Special Report **Business Education: Financial Training**

Masters in Finance

Tomorrow's financiers are learning to think like machines

Business schools are redesigning their curricula to produce graduates who interpret machine learning models, and make critical decisions in data-rich environments

At HEC Paris, future financial leaders learn to decode machine learning models and navigate complex, data-rich decisions © Emmanuel Fradin for the FT

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The world of finance has evolved beyond spreadsheets and human judgment. In today's markets, many finance roles now involve navigating vast data sets, interpreting machine learning outputs, and making sense of AI-generated forecasts. Business schools are responding with programmes and modules designed to produce not only technically skilled analysts, but professionals who can critically understand and assess data-driven insights with greater confidence and accuracy.

At Imperial College Business School in London, this balance of interpretation and computation shapes the approach taken in modules such as Systematic Trading Strategies with Machine Learning Algorithms, led by visiting lecturer Hachem Madmoun. "The financial sector has entered an era where traditional analytical methods increasingly show their limitations," Madmoun says. "Advanced computational tools enable the development of more rigorous financial theories."

Imperial's masters in finance curriculum emphasises not just how models work, but why they work — and when they do not. Students learn to quantify uncertainty, design models rooted in financial context, and challenge so-called "black-box" systems. "Understanding a model's internal logic has become as crucial as its predictive capacity," Madmoun says.

Students are introduced to advanced AI techniques such as chain-of-thought and self-consistency prompting, which simulate humanlike reasoning. Generative AI is presented not just as a tool for queries but as a partner in reasoning. “We teach reinforcement learning from human feedback, where every correction becomes training data,” Madmoun adds. Students are encouraged to view AI not as a static engine, but as a responsive tool for making critical decisions in high-stakes financial environments.

FT Masters in Finance ranking 2025

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Recognising that students enter with varying levels of technical knowledge, the Master in International Finance (MiF) at HEC Paris provides asynchronous Python programming courses, optional boot camps, and tailored elective tracks. “We’ve integrated workshops taught by Hi! PARIS into the curriculum,” says academic director Evren Örs, referring to the AI and data science centre co-founded by HEC Paris and Institut Polytechnique de Paris. Students from both institutions collaborate on real-data projects, strengthening both technical and teamwork skills.

A tiered elective system requires all MiF students to complete at least one course focused on data and finance. The most advanced track is the double degree in data and finance, where students dive deep into machine learning applications. Graduates, Örs says, are frequently hired as quantitative analysts, data scientists, and private equity analysts in London and Paris.

At Frankfurt School of Finance and Management, data science is embedded from day one. Students begin with Python programming and quickly move into applied finance. The focus is on real-world implementation: connecting to live data sources, modelling financial products, and adapting to trends such as ESG (environmental, social, and governance) investing and statistical arbitrage.

“We continuously track industry demand for new skills and adjust our curriculum accordingly, integrating new concepts and tools into our traditional material,” says Grigory Vilkov, a financial modelling instructor. One course starts with the theoretical foundations of arbitrage and ends with students programming valuation models in Python using actual financial products that exist and are used in real-world markets.

Frankfurt’s Master of Finance courses are scheduled over three days a week — including Saturdays — allowing students to gain industry experience on other days. “The competition in these fields is intense,” Vilkov says, “so we ensure students develop both strong academic foundations and practical data fluency.” Career services director Maren Kaus confirms the results: “Data-savvy finance graduates are increasingly stepping into roles that merge financial expertise with analytical and technical skills,” she says.

It’s about helping capital find talent — and helping talent build with capital in mind

Francesco Corea, Greycroft

At Nova School of Business and Economics (Nova SBE) in Portugal, the focus is on bridging technical theory with venture capital application. Students use data and AI to assess start-up investment potential and track market trends. Courses on decentralised finance (DeFi) — using blockchain technologies, rather than traditional banks or financial institutions blockchain — and machine learning are rooted in practical use cases.

“I’ve spent the last decade building models and tools for venture capitalists to source, assess, and evaluate companies more effectively,” says Francesco Corea, a former data science director at US-based VC firm Greycroft. His experience helps shape Nova’s hands-on learning ethos — ranging from gamified budgeting case studies to building tools that predict venture outcomes.

“It’s not about automating judgment, but augmenting it,” says Corea. “It’s about helping capital find talent — and helping talent build with capital in mind.”

Case study: from Student Quant to Real-World Strategist

For Guilherme Abreu, a graduate of Imperial’s MSc Finance programme, the shift towards data-centric finance education has been transformative. Now working as a quantitative analyst for Imperial’s Student Investment Fund, Abreu designs systematic trading strategies grounded in academic research.

“We take ideas from peer-reviewed papers and translate them into real-world, data-driven investment strategies,” he says. “It’s a role that blends research with hands-on application.”

Guilherme Abreu © Jason Alden

The module on systematic trading strategies, taught by Madmoun, significantly shaped his perspective. “The focus on supervised learning and feature importance changed how I assess different financial factors,” Abreu says.

Practical programming sessions brought the material to life. “They honed my coding skills and deepened my understanding of how to turn theory into functioning models.”

His advice to prospective finance students? “Don’t get distracted by course titles or buzzwords,” he says. “Choose programmes that integrate data skills into financial contexts — and surround yourself with ambitious classmates. A strong cohort can turn a good programme into a truly transformative experience.”

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