

Curriculum

✓ 225 teaching hours ✓ 9 subjects + TFM ✓ Masterclasses

✓ Up to 600h of extracurricular internships in companies ✓ 20 professors and collaborators ✓ 2 training modules (12 ECTS)

First semester

ECTS

Finance and Financial Systems 5

- Introduction to the financial system
- Technological innovation in finance
- Financial products and their evaluation
- Financial risk management
- Ethics and sustainability in finance

Analysis of the Economic and Technological Environment 5

- Fundamentals of the economic environment
- Digital transformation and digital economy
- Regulation and economic policy
- Innovation and competitiveness
- Ethics, inclusion, and the digital divide

Global Financial Markets and Technological Trends 5

- Introduction to global financial markets
- Products and assets in global markets
- Transformative technologies in markets
- Regulation and governance of global markets
- Trends and opportunities in global markets

First semester

ECTS

Black-Scholes Environment and Derivative Instruments 5

- Introduction to financial derivatives and arbitrage
- Discrete models and trees
- Continuous models
- Fixed-income instruments and interest rate derivatives
- Valuations and practical applications

Asset Management and Financial Automation 5

- Volatility and correlation
- Asset management
- Case studies

Risk Analysis and Assessment 5

- Introduction to financial risks
- Market risk analysis
- Risk analysis methodologies
- Credit risk analysis
- Operational and liquidity risk analysis
- Use of financial instruments in risk management

Second semester

ECTS

Fintech and Digital Transformation in Financial Services 5

- Fintech: digital business models in finance
- Payment methods and wallets
- Alternative financing: crowdfunding and crowdlending
- Wealthtech
- Insurtech
- Startups regulation and funding

Data Analysis, Artificial Intelligence and Machine Learning in Finance 5

- What is financial analytics? Introduction to data science applied to finance
- Elements and stages of financial analytics: an overview of tools, technological infrastructures, and the most widely used programming languages in the financial industry
- Algorithms
- Programming languages: Python and R. Introduction and libraries for data science in finance
- How data science is used in finance
- Case studies

Second semester

ECTS

Blockchain and Decentralised Finance (DeFi) 5

- Cryptography, hash functions, and consensus algorithms. Mining
- Blockchain or Distributed Ledger Technology (DLT)
- Types of cryptoassets and tokens: ICOs, stablecoins, CBDC, NFTs
- Digital asset financial services: Decentralised finance (DeFi)
- Business models in DLT: Web3
- Regulation of digital assets

Master's Thesis 15

The Master's Thesis (TFM) must be completed in teams of up to three members, and you will have the guidance of a PhD professor who will support you throughout the entire process. In accordance with the regulations, the assessment will be individual, and you must present one of the following projects:

- Business plan related to technologies, fintech products or services, or financial decentralisation
- Innovation project
- Document synthesis