Solvay Brussels School
Economics & Management

ULB

ADVANCED MASTER IN QUANTITATIVE FINANCE

AM.SOLVAY.EDU

INTRODUCTION

The 21st century has seen a drastic quantification of the financial markets. With the emergence of ever-faster computers, more complex products and trading strategies have become omnipresent in finance. In order to be able to understand the current financial environment, quantitative skills are nowadays no longer an asset, but a necessity.

Through a well-selected set of courses in Mathematics, Statistics / Econometrics, Finance and Programming you will gain all the necessary skills and beyond to become a successful financial professional.

The program covers quantitative asset management, derivative pricing and risk management. It is particularly well-suited for students with a quantitative background, obtained either from recent education or through professional experience.

JEROEN KERKHOF

Academic Director

LEARNING OBJECTIVES

The main objective is to train a new generation of financial professionals. You will gain cutting-edge knowledge in quantitative finance and learn to apply it to real-life problems. You will not only be exposed to some of the latest and most-used techniques and models, but also understand their advantages and limitations.

By the end of the program, participants will be able to:

- BUILD ASSET MANAGEMENT STRATEGIES AND CONSTRUCT ROBUST ASSET PORTFOLIOS BOTH WITHIN ASSET CLASSES AS WELL AS ACROSS DIFFERENT ASSET CLASSES.
- CREATE, PROGRAM AND BACK-TEST STRUCTURED DERIVATIVE PRODUCTS. GAIN A BETTER OVERALL UNDERSTANDING OF THE DERIVATIVES MARKETS COMPARED TO OTHER GRADUATE STUDENTS AND MANY JUNIOR PROFESSIONALS.
- EFFICIENTLY EXTRACT DATA FROM MASSIVE DATABASES AND UNDERSTAND THE VALUATION ASPECTS OF COUNTERPARTY RISK IN DERIVATIVES TRADING (ARGUABLY TWO OF THE HOTTEST AREAS IN TODAY'S QUANTITATIVE FINANCE).
- UNDERSTAND THE CONTEXT OF THE FINANCIAL MARKETS WHERE THESE PRODUCTS EXIST AND ANALYSIS ARE FRAMED. BE MORE EFFECTIVE AND CREATIVE IN THEIR PROFESSIONAL ENVIRONMENT AND THEREFORE PROGRESS MORE QUICKLY IN THEIR CAREERS.

PROGRAM CONTENT

This Advanced Master is a full-time course (60 ECTS) including:

- **48 ECTS of courses (September to May)**

High-level coursework delivered by an exceptional cast of professors comprised of highly respected academics and senior financial professionals.

Courses are in the afternoon and evenings to enable (advanced) participants to combine it with a part-time professional activity.

Most courses are hands-on and you will learn by doing through multiple (computer) assignments. For the computer assignments you will use the popular Python and C++ programming languages.

- **12 ECTS for a 3-month internship in a top-quality financial institution or a Master's thesis** (Term 5, June to August).

TERM 1	TERM 2	TERM 3	TERM 4
PROBABILITY	ASSET PRICING: THEORY	ASSET PRICING: PRACTICE II	BIG DATA & ALGO TRADING
OVERVIEW OF FINANCIAL MARKETS & REGULATION	DERIVATIVE PRICING: THEORY	RISK & RISK MANAGEMENT	MODERN ROBO ADVISORY
FINANCIAL ENGINEERING & DATA SCIENCE (FEDS) I	FINANCIAL ECONOMETRICS	OBJECT-ORIENTED PROGRAMMING USING C++	DERIVATIVE PRICING: PRACTICE
STOCHASTIC CALCULUS	ASSET PRICING: PRACTICE I	FIXED INCOME	CREDIT RISK
ESTIMATION THEORY & NUMERICAL METHODS	FINANCIAL ENGINEERING & DATA SCIENCE (FEDS) II		FINANCIAL ENGINEERING & DATA SCIENCE (FEDS) III

** Program courses are subject to marginal changes.*

STUDENT TRIP (OPTIONAL): PARTICIPANTS HAVE THE OPPORTUNITY TO JOIN OUR STUDENT TRIP, WHICH IS ORGANIZED EVERY YEAR, WHERE THEY GET THE CHANCE TO VISIT VARIOUS INSTITUTIONS AND COMPANIES AND ATTEND TALKS FROM GUEST SPEAKERS.

INTERNSHIP

The career service assists with finding an internship. In previous years, students have found internships in Belgium and abroad in places ranging from high-quality local players such as ING, Belfius, BNP Paribas Fortis, GDF Suez, the European Commission to a Los-Angeles based hedge fund.

This 3-month hands-on internship at a top-quality institution will often serve as a starting point to a full-time position.

In recent years over 80% of the graduates had found a job before graduating.

