Refer to the procedure on the webpage.
  - A list of authorized courses is available.
  - For all other courses not on the list, submit a request through the form.
- Please note that you cannot register for courses with limited attendance, as they are not available to students who don't have these courses in their study plan (e.g., many MTE* courses).

* *MTE: Master in Management, Technology and Entrepreneurship.*

# Bachelor courses as admission conditions

- If you need to make up for bachelor's courses as an admission requirement, **priority must be given to these courses.** Be careful not to overload yourself.
- They must be **completed in the 1st year** because your admission to the Master's program is conditional upon the acquisition of these Bachelor's courses.
- These credits **will not count** toward your Master's degree.

# Registration for courses and exams

- **Course registration deadline**
  - Two weeks after the start of the semester in IS-Academia: **September 20, 2024**.
- **Exam registration**
  - Automatic based on your course registrations. **Be careful** if you forget to withdraw and have submitted work during the semester, you will be graded, and the grade will appear on your transcripts.
- **Course and exam withdrawal deadline**
  - For courses with a limited number of participants, no withdrawal is possible after the registration deadline.
  - Last withdrawal from exams (for all forms of examinations – oral, written and continuous assessment): **November 22, 2024**.

# Absence from assessments: Rules

**Justification Required:** Absences from any assessment (midterms, quizzes, homework, final exams, etc.) whether **during the semester** or **during the exam session** must be justified with a medical certificate, birth or death certificate, or training certificate (for elite athletes).

**For continuous assessments during the semester**

- Notify the teacher **ASAP** and submit justification within **3 days.**
- A substitute test may be offered at the teacher's discretion, but **it is not guaranteed.**

**For exams during the exam session**

- Report the absence to the teacher **ASAP** and submit justification to Student Services within **3 days** of the exam date (copy the teacher).
- There are **no deferred exams** for justified absences.

**In both cases**

- You will be graded “M” and you may re-register for the subject and retake the missed test or exam the following academic year. The grading distribution cannot be modified, nor can the missed test or exam be disregarded from the final grade.
- **Note:** If the course evaluation changes, you must **complete all assessments**, not just the one you missed.

*For more details, refer to the SAC page:* ***Subject_Exam_Withdrawal***

# Exam sessions, academic calendar, special arrangements, pass conditions …

- Exam sessions
  - January/February
  - June/July
- There are **no deferred or make-up exam** sessions at EPFL.
- Should you fail a course (grade less than 4.0), you can take the course again the **following year only** or replace it with another course: go.epfl.ch/master-pass-conditions
- Important deadlines and information can be found at: go.epfl.ch/academic-calendar
- Arrangements for courses and/or exams for students with disabilities: go.epfl.ch/arrangements-courses-exams
- Medical certificates go.epfl.ch/medical_certificate

# Projects

# Research project (12 credits)

- The research project (12 credits) can be carried out in any semester of your Master's cycle, but before the Master's project (PDM).
- We recommend that you find a project at the end of the previous semester. Book your project as early as possible. Meet with the professor or the supervisor in charge and define the goals and work to be done.
- If the proposed project is not on the list of authorized labs, an abstract must be submitted to the section for approval.
- Details can be found on the following webpage: go.epfl.ch/IC-master-semester-projects

# Optional research project (8 credits)

- You can do an optional project (8 credits under Group 2).
- This optional project cannot be carried out in the same semester as the mandatory research project.
- If you decide to carry out an optional research project, we recommend to do it after completing the mandatory research project.
- If the proposed project is not on the list of authorized labs, an abstract must be submitted to the section for approval.

# Course and Project SHS (Humanities)

- The SHS program (course + project) takes place over two consecutive semesters. The autumn semester is a preparatory course for the project that takes place in the spring semester. Each semester is worth 3 ECTS, for a total of 6 credits.
- **We strongly recommend that you enroll this September!**
- If some students have difficulties finding a SHS course/project, especially in English, they can contact the SHS administrative team for assistance: scienceshumaines@epfl.ch

# Mandatory internship

# Mandatory internship

## go.epfl.ch/IC-internships

You can do your mandatory internship in one of the following forms:

| | Short | Long | Master's project in industry |
|---|---|---|---|
| **Duration** | 8 weeks | 6 months (100%) * | 6 months<br>(25 weeks + 1 week vacation) |
| **When** | **summer only**<br>15.07-15.09 | **spring**: from 15.02<br>**autumn**: from 15.07 | **spring**: starting Monday between 15.02 and 01.03<br>**autumn**: starting Monday between 15.08 and 01.10 ** |
| **Where** | industry | industry | industry |
| **Supervision** | validation by the Section | validation by the Section | supervised by an accredited IC faculty member |

* Be careful **no courses may be taken in parallel during a long internship**. Students are on a sabbatical leave (status in IS-Academia will be "internship". The tuition fee for this semester is CHF 50.-

** Cyber Security students: starting between 01.09 and 01.10.

# Mandatory internship

- International students must complete a full year before undertaking an internship. Earliest start date: **summer/autumn 2025**.
- You must apply 4-5 months prior to start date. An Information Session is held at the beginning of each semester. **Next date: Tuesday, September 10, 2024 at 16h15 in BC 420**.
- If you intend to pursue a PhD after your Master's, we recommend that you first do an internship in industry followed by the Master's project in a lab at EPFL or at another university.

