Site of the programme

The optional and preliminary module, enabling students to update their abilities, is managed by the student himself, under remote supervision of the director of the programme.

Core courses, as well as the courses belonging to the sub-programmes « Corporate finance » and « Financials mathematics and derivatives », are given at the Ecole des ponts :
6-8 avenue Blaise Pascal
Cité Descartes , Champs-sur-Marne
77455 Marne la Vallée cedex 2

The Cité Descartes campus is 25 minutes distant from the centre of Paris, by the public transportation network.
RER A: Noisy-Champs

The courses belonging to the sub-programme « Banking and insurance » are given at Ecole nationale de la statistique et de l'administration économique (ENSAE):
3, avenue Pierre Larousse
92245 Malakoff cedex

tube line 13 - Porte de Vanves
or Malakoff stations

Admission

According to their qualifications, two possibilities are available to candidates:

A direct admission to the 3 semester's programme, for candidates holding:
- a degree equivalent to the first year of a master's programme, implying a scientific qualification equivalent to 4 years study after high-school ;
- a sound scientific qualification, equivalent to 4 years study after high-school, together with a significant professional experience.

An admission to the full programme over 4 semesters, for candidates holding:
- a degree implying 3 years study after high-school (*Bachelor of Science*, « licence ès science » etc.)
- a sound scientific qualification, equivalent to 3 years study after high-school, together with a significant professional experience.

Fees

Information on fees, as well as on the possibilities of financial aid, are available on the programme's site: www.paristech.org/corpfin.

Inquiries

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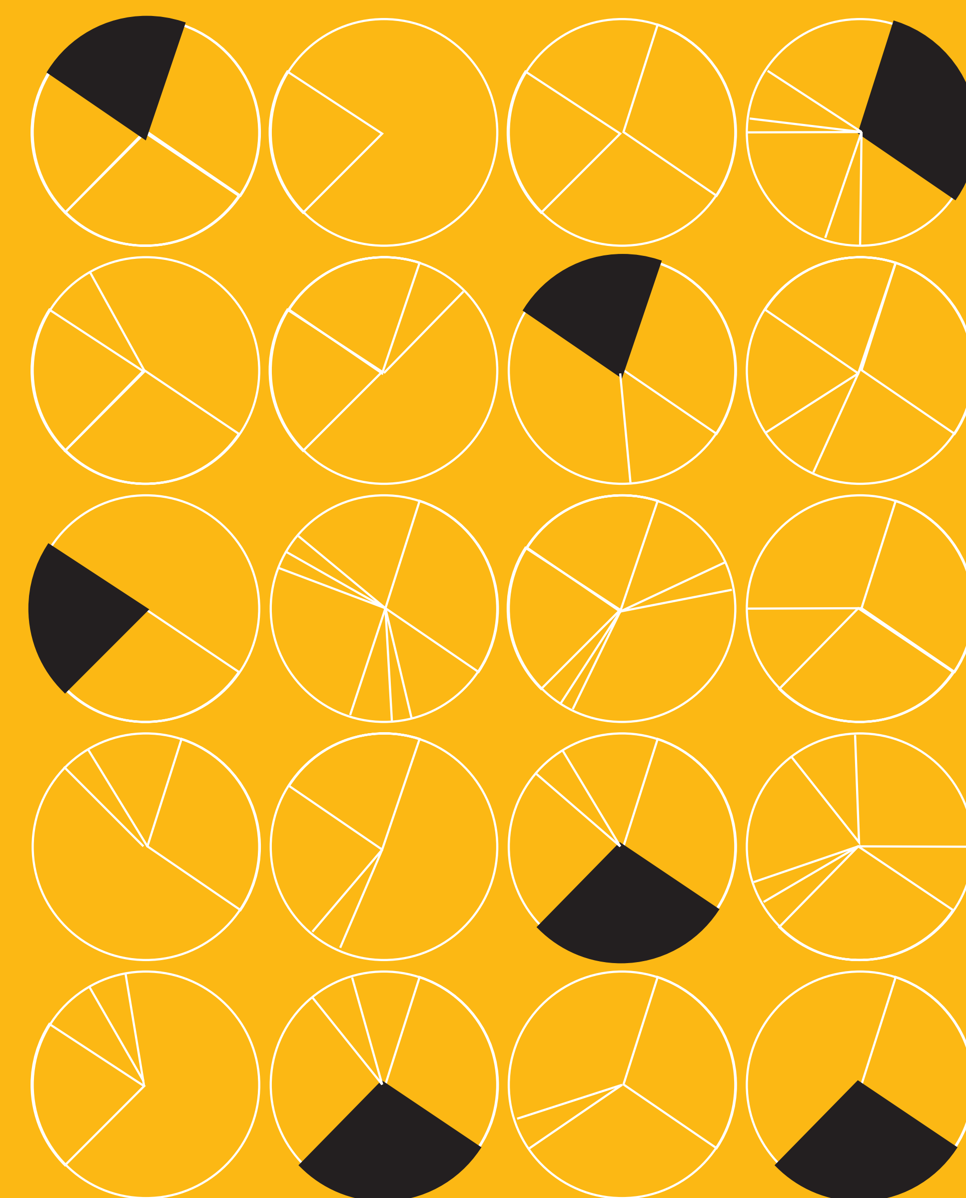
corpfin

