



## Master in Mathematics

General Mathematics - Financial Mathematics

### Aims of the programme

The programme provides a broad education and strong background in Mathematics; it enables students to proceed to the front of knowledge in one of the major fields of Mathematics. With the expertise gained, graduates will be able to use and adapt mathematical methods, to recognise and analyse mathematical structures, and to approach other areas of knowledge. With its flexibility, the programme meets our students' various interests and needs, and opens up different career perspectives.

### Career opportunities

The programme is designed for students who wish to prepare for careers related to Mathematics. It enables students to acquire expertise and professional qualification

- to work in the financial sector
- to work in other private or public sector companies
- to become teachers in secondary education
- to work in public research and higher education

Due to attractive options and specialisations (e.g. *Financial Mathematics*), along with the practical orientation of the programme (including industrial cooperations and internships with banks and companies in Luxembourg), graduates are well-prepared for a diversified job market.

For students with the career goal *Teacher in Secondary Education* in Luxembourg, the master programme, in combination with a Bachelor degree, offers the required 5-year academic education.

### Course programme

The first year of the programme focuses on deepening the mathematical skills. The second year allows specialisation in the options:

#### • General Mathematics

Students following this option choose an area of specialisation in a field of current mathematics (either pure or applied) in which they acquire profound mathematical knowledge. This direction is also intended for prospective teachers.

#### • Mathematical Finance

This option provides students with mathematical skills for a wide range of career opportunities in the financial industry. Special emphasis lies on modern stochastic methods used in areas such as financial modelling, derivatives pricing, hedging, risk management, stochastic optimisation and control.

## Studying in Luxembourg

The University of Luxembourg, founded in 2003, offers an inspiring international multilingual learning environment with innovative course formats and a high degree of interaction due to small student groups.

As Luxembourg is one of the most important finance places of Europe with increasing needs of highly qualified staff, the *Master in Mathematics* with the option *Mathematical Finance* offered by the University of Luxembourg, is unique in this respect. Students can make their internship and Master Thesis in close cooperation with Luxembourg's financial institutions.

Due to close contacts of the Mathematics Research Unit with the system of secondary education in Luxembourg, studying at the University of Luxembourg has considerable advantages for prospective teachers. Special courses coach students for the entrance examination to the biennial practical work placement.

## Programme outline

### Duration

The programme has a standard duration of 4 terms (2 years – 120 ECTS) and ends with the *Master of Science in Mathematics* degree.

### Language

The University of Luxembourg provides a multilingual environment. The main teaching language is English.

### Courses

The curriculum consists of core courses which are compulsory for all students and others which are compulsory within the chosen specialisation. Apart from these restrictions, our students profit from a maximum of flexibility in their choice of optional courses.

### Master Thesis

The Master Thesis is written in the area of specialisation during the last semester. For students with the specialisation in *Mathematical Finance* a financial industry internship ("stage") is compulsory. The Master Thesis may be combined with the internship and (co-)supervised by a member of the institution where the internship is performed. For the option *General Mathematics* a Master Thesis in collaboration with industry is possible if suited to the topic.

### Start of the programme

September 2009

## Application requirements

Admission to the programme requires a first academic degree (e.g. a Bachelor degree) in Mathematics or in a related subject.

## Contact information

The programme is organised by the Mathematics Research Unit (Unité de recherche en mathématiques)

### Please do not hesitate to contact us:

Mathematics Research Unit  
University of Luxembourg / Campus Limpertsberg  
162a, avenue de la Faiëncerie  
L-1511 Luxembourg

<http://math.uni.lu>  
[katharina.heil@uni.lu](mailto:katharina.heil@uni.lu) (office)

Prof. Dr. Norbert Poncin  
[norbert.poncin@uni.lu](mailto:norbert.poncin@uni.lu)  
T +352 / 46 66 44-6376

Prof. Dr. Anton Thalmaier  
[anton.thalmaier@uni.lu](mailto:anton.thalmaier@uni.lu)  
T +352 / 46 66 44-6238

## Enrolment

Online registration will be possible on [www.uni.lu](http://www.uni.lu) in the students' section starting January 2009. The "Service des Études et de la Vie Étudiante" (SEVE) provides enrolment and individual support to students: [seve.infos@uni.lu](mailto:seve.infos@uni.lu)  
Updated information about the programme will appear regularly on the homepage of the Master  
<http://math.uni.lu/master>