# Master's Project (PDM)

# Your Master's project

go.epfl.ch/masterproject

| IN, Cyber*, SC, and DS | |
|---|---|
| EPFL | 4 months |
| Industry, other University | 6 months |

**Five possibilities:**

- At EPFL, proposals from labs
- At EPFL, your proposal to a Professor
- In industry
- In other universities

* For Cyber, the Master's project must be in the field of cyber security.

# Master's project (Conditionally)

- You may be authorized to do your Master's project and acquire up to 8 missing credits of courses in parallel. However, this is only possible if you meet the following conditions:
  - You should not be at the end of the maximum duration of your Master's cycle (i.e., 6 semesters of courses).
  - Not possible if you have not completed the mandatory research project (12 credits).
  - If the Master's project is not carried out at EPFL or near Lausanne, the possibility of taking a course in parallel remotely must be discussed with the Section.

# Papers and attendance at conferences

- A research project or optional project done in a lab may give you the opportunity to write a paper related to it. Likewise for a Master's project done in a lab, in industry, or at another university.
- If you have the opportunity to attend a scientific conference to present your work, the costs (registration, travel, and accommodation) may be covered by the section **and** the lab (50%-50%).
- Your paper will be mentioned on the student achievement page: go.epfl.ch/IC-student-publications

# Administrative Contacts

# Your contacts in the sections

**Prof. A.-M. Kermarrec**
Associate Dean for Education

**Prof. Karl Aberer**
Director SC-DS

**Prof. Mathias Payer**
Director IN-Cyber

**Eileen Hazboun**
Deputy, all programs
eileen.hazboun@epfl.ch

**Antonella Veltro**
Master IN
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**Carole Dauphin**
Master SC-DS
carole.dauphin@epfl.ch

**Jasmine Locatelli**
Master Cyber
jasmine.locatelli@epfl.ch

**Patricia Genet**
Internships & PDM IC
patricia.genet@epfl.ch

# Do not forget …

**Our websites with a lot of useful information**

Computer Science:
go.epfl.ch/master-IN

Communication Systems:
go.epfl.ch/master-SC

Data Science:
go.epfl.ch/master-DS

Cyber Security:
go.epfl.ch/master-cyber

Frequently Asked Questions:
go.epfl.ch/IC-master-FAQ

**Be careful …**

- It is your responsibility to read and understand the **rules and regulations** governing your studies at EPFL
- It is also your responsibility to **read your emails.** This is only way we can contact you!

**Registrar's Office (SAC)**

- Please read the emails from the Registrar's Office (SAC) and Student Services.
- They will send you relevant information about your studies at EPFL including the important deadlines.

# Any Questions?

# And last but not least ...

IC Student Association

HELLO WORLD 5

September 26th

SUBSONIC

November 15th

Breakfast

Every month

Le Souper de Faculté

PastIC

*Alors ? On attend pas la CLIC ?*

ICBD

IC B00ST DAY

# Our commissions

Orbital game jam

TRAVEL

GAME STAR

# Follow us on our networks!

agepoly

# Welcome to EPFL!

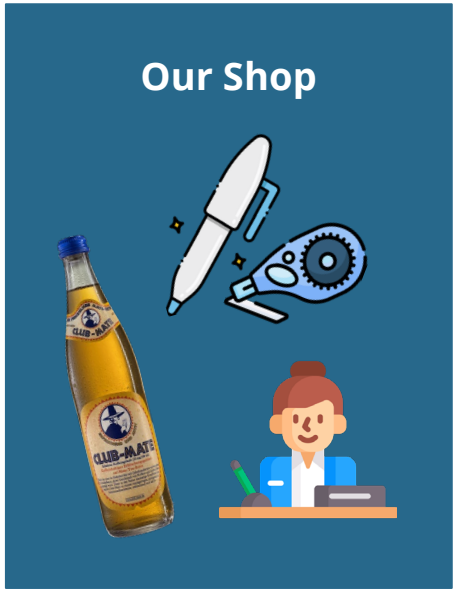
Septembre 6th 2024

# The Student's General Association

**A**ssociation
**G**énérale des
**É**tudiant·e·s de
**l'EPFL**

# Recap on AGEPoly

## What links you to AGEPoly

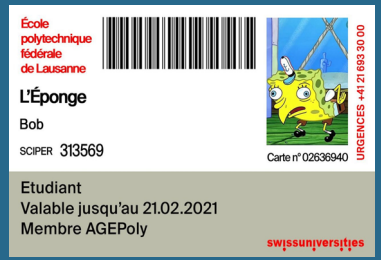


# Recap on AGEPoly

## What links you to AGEPoly

### Our Shop

### Your Camipro




As off now you are an AGEPoly member

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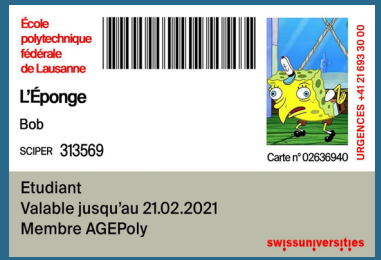