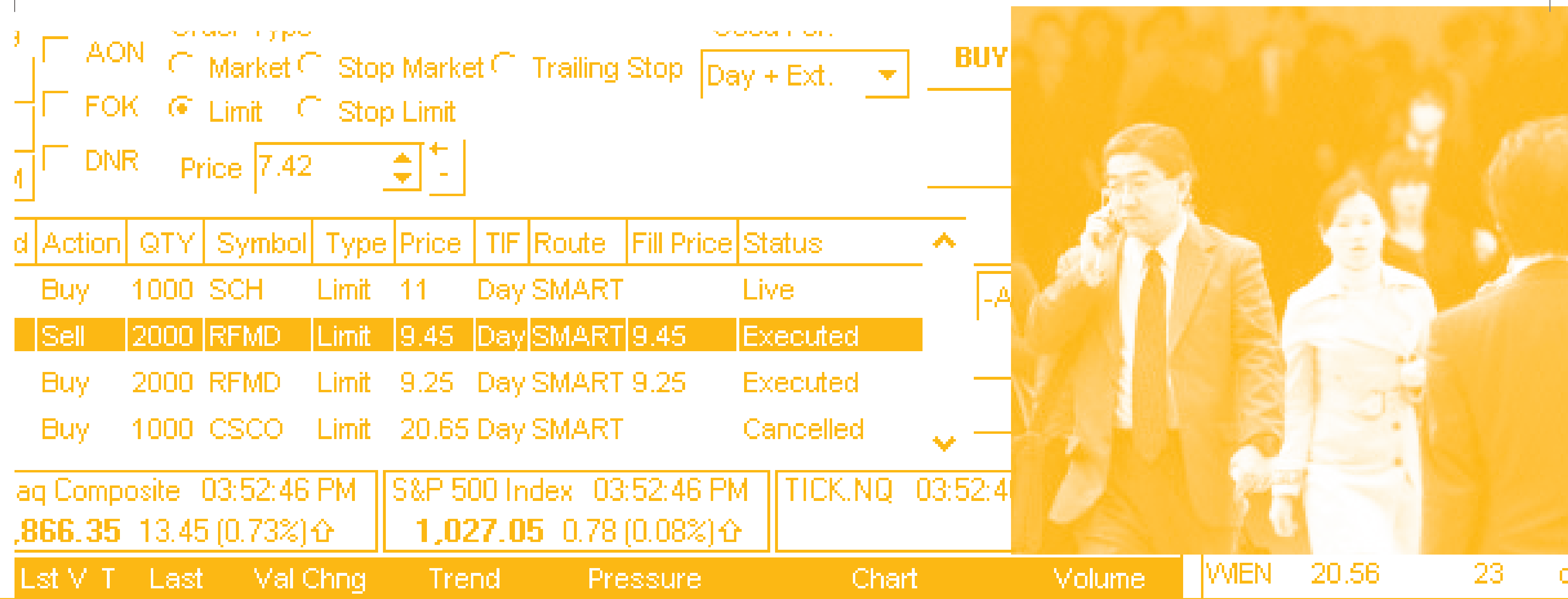
professional master



Financial Engineering and Quantitative Methods Corporate Finance

École des ponts
6-8 avenue Blaise Pascal
Cité Descartes – Champs-sur-Marne
77455 Marne la Vallée cedex 2
telephone: + 33 1 64 15 30 30
www.enpc.fr

ParisTech
Polytechnicum Marne la Vallée
ENSAE



Following the growing importance of financial markets and corporate finance development, not only corporations, but all banking and insurance operators must have a thorough command of tools for evaluating and managing financial assets and risks.
To answer this need, Ecole des ponts and ENSAE have created the professional master's programme « Corporate Finance (Financial engineering and quantitative methods) ».
This programme combines the teaching of mathematical tools with the presentation of professional activities in the area of finance; it thus enables students to make abilities in the field of mathematical modelling into sound operational skills in corporate finance.

Keywords

corporate finance

financial strategies

growth financing

mergers / acquisitions

profitability and value creation

flexibility and value

managing and distributing risks

financial modelling

probabilities / statistics

project financing

financial markets

international monetary system

banking and insurance

scoring

portfolio management

actuarial science

Monte-Carlo method

Purposes

The programme aims to train executives working in corporations and in banking and insurance companies, enabling them to master thoroughly:
- the economic and financial features of the tools and assets used by the main operators of capital markets;
- the models of risk evaluation and control, enabling these tools and assets to be used effectively in companies and financial services.

The international aspects of economic and financial issues are central to the programme, regarding training methods as well as the mix of students.
This feature gives significant added value to the programme, for students who shall be called to operate in a multicultural and dynamic environment.

