

**Domaine :** Mathématiques et applications - **Thématique(s) :** Finances

DIPLÔMES D'UNIVERSITÉ (DU, DIU)

## FINANCIAL ENGINEERING EXECUTIVE DEGREE – MODELING, SIMULATION AND DATA ANALYTICS

Taught by an educational team from the leading French universities: Sorbonne Université Continuing Education and École Polytechnique Executive Education.

Executive version of the famous Parisian degree (Master El Karoui) in financial mathematics.

Focus on acquiring, completing and updating your knowledge in mathematical, statistical and numerical methods for financial markets, accounting the recent developments of data science and artificial intelligence contributions.

🕒 **Durée de la formation :** 25/11/07 to 26/06/26

**Modalité :** Présentiel

📅 **Dates :** Voir le calendrier

📍 **Lieu :** Campus Pierre et Marie Curie – Paris (Jussieu)

💶 **Tarif :** Voir ci-dessous

22 000 € + 254 € of tuition fees

### OBJECTIFS

Executive version of the famous Parisian degree in financial mathematics.

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### COMPÉTENCES VISÉES

Understanding the emerging issues of Quantitative Finance in connection with the regulation and economic upheavals (XVA : high-frequency trading, blockchains, cryptocurrencies , negative rates, multivalued rate curves, etc.). Numerical methods for simulation/optimization as well as their parallel implementation (GPU).

Statistical tools for calibration, high-frequency trading and automatic investment strategies.

Financial Engineering for Investment and Fintech.

Data Science for Finance.

Quantitative Risk Management.

Quantitative Portfolio Management

### RESPONSABLE(S) PÉDAGOGIQUE



Gilles Pages



Emmanuel GOBET



### CONTACT

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✉ Sciences-

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### PUBLIC ET PRE-REQUIS

- Graduates in science with various backgrounds and training in applied mathematics (including Probability and Statistics)
- Market practitioners: IT quants, front office, middle office, risks, software editor, asset manager
- Engineers in repositioning on the equity markets, rates, foreign exchange, hybrids, energy markets, commodities, precious metals, and cryptocurrencies

## PROGRAMME

### 2 units of skills :

> Unit of skills 1 : Financial Engineering : Fundamental tools and methods.

> Unit of skills 2 : Financial Engineering : Advanced applications.

View the full training program.

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## MÉTHODES

Course and small classes

Professional seminars/meetings

## MODALITÉS D'ÉVALUATION

- written final exam + pricing/calibration project joint with "Numerical methods"
- written final exam + computing project joint with « Stochastic Calculus & Control ou Derivatives
- Take home QCM + computing project joint with « Derivatives"
- Take home QCM + computing project joint with « Numerical methods"
- Written examination (QCM)
- Written examination + project (joint with other courses)

Evaluation depends on each course

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## LES + DE LA FORMATION

The job of Quant / Strat (quantitative analyst) is constantly changing due to the post-crisis regulatory upheavals, technological changes (GPU), the unceasing mathematical and algorithmic advances (Machine Learning).

This effervescence is reflected on the one hand by new requirements in terms of calculation and risk control at the level of companies themselves, local or foreign regulatory authorities and the other by the arrival of new technological tools (parallelism), algorithmics (machine learning), mathematics (forward simulation, multilevel methods, etc.) and new models (rough volatility).

The purpose of the training is to allow both a (re) leveling of the participants but also to give them an overview of this constantly evolving situation as well as the tools to support it or even to impulse it.

Classes are held on fridays and saturdays.

Courses are held in French but the trainers are bilingual.

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### POUR CANDIDATER

- Send in : Resume + Cover letter + Last obtained diploma
  - A recommendation letter in case of pursuing this degree on behalf of a company
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