As off now you are an AGEPoly member

### Wonderful people

2 class representatives

# AGEPoly's Structure

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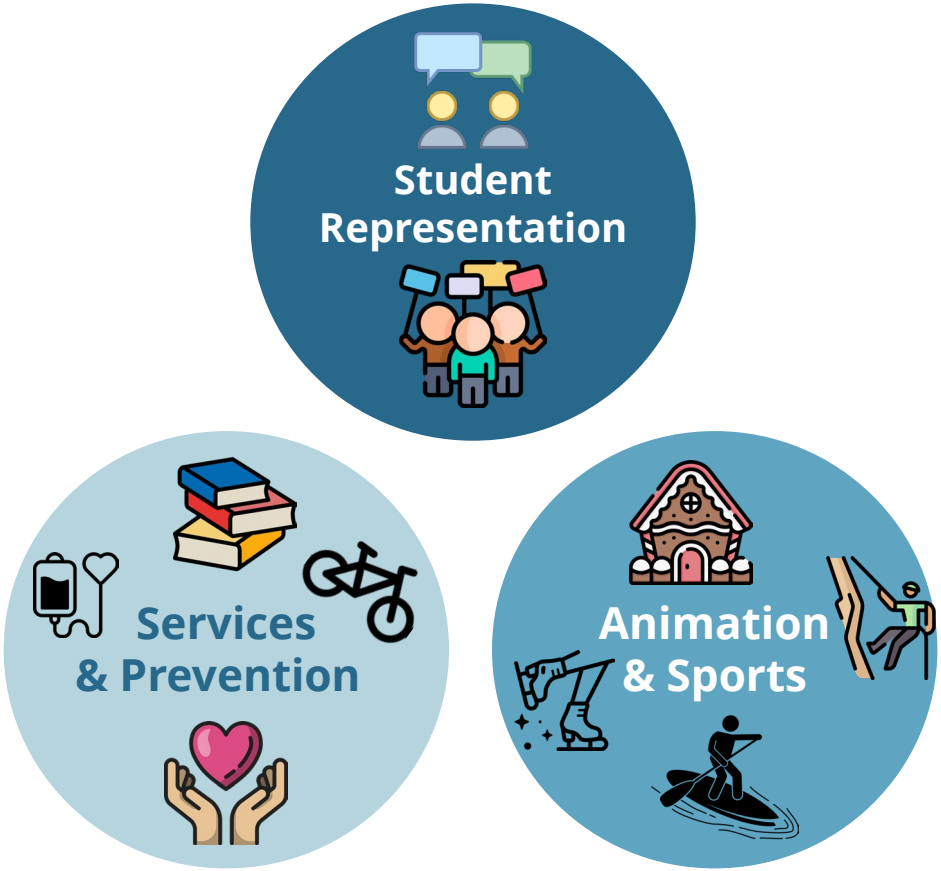

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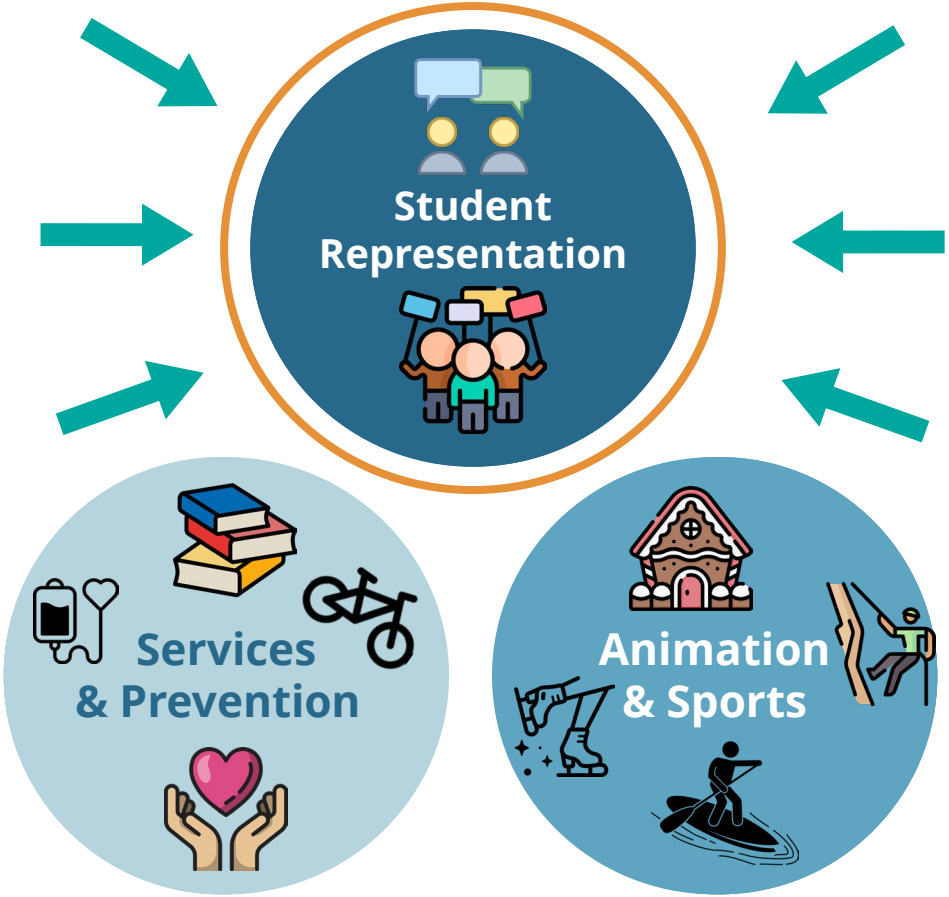

