

# Careers with mathematics degree

*Incredible opportunities in  
Luxembourg and beyond*





# Mathematicians are among the most sought-after professionals.

What kind of jobs do mathematicians do?  
What is the current market need for mathematicians?  
What are our graduates in mathematics doing now?  
**Let's have a look together.**



# Table of Contents

<b>What can you do with a degree in mathematics?</b>	<b>4</b>
<b>What is the current market need for mathematicians?</b>	<b>6</b>
<b>Where are our graduates in mathematics working now?</b>	<b>8</b>
<b>Testimonials graduates</b>	
Working in banking	10
Working in consulting	14
Working in education	18
Working in research	20
Working in industry	22
Working in information technology	24
Working in insurance	26

# What can you do with a degree in mathematics?

A degree in mathematics opens a wide range of career opportunities across various fields. Here are some popular career paths for math graduates:



## Data analyst

collects, analyses, and interprets data to solve real-world problems in business, engineering, healthcare, and other fields

## Research scientist

investigates abstract theories and complex problems to advance mathematical knowledge, develop new models or proofs

## Actuary

analyses financial risks using mathematics, statistics, and economic theory to help make informed decisions for the future

## Mathematics teacher

educates students in mathematical concepts, problem-solving, and logical reasoning, tailoring instruction to different skill levels

## Financial analyst

evaluates market trends and economic data, to provide insights and recommendations that guide investment decisions

## Economist

studies how resources are produced, distributed, and consumed, using data and models to forecast economic trends

## Software developer

designs, builds, tests, and maintains computer programmes or applications by writing code and solving technical problems

## Cryptographer

designs and analyses algorithms and systems that secure digital information, ensuring data privacy and protection





## What is the current **market need** for mathematicians?

The market for mathematicians is quite promising. Graduates are valued for their logical thinking, approach to problem solving and solid understanding of numbers and abstract concepts.

According to the U.S. Bureau of Labor Statistics, the employment of mathematicians and statisticians is projected to grow by 11% from 2023 to 2033, which is much faster than the average for all occupations<sup>1</sup>. This growth is driven by the increasing use of data and mathematical models to solve problems in various industries, including technology, finance, and healthcare.

In Europe, the demand for mathematicians is strong, particularly in fields related to science, technology, engineering, and mathematics

(STEM). According to the European Centre for the Development of Vocational Training (CEDEFOP), STEM professionals, including mathematicians, are among the top five occupations experiencing skill shortages across the EU<sup>2</sup>.

The European Commission also highlights the importance of mathematics in addressing major challenges in science, technology, and society, emphasizing the need for sophisticated mathematical tools to tackle pressing issues<sup>4</sup>.

<sup>1</sup> [www.bls.gov/ooh/math/mathematicians-and-statisticians.htm](https://www.bls.gov/ooh/math/mathematicians-and-statisticians.htm)

<sup>2</sup> [www.cedefop.europa.eu/en/news/skill-shortages-europe-which-occupations-are-demand-and-why](https://www.cedefop.europa.eu/en/news/skill-shortages-europe-which-occupations-are-demand-and-why)



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<sup>3</sup> [iciam.org/news/19/10/7/iciam-2019-panel-careers-mathematical-sciences-academia-and-industry](https://iciam.org/news/19/10/7/iciam-2019-panel-careers-mathematical-sciences-academia-and-industry)

<sup>4</sup> [https://ec.europa.eu/futurium/en/system/files/ged/finalreport\\_maths.pdf](https://ec.europa.eu/futurium/en/system/files/ged/finalreport_maths.pdf)

# Where are **our graduates** **in mathematics** working now?

Our graduates are making their mark across a wide range of industries, proving that a strong foundation in analytical thinking opens doors everywhere. From data science and finance to education, research, and cutting-edge tech companies, they are solving real-world problems and driving innovation.

Many have joined international organisations, while others are thriving in startups, government agencies, and academic institutions. Whether modeling complex systems, optimising logistics, or developing AI algorithms, their skills are in high demand—and their careers are as diverse as the field of mathematics itself.

Here are some examples of organisations where our alumni are currently working.

