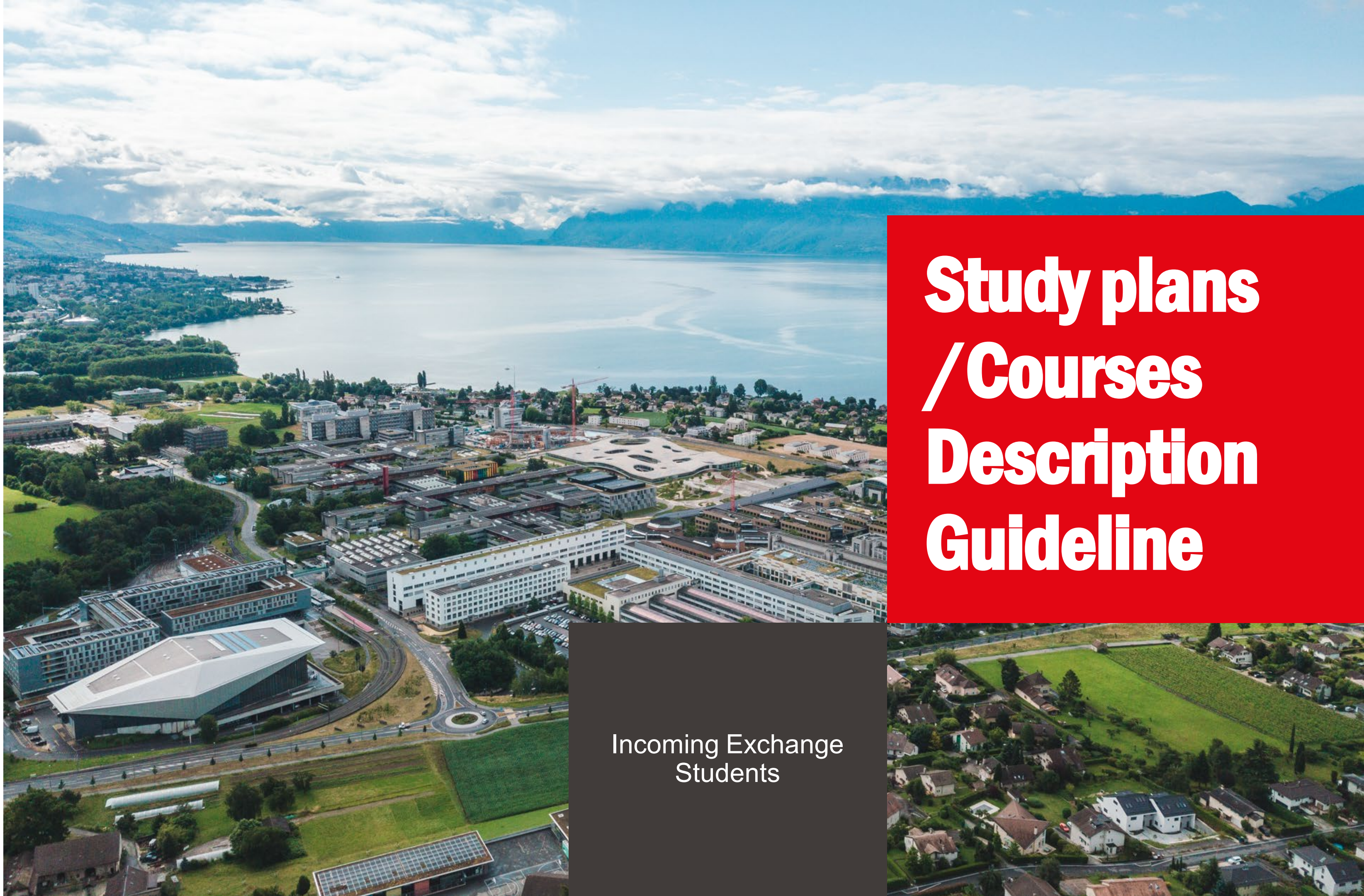
EPFL



Study plans / Courses Description Guideline

Incoming Exchange Students

Understanding the study plans

- This guide is intended for incoming exchange students who are studying at EPFL for one or two semesters, at the Bachelor or Master level.
- It will guide you through the process of reading and understanding the study plans in order to find courses for your exchange.