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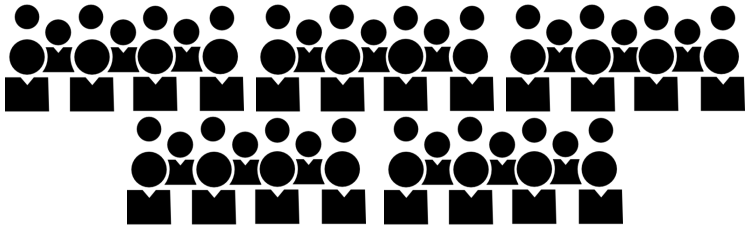

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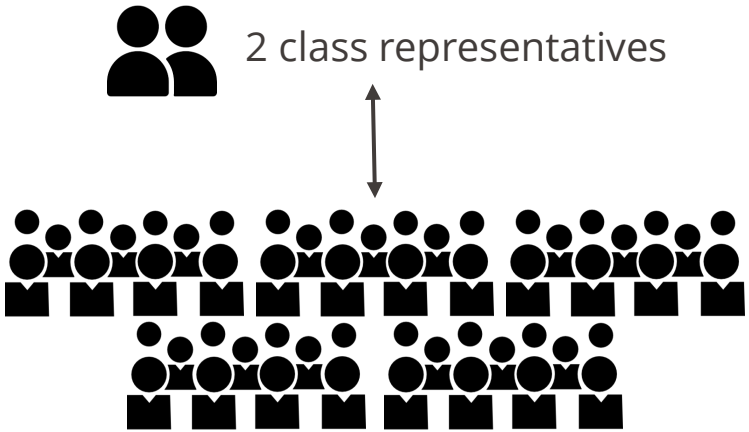

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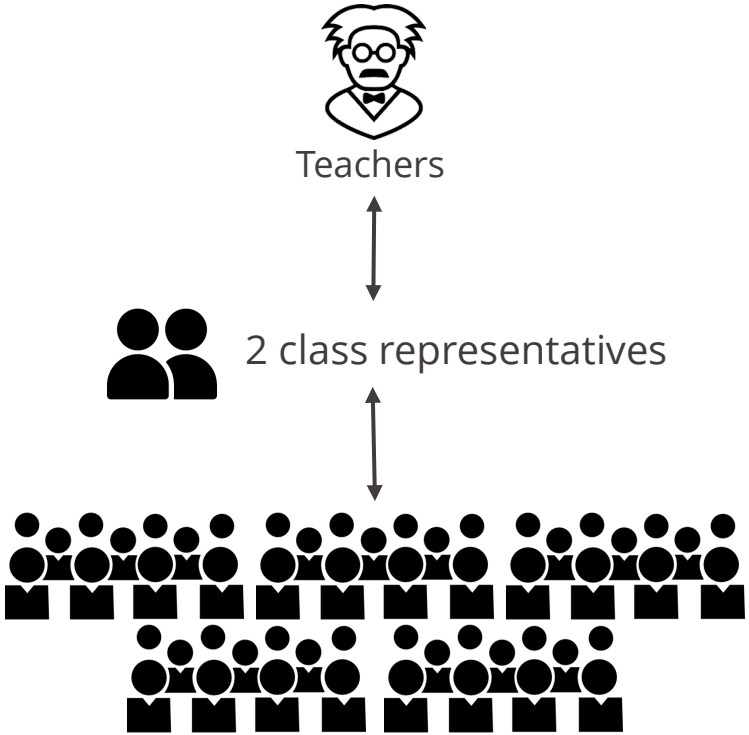

