# EPFL

Master of Science in
## STATISTICS

2-year program - 120 ECTS



Master's thesis
30 ECTS

Core courses
30 ECTS

Project in social and human sciences
6 ECTS

Options
24 ECTS

Internship in research lab (EPFL) or industry
30 ECTS
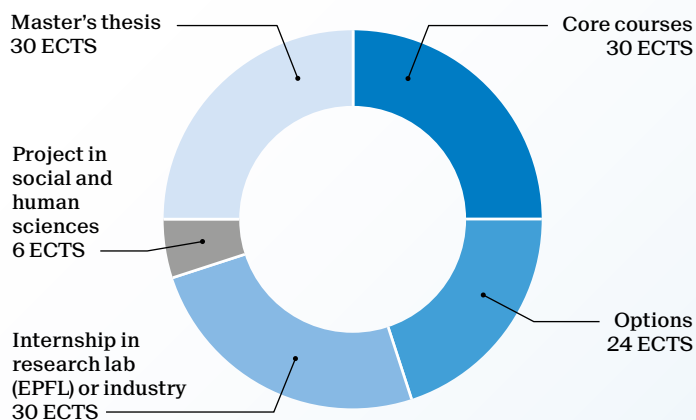
**Students may choose a minor (30 ECTS) e.g.:**
- Computational science and engineering
- Computer science
- Data science
- Environmental science and engineering
- Financial engineering

## Career prospects

After graduation, students can enter the job market directly or continue their university studies by applying to a doctoral program. The realization that 'data is the new oil' means that statisticians and data analysts are highly sought-after and valued in many domains, including the pharmaceutical industry, the insurance sector, the financial sector, environmental science, and the health and social sciences. The internship portal, with offers from well-known companies such as Nestlé, Apple, AXA or Swissquote, gives a foothold in the professional world. The unique combination of theoretical and methodological foundations of statistics with skills in cutting-edge programming techniques, critical thinking team-working and communication, will make graduates valued collaborators in any data-rich environment.

## Entry requirements

- A Bachelor's degree in Mathematics with an excellent academic record
- Holders of a Bachelor's degree in Physics, Engineering, Economics, or a field related to Mathematics with a strong quantitative background may also be admitted

School of Basic Sciences
go.epfl.ch/master-statistics
Contact: stat.msc@epfl.ch

| | Credits |
|---|---|
| **Core courses** | **30** |
| Applied statistics | 5 |
| Multivariate statistics | 5 |
| Randomization and causation | 5 |
| Regression methods | 5 |
| Statistical computation and visualization | 5 |
| Statistical inference | 5 |

| | Credits |
|---|---|
| **Options** | **24** |
| *Biostatistics* | |
| Applied biostatistics | 5 |
| Biostatistics | 5 |
| Genetics and genomics | 4 |
| Genomics and bioinformatics | 4 |
| Nutrition: from molecules to health | 4 |
| Statistical genetics | 5 |
| Statistics for genomic data analysis | 5 |
| Stochastic processes | 5 |
| Time series | 5 |
| *Environmental statistics* | |
| Exploratory data analysis in environmental health | 4 |
| Risk, rare events and extremes | 5 |
| Time series | 5 |
| *Finance* | |
| Derivatives | 6 |
| Financial big data | 3 |
| Martingales in financial mathematics | 5 |
| Probability and stochastic calculus | 6 |
| Stochastic processes | 5 |
| Stochastic simulation | 5 |
| Time series | 5 |
| *Mathematical statistics* | |
| Gaussian processes | 5 |
| Measure and integration | 5 |
| Probability theory | 5 |
| Statistical theory | 5 |
| Stochastic processes | 5 |
| Time series | 5 |
| *Statistical data science* | |
| Applied data analysis | 8 |
| Artificial neural networks/reinforcement learning | 6 |
| Computational linear algebra | 5 |
| Deep learning | 4 |
| Foundations of data science | 8 |
| Learning theory | 6 |
| Low-rank approximation techniques | 5 |
| Mathematical foundations of signal processing | 6 |
| Mathematics of data: from theory to computation | 6 |
| Optimization for machine learning | 8 |
| Statistical analysis of network data | 5 |
| Statistical machine learning | 5 |