Study plans

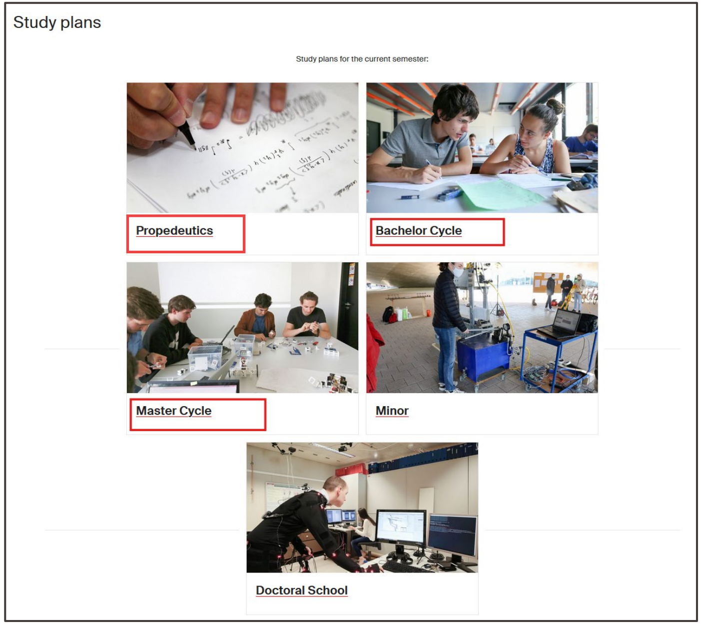
click here

Course description

click here

Where to find the study plan

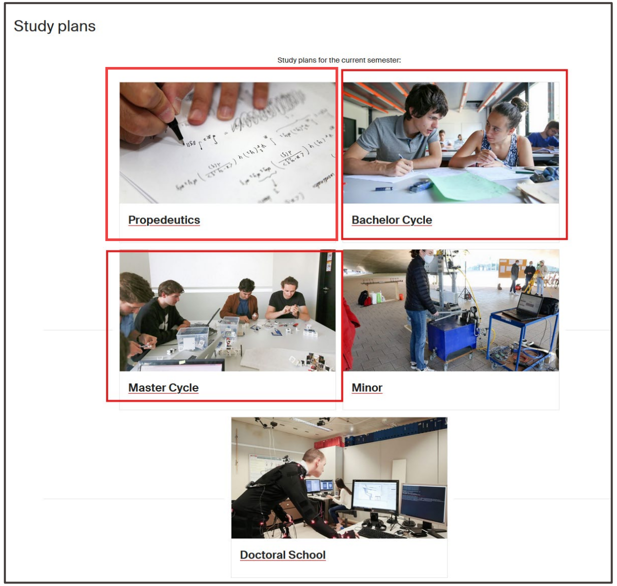
- Exchange students are allowed to take courses from both Bachelor and Master level regardless of their current level as long as they have the prerequisites to follow the courses.
- The study plan must contain a minimum of 20 ECTS and a majority of courses from the section in which you have been nominated.
- You will find the study plans on the following page:
  - https://edu.epfl.ch: These study plans show courses per level and department (propedeutics refers to first year courses)

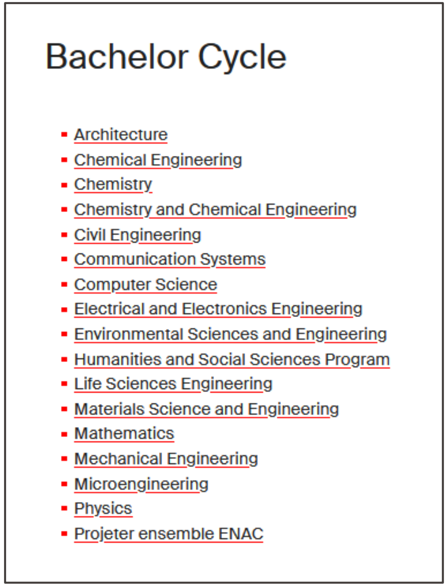


Study plans

Step 1 – Selection of the level and department you are interested in

1. Select the level: Propedeutics, Bachelor and/or Master
2. Select the department from which you want to find courses





Bachelor Cycle

- Architecture
- Chemical Engineering
- Chemistry
- Chemistry and Chemical Engineering
- Civil Engineering
- Communication Systems
- Computer Science
- Electrical and Electronics Engineering
- Environmental Sciences and Engineering
- Humanities and Social Sciences Program
- Life Sciences Engineering
- Materials Science and Engineering
- Mathematics
- Mechanical Engineering
- Microengineering
- Physics
- Projeter ensemble ENAC