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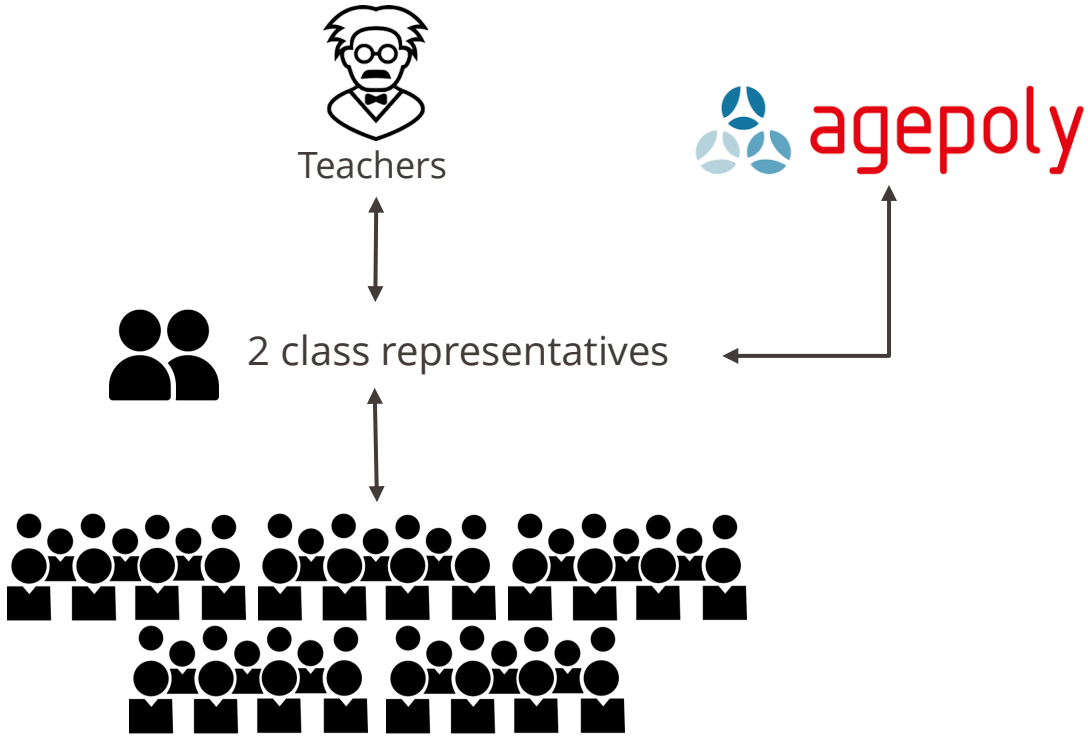

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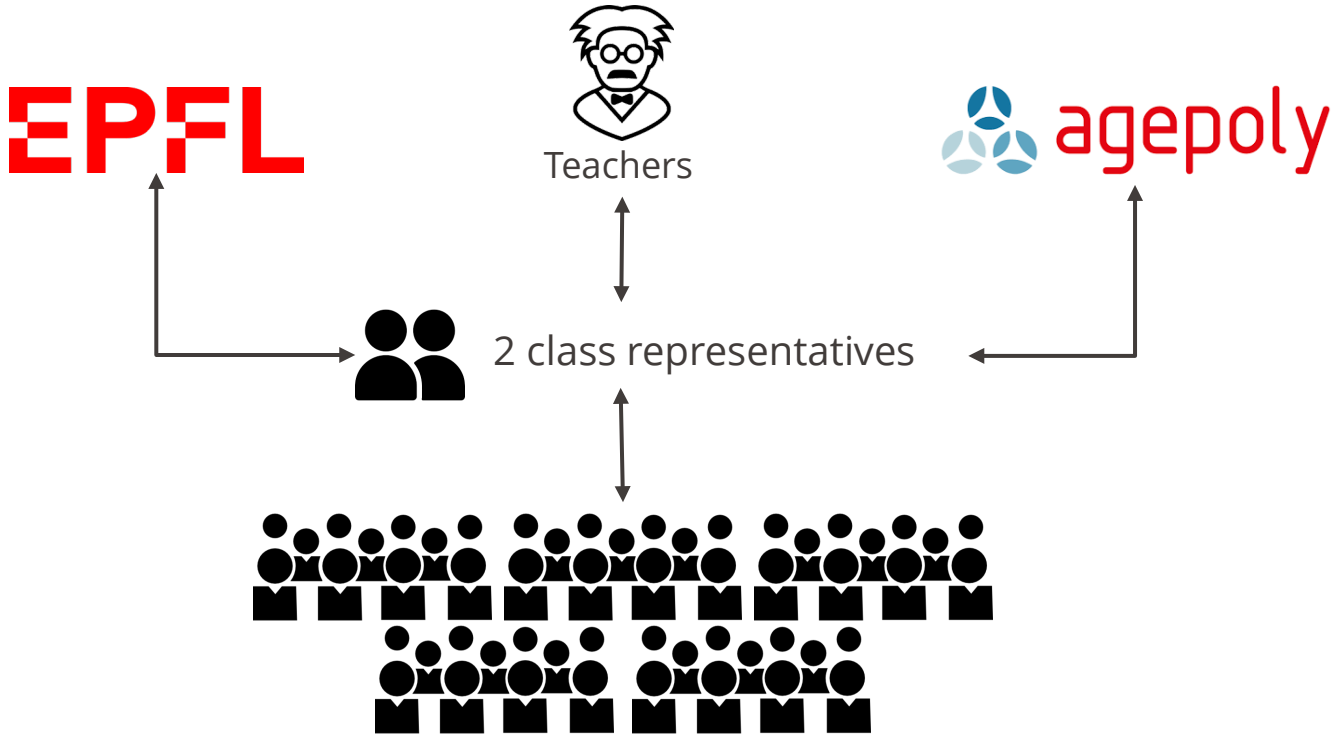

