# EPFL

Master of Science in
## DATA SCIENCE

2-year program - 120ECTS



Master's thesis
30 ECTS

Core courses
and options
72 ECTS

Project in
social and
human
sciences
6 ECTS

Research
project
12 ECTS
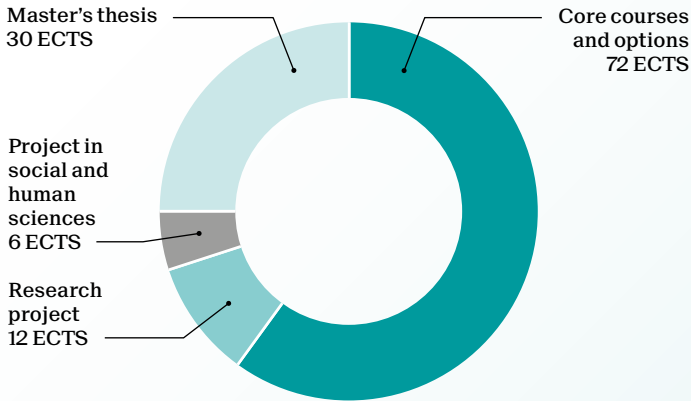
The program includes a compulsory internship of eight weeks during the summer, or six months during the semester. The internship can also be combined with the master's thesis.

Students may choose a Teaching specialization (30 ECTS at the *Haute école pédagogique du canton de Vaud*).

Or opt for a 30 ECTS minor included in the 120 ECTS.

# Career prospects

The internship portal, with more than 3000 active contacts, is a very effective way to promote internships and master projects. All the big companies like Sony International, NEC Labs and AIP Riken are listed, but not only. There are many SMEs and start-ups too. The EPFL Innovation Park, a few steps away from the campus, hosts many R&D laboratories such as Logitech or Swisscom. These companies hire a large number of Data Science students for internships or master's projects and also collaborate with researchers from the IC School.

The EPFL Innovation Park is the springboard for numerous start-ups, most of which have emerged from the IC School.

It only takes on average 7 weeks to find one's first job. Moreover, many Data Science graduates receive a job offer during the last semester of their training. Companies such as Oracle, Google, Meta, or Microsoft, recruit directly on campus by participating in various events.

School of Computer and Communication Sciences
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|  | Credits |
|---|---|
| **Core courses (min. 32 credits)** | |
| Algorithms II | 8 |
| Applied data analysis | 8 |
| Foundations of data science | 8 |
| Information security and privacy | 8 |
| Machine learning | 8 |
| Modern natural language processing | 8 |
| Optimization for machine learning | 8 |
| Statistics for data science | 8 |
| Systems for data management and data science | 8 |

|  | Credits |
|---|---|
| **Options** | |
| Advanced compiler construction | 6 |
| Advanced cryptography | 6 |
| Advanced probability and applications | 8 |
| Advanced topics on privacy enhancing technologies | 8 |
| AI product management | 6 |
| Applied biostatistics | 5 |
| Artificial neural networks/reinforcement learning | 6 |
| Automatic speech processing | 3 |
| Basics of mobile robotics | 4 |
| Causal inference | 4 |
| Causal thinking | 5 |
| Computational complexity | 6 |
| Computational linear algebra | 5 |
| Computational neuroscience: neural dynamics | 5 |
| Computational photography | 6 |
| Computer vision | 6 |
| Computers and music | 6 |
| Concurrent computing | 6 |
| Cryptography and security | 8 |
| Data visualization | 6 |
| Deep learning | 4 |
| Deep learning in biomedicine | 6 |
| Digital education | 6 |
| Distributed algorithms | 8 |
| Distributed information systems | 6 |
| Distributed intelligent systems | 5 |
| Formal verification | 6 |
| Geometric computing | 6 |
| Graph theory | 5 |
| Image analysis and pattern recognition | 4 |
| Information theory and coding | 8 |
| Intelligent agents | 6 |
| Interaction design | 6 |
| Introduction to natural language processing | 6 |
| Large-scale data science for real-world data | 6 |
| Learning theory | 6 |
| Linear models | 5 |
| Machine learning for behavioral data | 6 |
| Management de projet et analyse du risque | 4 |
| Markov chains and algorithmic applications | 6 |
| Mathematical foundations of signal processing | 6 |
| Mathematics of data: from theory to computation | 6 |
| Networks out of control | 6 |
| Optional research project in data science | 8 |
| Risk, rare events and extremes | 5 |
| Software security | 6 |
| Statistical mechanics and Gibbs measures | 5 |
| Statistical physics of computation | 4 |
| Statistical theory | 5 |
| Student seminar : security protocols and applications | 3 |
| Sublinear algorithms for big data analysis | 6 |
| The GC maker project | 6 |
| Time series | 5 |
| Topics in theoretical computer science | 6 |
| Virtual reality | 6 |
| Visual intelligence: machines and minds | 6 |