

FINANCIAL ENGINEERING

MASTER





© Alain Herzog

Financial globalization and new market developments have given rise to new requirements in risk management, asset management, derivatives pricing, and hedging. Financial institutions require specialists with an understanding of complex financial strategies and modeling skills, with computational expertise and practical know-how. At the same time they need associates who can grasp the significance of financial operations in the bigger picture. Led by the Swiss Finance Institute @ EPFL, the Master in Financial Engineering is designed to meet these demands.

Intellectually stimulating and analytically minded

Taught by internationally renowned faculty, the MFE is a dynamic and intellectually stimulating two-year program that bridges the gap between industry practice and the latest academic thinking. It allows students with a Bachelor's degree in a technical discipline such as Mathematics, Physics, Computer science, Engineering, Economics or another scientific field to acquire broad skills in finance and financial engineering. The curriculum includes foundation and advanced courses as well as a wide range of electives through which students can tailor the program to their specific areas of interest.

A mandatory 6-month internship in the financial industry combined with a master thesis concludes the program. The small class size of approximately 30 to 40 students enables stimulating discussions with the faculty and among students. Taught in English, the MFE is also built on the quality and diversity of students, whose broad range of experiences and backgrounds fosters a distinctively collaborative community culture. 75% of the class students are international and several nationalities are represented in the MFE program.

Audrey Barras
MFE 2010, Investment
Analyst at Nestlé Capital
Management Ltd.

"Linking engineering to finance while taking advantage of EPFL's reputation, the MFE at EPFL is recognized in the market as a cutting-edge Master's degree. Thanks to this MFE, I was able to find a great position at Nestlé Capital Management Ltd. and I am very confident for the future of my career."

Yankai Shao, MFE 2009,
Quantitative Analyst at
the Fixed Income and
Currencies department
at Lombard Odier Darier
Hentsch & Cie.

"... the MFE has brought me much more than just a comprehensive understanding of quantitative finance; it has taught me powerful tools to solve complex financial problems and given me a solid theoretical base."

Industry footing, network and career

The MFE is taught by leaders who bring innovative ideas to the financial industry, insurance companies and to policy makers. To broaden practical relevance to the coursework, a Practitioner Seminar Series is organized with invited speakers from associated fields in the industry.

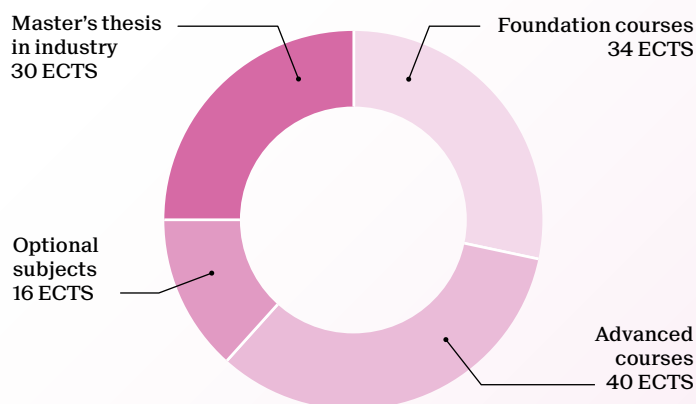
MFE graduates get to see the bigger picture and learn to think beyond short-term results of financial operations and models. While equipping students with cutting-edge techniques and skills to excel in a dynamic financial environment, our faculty also seeks to foster a wider understanding of the environment in which they will operate and of the potential consequences of their future business decisions.

MFE Graduates not only acquire the tools to create and navigate opportunities successfully throughout their career, but also benefit from the powerful EPFL alumni network and the strong links with Swiss financial institutions through the Swiss Finance Institute.



Master of Science in FINANCIAL ENGINEERING

2-year program - 120 ECTS



This program includes an 8-week compulsory internship in industry.

	Credits
Foundation courses	34
Accounting for Finance	2
Econometrics	6
Introduction to finance	6
Macrofinance	6
Quantitative methods in finance	4
Stochastic Calculus I	4
Project in human and social sciences	6

Advanced courses	40
Advanced derivatives	4
Credit risk	4
Derivatives	6
Financial Econometrics	6
Fixed income analysis	6
Investments	6
Real options and financial structuring	4
Stochastic Calculus II	4

Optional subjects	16
Advanced regression	5
Advanced topics in financial econometrics	4
Computational Finance	5
Financial big data	2
Global Business Environment	4
Intelligent Agents	6
Investing: a guide to doing the right thing	2
Mathematical Modelling of Behavior	5
Numerical approximation of PDE's I	5
Quantitative Risk Management	4
Risk, rare events and extremes	5
Time series	5
Venture Capital	4

Career prospects

At the end of their studies, MFE students have the perfect profile to start a career in a commercial or investment bank, a hedge fund, a rating or consulting company, an insurance company, or a trading firm. They will be able to apply their knowledge of cutting-edge techniques and their practical know-how to arrive at well-balanced and sound financial decisions. For students interested in an academic career, the MFE is also an ideal stepping stone to join a top-level PhD program in finance.

Admission Guidelines

- Bachelor's degree in a technical discipline such as Mathematics, Physics, Computer science, Engineering or Economics.
- Fully at ease with computers. In particular, you should command either one programming language such as C, C++ or Java, or an interpreted language such as Matlab (Octave, SciLab) or Mathematica.
- Fluent in English. Success in an international examination of English such as the TOEFL is a plus but not mandatory for admission to the MFE.

Applications can be submitted online twice every year, from November 1 to January 15 and from February 15 to April 15.

If you need a visa to study in Switzerland, we recommend that you apply for the January deadline in order to allow for the completion of the visa procedure, which can take up to 3 months.

College of Management of Technology
master.epfl.ch/financial
 contact: mfe@epfl.ch