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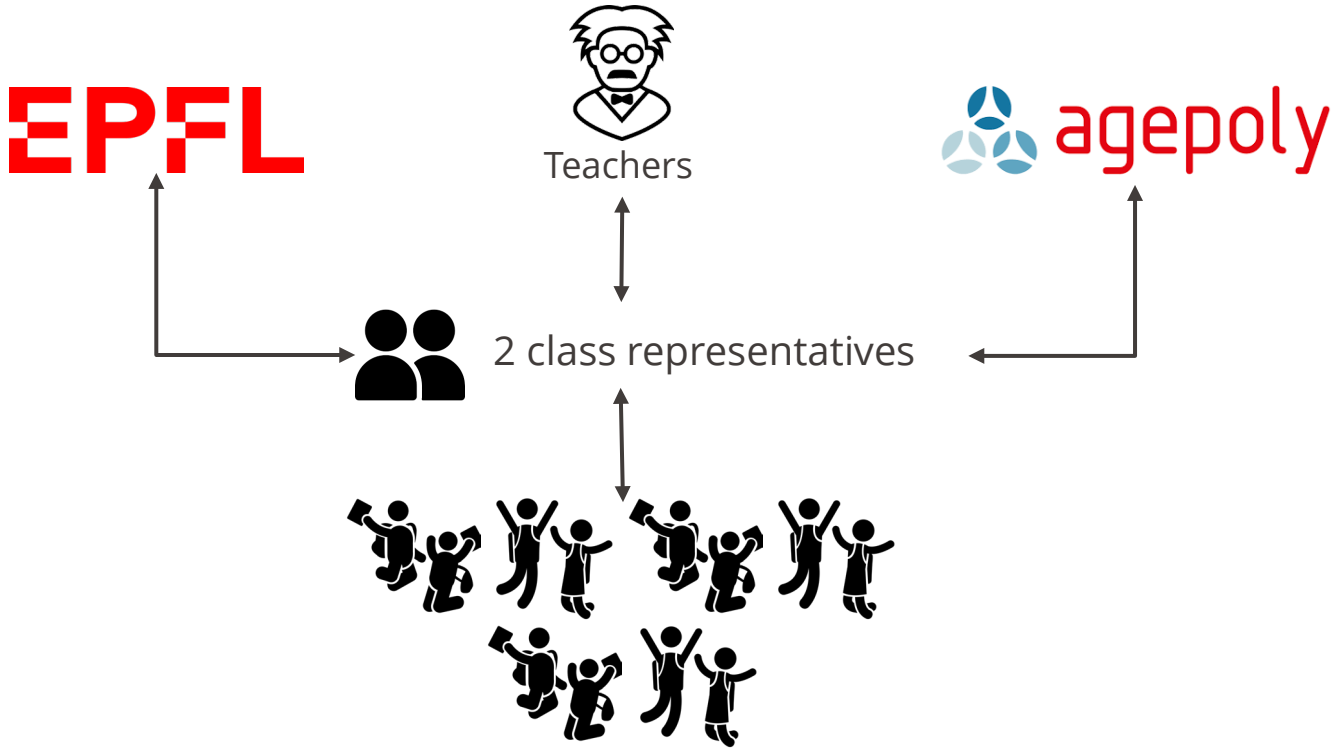

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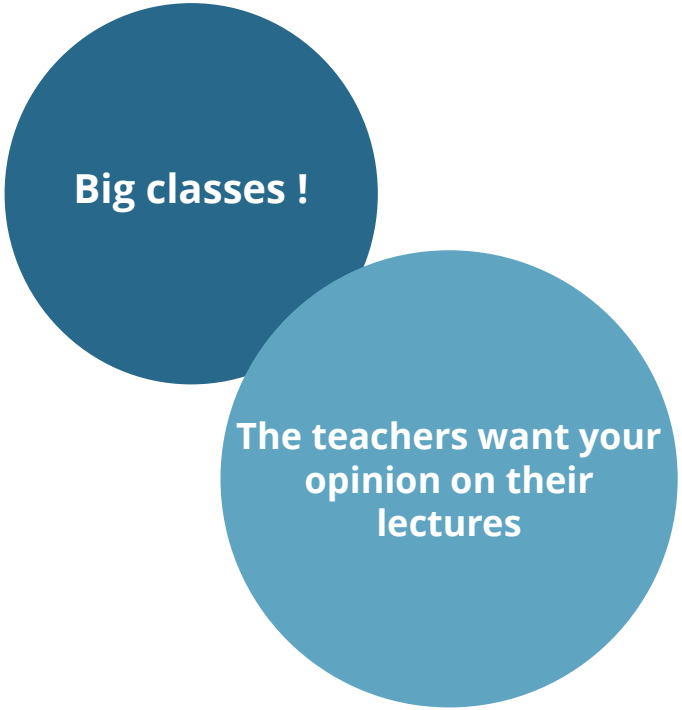