Master Cycle

- Applied Mathematics
- Applied Physics
- Architecture
- Chemical Engineering and Biotechnology
- Civil Engineering
- Communication Systems - master program
- Computational science and Engineering
- Computer Science
- Computer Science - Cybersecurity
- Data Science
- Digital Humanities
- Electrical and Electronics Engineering
- Energy Science and Technology
- Environmental Sciences and Engineering
- Financial engineering
- Humanities and Social Sciences Program
- Life Sciences Engineering
- Management, Technology and Entrepreneurship
- Materials Science and Engineering
- Mathematics - master program
- Mechanical Engineering
- Micro- and Nanotechnologies for Integrated Systems
- Microengineering
- Molecular & Biological Chemistry
- Neuro-X
- Nuclear engineering
- Physics - master program
- Quantum Science and Engineering
- Robotics
- Statistics
- Sustainable Management and Technology
- Urban systems

Study plans

Step 2 - On each study plan, you will find the following information:

- The **code and the name** of the courses
- The **language** in which the courses are given (FR= French, EN=English)
- The **semester** they are given in:

Fall semester = Bachelor 1,3,5 & Master 1,3

Spring semester = Bachelor 2,4,6 & Master 2,4

Computer Science 2025-26

Download the study plan (PDF)

Block "Projects & SHS"

COURSES	LANGUAGE	MASTER 1	MASTER 2	SPECIALISATIONS/ORIENTATIONS	EXAM	CREDITS / COEFFICIENT
HSS : Introduction to project / Section SHS Divers enseignants	FR/EN	-	-		Winter session	3
HSS : Project / Section SHS Divers enseignants	FR/EN	-	-		Summer session	3
Research project in Computer Science II CS-498 / Section IN Profs divers	EN	▪ Individual project: 2h	▪ Individual project: 2h		Winter/Summer session During the semester	12

Domain "Algorithms & Theoretical Computer Science" (ATCS)

COURSES	LANGUAGE	MASTER 1	MASTER 2	SPECIALISATIONS/ORIENTATIONS	EXAM	CREDITS / COEFFICIENT
Algorithms II CS-450 / Section IN Kapralov	EN	▪ Courses: 4h ▪ Exercises: 3h	-	▪ Data Analytics ▪ Foundations of software ▪ Cyber security - SP ▪ Networking and Mobility ▪ Computer Science Theory ▪ Foundations of Computing	Winter session Written	8

Domain "Artificial Intelligence & Machine Learning" (AIML)

COURSES	LANGUAGE	MASTER 1	MASTER 2	SPECIALISATIONS/ORIENTATIONS	EXAM	CREDITS / COEFFICIENT
Machine learning CS-433 / Section IN West	EN	▪ Courses: 4h ▪ Exercises: 2h ▪ Course based project: 2h	-	▪ Data Analytics ▪ Signals, Images and Interfaces ▪ Computer Science Theory ▪ Internet Information Systems ▪ AI & Data Science	Winter session Written	8
Optimization for machine learning CS-439 / Section IN Flammarion, Jaggi	EN	-	▪ Courses: 2h ▪ Exercises: 2h ▪ Lab: 1h	▪ AI & Data Science	Summer session Written	8

EPFL

Course description

Step 3 – Course description

In order to get more detailed information about the courses, you can go on each course description by clicking on the name of the course on the study plan.

Computer Science 2025-26

Download the study plan (PDF)

Block "Projects & SHS"

COURSES	LANGUAGE	MASTER 1	MASTER 2	SPECIALISATIONS/ORIENTATIONS	EXAM	CREDITS / COEFFICIENT
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HSS : Project / Section SHS Divers enseignants	FR/EN	-	-		Summer session	3
Research project in Computer Science II CS-498 / Section IN Profs divers	EN	Individual project: 2h	Individual project: 2h		Winter/Summer session During the semester	12

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Optimization for machine learning CS-439 / Section IN Flammarion, Jaggi	EN	-	Courses: 2h Exercises: 2h Lab: 1h	AI & Data Science	Summer session Written	8

Course description

- On each course description you will find the following information:
  - The **language** in which it is given
  - A **detailed description** of the course
  - The **program(s)** in which the course is taught
  - The **semester** during which the course is given
  - Other useful information about the course

Algorithms II

Download the coursebook (PDF)

CS-450 / **8 credits**

Teacher: Kapralov Mikhail

Language: English

Summary

A first graduate course in algorithms, this course assumes minimal background, but moves rapidly. The objective is to learn the main techniques of algorithm analysis and design, while building a repertory of basic algorithmic solutions to problems in many domains.