Professional opportunities

Large multinational companies are a natural opening for students, for positions such as cash manager or financial controller, but also as executives in charge of external growth, including the financing of such operations and all share issuing operations.

The increasing role of financial markets also opens to graduates positions such as trader, “quant”, or research and development engineer.

In the field of banking, mergers/acquisitions and financial operations (IPO, LBO, financing of acquisitions) are natural openings for graduates. Positions such as specialist of loan granting, risk management, or portfolio management, also represent complementary employment opportunities.

As a parallel possibility in the field of insurance, actuarial capacities lead to tasks such as insurance pricing, contract creation, contingency provision, and risk management. The internal and external auditing of insurance companies and the position of statutory examiner are also possible openings.

Personalized and active training methods

So as to fit in the best possible way in the curriculum of each student, the programme offers a 3 semester's cycle, enabling students to acquire 90 ECTS.
The programme may be completed by an introductory semester, enabling students to acquire 30 more ECTS, according to their academic and professional curricula.

The full programme thus includes:
- An **optional** module, enabling students to **update their abilities** (30 ECTS) ; this module is managed by the student himself, under the supervision of the director of the programme
- Two semesters of **academic courses**, combining core courses and specific ones, according to the sub-programme chosen by the student (60 ECTS) ;
- A semester of **professional internship in a firm** (30 ECTS).

Three areas, three sub-programmes

According to their professional projects, students can choose from the beginning between three specialized sub-programmes, around a common core.
The common core includes courses in the following areas: corporate finance, market finance, and economy, together with statistics, computer science, and financial mathematics.
The first sub-programme, « **Corporate finance** », enables students to acquire specific skills in the areas of project management, financing of acquisitions, cash management, and risk management.
The second sub-programme, « **Banking and insurance** », concentrates on the areas of the management of financial operations, measuring and managing credit risks, static and dynamic portfolio analysis, and the creation of insurance products through financial mathematics.
The third sub-programme, « **Financial mathematics and derivatives** », concentrates on methods and processes enabling the identification of risks attached to the offer of financial products, from the point of view of firms (financing policy) or of financial services (relation between risk and profitability for derivatives).

Internship and memoir

Professional internships are achieved in a wide range of firms, all of which are also possible recruiters : Suez, Valéo, Renault, Danone, L'Oréal, BNP-Paribas, Société Générale, Fortis, Crédit Mutuel, CIC, Crédit Lyonnais, Electricité de France, Gaz de France, Caisse des Dépôts et Consignations, Summit ...

After a five months internship, students are called to write a report, referring to the issues which have been analysed during the programme and applying them to the solution of a practical problem.

A training team of highly specialized executives and researchers

Anne-Marie BORDERIE
CIC-CM, administrator of SFAF
Arthur CHARPENTIER
ENSAE - CREST
Jean-François DELMAS
Ecole des ponts - CERMICS
Christian GOURIEROUX
CREST - ENSAE and University de Toronto
Dominique JACQUET
Ecole des ponts - University of Paris X-Nanterre
Pierre JACQUET
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EuroRSCG C&O
Michel du MOUTIER
Ecole des ponts - University of Paris X-Nanterre
Anne-Marie RIEU
Banque de France

List of courses

Module for the updating of abilities (optional)

- Principles of management and finance (3 ECTS)
- Principles of corporate management (3 ECTS)
- Introduction to probabilities (3 ECTS)
- Computer science (3 ECTS)
- Introduction to management and accounting (3 ECTS)
- General outlook on finance (3 ECTS)
- Principles of micro economy (3 ECTS)
- Principles of macro economy (3 ECTS)

Common core

- Corporate financial strategies (5 ECTS)
- Flexibility and value (4 ECTS)
- Evaluating and financing acquisitions (4 ECTS)
- Finance : mathematical and numerical aspects (4 ECTS)
- Statistics (3 ECTS)
- Econometrics (4 ECTS)
- Game and decision theories (4 ECTS)
- Business English (3 ECTS)

Sub-programme « Corporate finance »

- Advanced financial analysis (5 ECTS)
- New accounting standards IAS / FAS (4 ECTS)
- Financial communication (4 ECTS)
- Cash management and risk management (4 ECTS)
- Project financing (4 ECTS)
- Competition and markets (4 ECTS)
- International economic policies (5 ECTS)

Sub-programme « Banking and insurance »

- Risk management (3 ECTS)
- Scoring methods (3 ECTS)
- Credit risks (3 ECTS)
- Portfolio management (3 ECTS)
- Regulations for banking and financial markets (3 ECTS)
- Actuarial science for pension schemes (4 ECTS)
- Actuarial science for non-life insurance (4 ECTS)
- Quantitative methods for insurance (4 ECTS)
- Insurance regulations (3 ECTS)

Sub-programme « Financial mathematics and derivatives »

- Quantitative financial methods (2 ECTS)
- Monte Carlo method for finance (4 ECTS)
- Optimization and control (4 ECTS)
- Modelling, programming, simulating (8 ECTS)
- Determinist methods for finance (4 ECTS)
- Default risks, payment risks / Interest rate models (6 ECTS)