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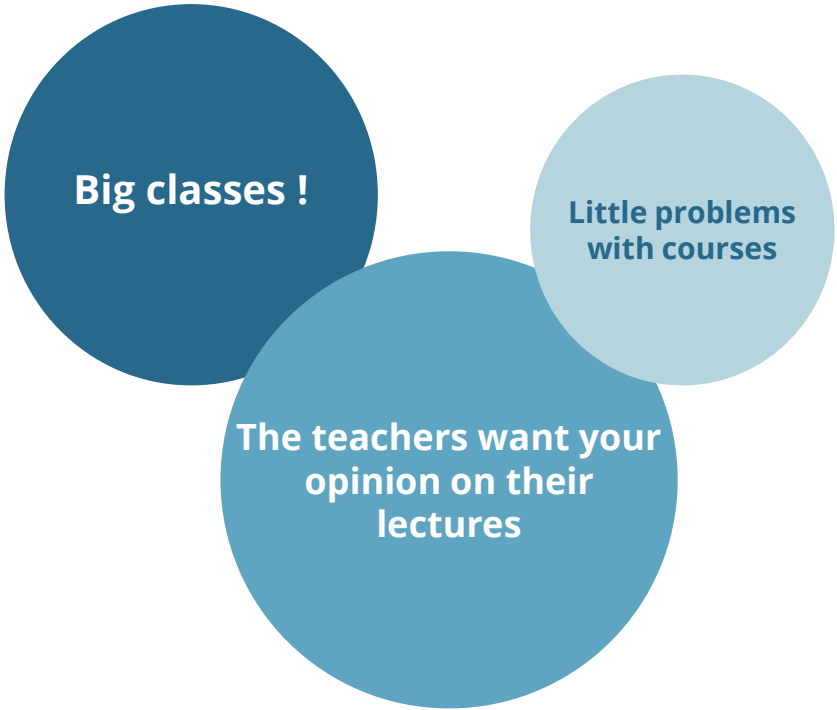
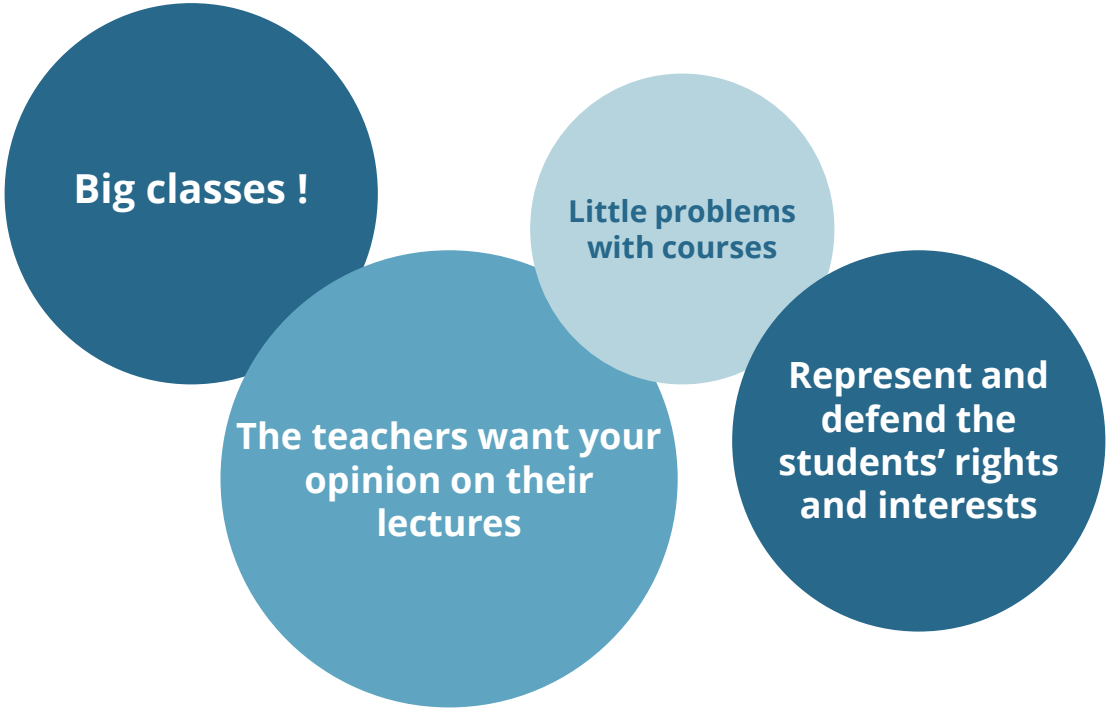
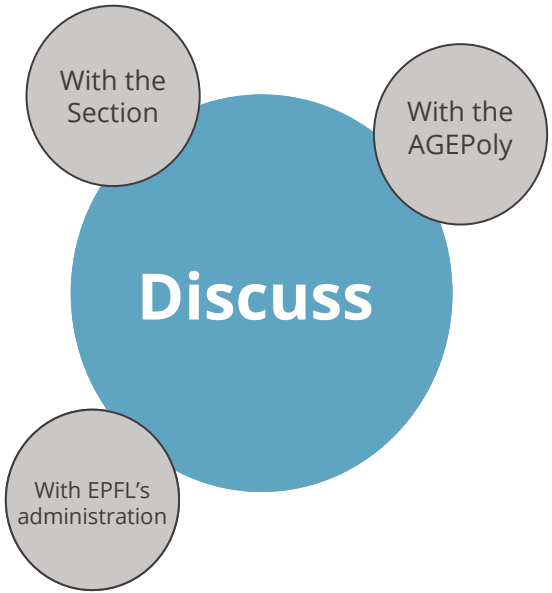