Content

Algorithm analysis techniques: worst-case and amortized, average-case, randomized, competitive, approximation. Basic algorithm design techniques: greedy, iterative, incremental, divide-and-conquer, dynamic programming, randomization, linear programming. Examples from graph theory, linear

Show more

Learning Prerequisites

REQUIRED COURSES

An undergraduate course in Discrete Structures / Discrete Mathematics, covering formal notation (sets, propositional logic, quantifiers), proof methods (derivation, contradiction, induction), enumeration of choices and other basic combinatorial techniques, graphs and simple results on graphs (cycles, paths, spanning trees, cliques, coloring, etc.).

RECOMMENDED COURSES

An undergraduate course in Data Structures and Algorithms.

An undergraduate course in Probability and Statistics.

IMPORTANT CONCEPTS TO START THE COURSE

Basic data structures (arrays, lists, stacks, queues,trees) and algorithms (binary search; sorting; graph connectivity); basic discrete mathematics

In the programs

Computer Science
2025-2026 Master semester 1

- **Semester:** Fall
- **Exam form:** Written (winter session)
- **Subject examined:** Algorithms II
- **Courses:** 4 Hour(s) per week x 14 weeks
- **Exercises:** 3 Hour(s) per week x 14 weeks
- **Type:** mandatory

Computer Science
2025-2026 Master semester 3

Communication Systems - master program
2025-2026 Master semester 1

Communication Systems - master program
2025-2026 Master semester 3

Computational science and Engineering
2025-2026 Master semester 1

Computational science and Engineering
2025-2026 Master semester 3

Computer Science - Cybersecurity
2025-2026 Master semester 1

Computer Science - Cybersecurity
2025-2026 Master semester 3

Data Science
2025-2026 Master semester 1

Course description

- Please note that if the course has a limited number of places, it means that the course is **NOT open to exchange students.**

Deep learning

Download the coursebook (PDF)

EE-559 / 4 credits

Teacher: Cavallaro Andrea

Language: English

Withdrawal: It is not allowed to withdraw from this subject after the registration deadline.

Summary

This course explores how to design reliable discriminative and generative neural networks, the ethics of data acquisition and model deployment, as well as modern multi-modal models.

Content

This course equips students with a comprehensive foundation of modern deep learning, enabling students to design and train discriminative and generative neural networks for a wide range of tasks. Topics include:

- Deep learning applications (natural language processing, computer

Show more

Keywords

machine learning, neural networks, deep learning, python

Learning Prerequisites

REQUIRED COURSES

- Basics in probabilities and statistics
- Linear algebra
- Differential calculus
- Python programming

RECOMMENDED COURSES

- Basics in optimization
- Basics in algorithmic
- Basics in signal processing

IMPORTANT CONCEPTS TO START THE COURSE

Discrete and continuous distributions, normal density, law of large numbers, conditional probabilities, Bayes, PCA, vector, matrix operations, Euclidean

In the programs

Electrical and Electronics Engineering
2025-2026 Master semester 2

- **Semester:** Spring
- **Number of places:** 150
- **Exam form:** During the semester (summer session)
- **Subject examined:** Deep learning
- **Courses:** 2 Hour(s) per week x 14 weeks
- **Exercises:** 2 Hour(s) per week x 14 weeks
- **Type:** optional

Electrical and Electronics Engineering
2025-2026 Master semester 4

Communication Systems - master program
2025-2026 Master semester 2

Communication Systems - master program
2025-2026 Master semester 4

Computational science and Engineering
2025-2026 Master semester 2

Computational science and Engineering
2025-2026 Master semester 4

Computer Science - Cybersecurity
2025-2026 Master semester 2

Computer Science - Cybersecurity
2025-2026 Master semester 4

Computer Science
2025-2026 Master semester 2

Computer Science
2025-2026 Master semester 4