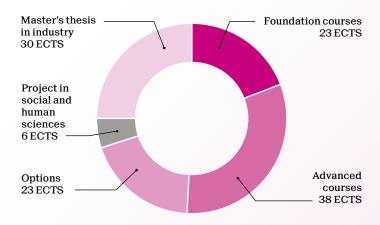
## **EPFL**

## Master of Science in FINANCIAL ENGINEERING

2-year program - 120 ECTS



## Career prospects

At the end of their studies, MFE students have the perfect profile to start a career in a bank, a hedge fund, a rating or consulting company, an insurance company, a commodity trading firm, or an asset management company. The unique combination of knowledge in economics, finance, and artificial intelligence provided by the MFE also makes them attractive candidates for a broad range of high-tech companies and startups. They will be able to apply their knowledge of cutting-edge techniques and practical know-how to arrive at well-balanced, sound, and socially responsible financial decisions. For students interested in an academic career, the MFE is also an ideal stepping stone to join a top-level Ph.D. program in finance.

## Admission requirements

- Bachelor's degree in a technical discipline such as Mathematics, Physics, Computer science, Engineering or Economics.
- Solid background in mathematical analysis, statistics and probability theory.
- Command of either one programming language such as C, C++ or Python or an interpreted one (Matlab or Mathematica).
- Fully at ease with computers and fluent in English.

	Credits
Foundation courses	23
Accounting for finance	2
Convex optimization	5
Introduction to econometrics	4
Introduction to finance	6
Probability and stochastic calculus	6

Advanced courses	38
Advanced derivatives	4
Derivatives	6
Ethical behavior in the financial industry	2
Interest rate and credit risk models	6
Investments	6
Machine learning in finance	6
Macroeconomics and monetary policy	4
Quantitative risk management	4

Advanced numerical analysis II Algorithmic game theory Applied data analysis Apprentissage et intelligence artificielle Causal inference 4 Cryptography and security Bata science for business Data visualization 6 Deep learning Deep learning 4 Deep reinforcement learning Financial applications of blockchains and distributed ledgers 3 Financial intermediation 4 Information security and digital trust 4 Information security and privacy 8 Information: strategy and economics 4 Introduction to stochastic PDEs 5 Machine learning I Machine learning II Machine learning methods in econometrics 4 Mathematical modeling of behavior 5 Multivariate statistics 5 Nature finance Numerical analysis and computational mathematics 4 Regression methods Statistical analysis of network data Statistical machine learning 5 Stochastic simulation 5 Sustainable finance 6 Sustainable finance 7 Sustainable finance 7 Sustainable finance 7 Sustainable finance 8 Sustainable finance	Options	23
Algorithmic game theory Applied data analysis Apprentissage et intelligence artificielle Causal inference 4 Cryptography and security Bata science for business Data visualization Deep learning Deep learning Financial applications of blockchains and distributed ledgers Financial intermediation Information security and digital trust Information security and privacy Information: strategy and economics Introduction to stochastic PDEs Machine learning II Machine learning II Machine learning methods in econometrics Mathematical modeling of behavior Multivariate statistics Nature finance Numerical analysis and computational mathematics Very statistical analysis of network data Statistical machine learning Stochastic simulation Sustainable finance Sustainable finance	-	
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Sustainable finance 6	Statistical machine learning	5
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Firm corios	Sustainable finance	6
Time series 5	Time series	5
Venture capital 4	Venture capital	4