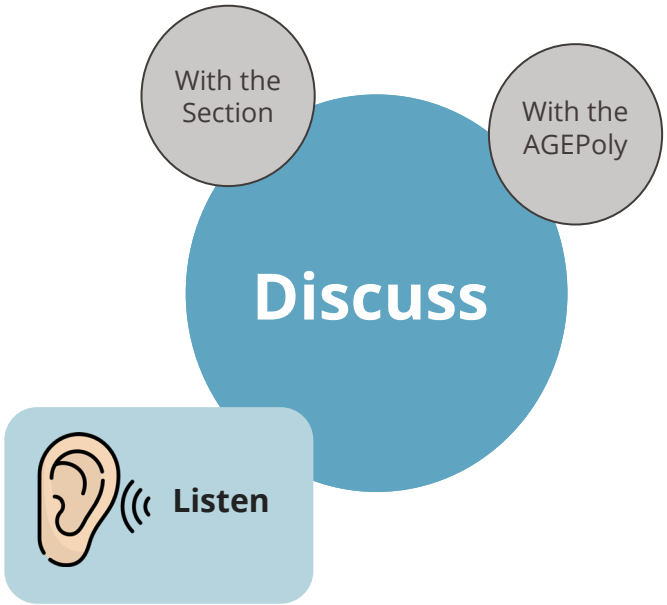
# Why do we need class representatives?



# What do class representatives do ?



# What do class representatives do ?



# What do class representatives do ?

Allow your class' voice to be heard

With the AGEPoly

Discuss

Listen

# What do class representatives do ?

Allow your class' voice to be heard

Relay information

Discuss

Listen

# What do class representatives do ?

Allow your class' voice to be heard

Relay information

Discuss

Listen

Promoting EPFL's values of respect

# More precisely

**Representation training**

**Running polls**
To gather your class' opinion

# More precisely

**Representation training**

**Meetings with EPFL board and your section**

To defend the students' interests

**Running polls**

To gather your class' opinion

**Meetings with other students**

To figure out solutions and find common problems

# Accurately

**Representation training**

**Meetings with EPFL board and your section**

To defend the students' interests

**Super cool projects !**

Changes in the study plan
Break Week
Study trip

And much more!

**Running polls**
To gather your class' opinion

**Meetings with other students**
To figure out solutions and find common problems

**Meet wonderful people !**

Class representatives from other classes and sections
Teachers with great passion, for teaching and research

# Soooo...

A question ?

An issue in a class?

## Soooo...

A question ?

An issue in  a class?

# Class representatives

# How to become a student representative ?

# How to become a student representative ?

**Apply**

Sign in now on IS Academia, until **Friday, September 13**

IS-ACADEMIA
OUTIL DE GESTION ACADEMIQUE

# How to become a student representative ?

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## Vote

From **September 14 to 19** on IS Academia

IS-ACADEMIA
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# How to become a student representative ?

## Apply

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IS-ACADEMIA
OUTIL DE GESTION ACADEMIQUE

## Vote

From **September 14 to 19** on IS Academia

IS-ACADEMIA
OUTIL DE GESTION ACADEMIQUE

## Results

**20th September**

# You can apply now on IS Academia!

# To know more about representation

Join our **Telegram Representation Channel** to:

- Stay informed about what happens in terms of representation at EPFL
- Give your opinion on important issues

**https://go.epfl.ch/telegram_ageprepres**

# Ask us all of your questions

contact@agepoly.ch

representation@agepoly.ch

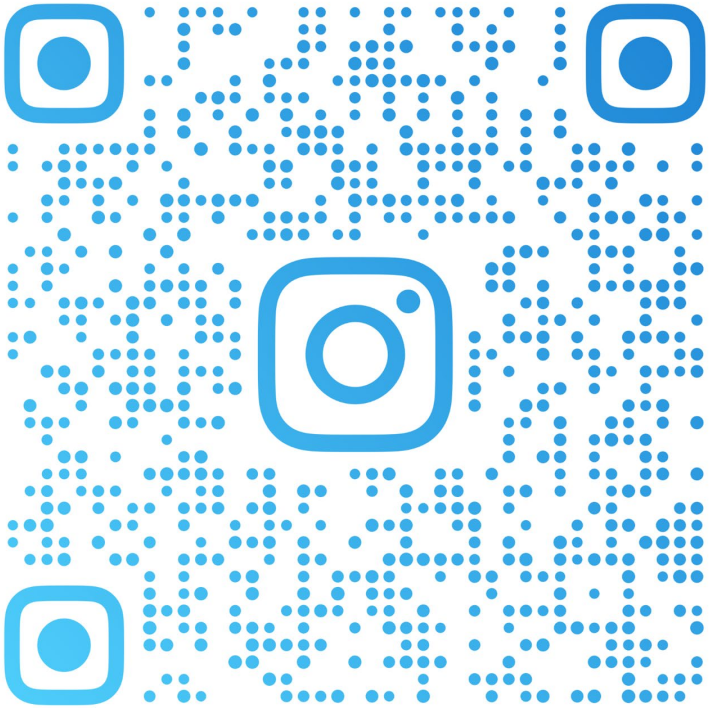
Benjamin Faltin

Lucie Moulin

EPFL

agepoly

# AGEPoly wishes you an excellent academic year !



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École
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fédérale
de Lausanne