PARTICIPANTS PROFILE

The Advanced Master in Quantitative Finance is aimed at:

- THE HIGHEST-CALIBRE STUDENTS, DISPLAYING THE GREATEST MOTIVATION TO TAKE AND COMPLETE THE PROGRAM
- CANDIDATES WITH AN OUTSTANDING ACADEMIC BACKGROUND, INTELLECTUAL CURIOSITY AND THE DISCIPLINE NECESSARY TO SUCCEED IN A VERY DEMANDING ENVIRONMENT
- CANDIDATES WITH AT LEAST A GRADUATE DEGREE OR EQUIVALENT. THIS DEGREE SHOULD BE, BUT NOT EXCLUSIVELY, IN ECONOMICS, FINANCE, MATHEMATICS, PHYSICS, CHEMISTRY OR ENGINEERING
- PROFESSIONALS FROM THE FINANCIAL SECTOR WITH EXPERIENCE IN QUANTITATIVE ACTIVITIES

JOB OPPORTUNITIES

Quantitative analyst, quantitative risk manager / analyst at a bank or asset manager,

Quantitative portfolio manager at an asset manager, derivatives trader at bank,

Asset liability manager, analyst at a pension fund or insurance company,

and many more.

WHAT MAKES US DIFFERENT

- A MULTI-FACETED AND BALANCED COMBINATION OF THEORY AND PRACTICE, WITH A LOT OF EMPHASIS ON HANDS-ON ASSIGNMENTS OF REAL-LIFE PROBLEMS
- TOP LECTURERS FROM BOTH THE ACADEMIC AND FINANCIAL SECTORS
- A PLACEMENT RATE WITHIN 3 MONTHS AFTER GRADUATION OF NEARLY 100%
- 3-MONTH INTERNSHIP PROGRAM ORGANISED IN TOP-QUALITY INSTITUTIONS IN BELGIUM OR ABROAD
- CAREER SUPPORT: INDIVIDUAL CAREER COACHING
- THE SOLVAY ALUMNI NETWORK: BECOME PART OF ONE OF THE LARGEST BUSINESS NETWORKS IN BELGIUM

CÉLINE DE BROSSES
Belfius,
Alumna

The program is comprehensive and goes deep in every subject. Consequently it is very demanding. But you are not alone. Teachers are always willing to push you forward and students help each other a lot.

Get real expertise in state-of-the-art financial techniques.

GILLES JACOBS
Nafora SA,
Alumnus

To me, what was very interesting was the good mix between practitioners and academics in the teaching staff. Furthermore, the program is not focused on academic teaching only, but more on practical applications.

WIM VAN HYFTE
Professor and Quantitative Portfolio Manager, Candriam Asset Management

The strength of this Advanced Master is that it teaches you the complete advanced skill set you need to work in the financial sector.

ANASTASIOS TALIOTIS
JP Morgan,
Alumnus

This program enabled me to transform myself from a theoretical physicist to a hands-on researcher in a quantitative hedge fund in a single year. It comes highly recommended!

SOLVAY BRUSSELS SCHOOL OF ECONOMICS AND MANAGEMENT

SBS-EM is the faculty of Economics and Management of the Université libre de Bruxelles (ULB), with a century-old tradition of excellence in higher education. Our alumni represent a network of more than 20.000 and are present in all sectors of activities in more than 65 countries worldwide. Each year the School, which is EQUIS- and AMBA-accredited, welcomes more than 4.200 students.

4,200
STUDENTS
PER YEAR

56th
IN EUROPE
FT EU BUSINESS SCHOOLS

1st **RECRUITERS FAVORITE**

43d
WORLDWIDE
FT MASTER IN MANAGEMENT

41%
FOREIGN FACULTY
MEMBERS

130 **EXCHANGE** PROGRAM **PARTNERS**

25%
INTERNATIONAL STUDENTS

ADMISSIONS

REQUIREMENTS

Eligible applicants must hold one of the following:

- Master or Master of Science Degree or equivalent (four or five years of study overall)
- Bachelor Degree with 180 ECTS credits or equivalent, preferably followed by 1-3 years of work experience.

HOW TO APPLY?

Please submit the following documents:

- Online application form
- CV/resume in English
- Copies of University degree or degrees and of all academic transcripts
- Proof of English proficiency (TOEFL, TOEIC or equivalent) for non-native speakers
- A cover letter in English

If the applicant deems it relevant, he/she can support the application with:

- Letters of reference
- Any other certificate (GMAT, GRE, etc.)

If eligible, applicants will go through an admission interview with the Academic Director.

PRACTICAL INFORMATION

- START DATE: every September
- DURATION: 11 months
- FORMAT: Full time, evening classes, 60 ECTS
- LOCATION: Brussels, Belgium
- LANGUAGE: English
- TUITION FEE: 15,000 euros (contact us for more information on financial aid)
  The fee does not include the optional Student Trip.
- APPLICATION DEADLINE: Non-EU students: May 31st, 2018 (recommendation related to visa procedures)
  EU students: July 15th, 2018

DEGREE AWARDED

- "Advanced Master in Quantitative Finance" university certificate delivered by Solvay Brussels School of Economics & Management - Université libre de Bruxelles.

CONTACT

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The school organises regular information sessions in Brussels and online.
Check the website for more information.

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Association of MBAs

EQUIS ACCREDITED