## Banking, Finance and Insurance



## Consulting

**Deloitte.**



## Information technology



## Industry



# Testimonials from our graduates

## Working in **banking**



### Giuseppe Bonavolontà

**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**

DOCTORATE IN MATHEMATICS  
GRADUATE IN 2013

**JOB TITLE:**

SENIOR HEAD OF CREDIT,  
CAPITAL AND ALM MODEL  
VALIDATION UNIT

**COMPANY:**

EUROPEAN INVESTMENT BANK



I chose mathematics for its inherent beauty and the intellectual fulfilment and satisfaction it brings, but also for its tremendous range of applications.



**What is your job about?**

I oversee the validation of the bank's financial models ensuring their accuracy, compliance, and reliability. This includes reviewing quantitative model assumptions, methodologies, implementation, data inputs and performance, as well as ensuring adherence to regulatory requirements. I lead a team of analysts, collaborate with stakeholders across risk, finance, and IT departments, and report validation outcomes to senior management. My role also includes managing model risk, improving validation frameworks, and ensuring the continuous development of validation processes in line with evolving regulations and industry standards.

**What interests you most?**

My interest in this role stems from a passion for quantitative analysis, problem-solving and risk management. The role offers the opportunity to ensure the accuracy and integrity of financial models, which are critical to a bank's decision-making. It provides a chance to work at the intersection of mathematics, finance, technology and regulation.

**When did you decide on your career path after graduation?**

Initially, I was uncertain about pursuing a career in research or industry but ultimately chose the latter a few months after completing my doctorate. I was drawn to the opportunity to apply mathematical principles to real-world practical problems.

**Why did you choose mathematics as your field of study?**

First and foremost, I chose mathematics for its inherent beauty and the intellectual fulfilment and satisfaction it brings, but also for its tremendous range of applications.

**Which courses turned out to be the most useful for your career and why?**

I can say there are notions and concepts from applied and basic mathematic classes that I have to use every day (financial mathematics, statistics, linear algebra, calculus) but it turned out that all the courses were incredibly useful, such as differential geometry, complex analyses, functional analysis, abstract algebra, topology.

**In your opinion, what aspects of your study profile gave you an advantage on the job market?**

The possibility to make a specific problem abstract, the ability to follow the logical steps one after the other without adding spurious hypotheses or assumptions, like in a theorem or a model or a code.

# Testimonials from our graduates

## Working in **banking**



### **Monika Zlopaša**

**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**  
MASTER IN MATHEMATICS  
GRADUATE IN 2019

**JOB TITLE:**  
RISK MANAGER

**COMPANY:**  
UBS FUND MANAGEMENT  
LUXEMBOURG



Having a mathematical background helps in differentiating yourself on the market and increases your chances to score an interview with your desired company.



**What is your job about?**

I am responsible for managing financial risk, such as market risk, credit risk, liquidity risk for investment funds. My responsibilities include setting risk profiles for investment funds, production of different quantitative risk measures, discussing results with portfolio managers and reporting to the senior management. In addition, I have the chance to work on many projects focused on defining and improving the risk management framework and systems of the company.

**What interests you most?**

For me, the most interesting part about my job is the combination of quantitative tasks such as analysis of risk measures and tasks requiring social skills such as discussions or presentations to different stakeholders. In addition, I have the opportunity to work with many different types of investment funds, in a very dynamic environment, hence my tasks are very different from day to day and definitely never boring.

**How did your studies prepare you?**

The mathematical studies have helped me develop my analytical skills, problem solving ability, made me more detail-oriented and helped me understand any complex financial product or concept presented to me.

**What previous jobs have you had?**

Prior to UBS, I have spent three years working for a consulting firm, Deloitte. Besides that, I have done a summer internship of three months at a satellite company in Luxembourg, SES.

**How do you see career perspectives for mathematicians?**

I believe mathematicians are doing extremely well on the job market and have the ability to choose between many interesting industries. With regards to the financial industry, the job market in Luxembourg has been very active with many companies looking for new profiles in the last years. Based on my experience, I can confirm that having a mathematical background helps in differentiating yourself on the market and increases your chances to score an interview with your desired company.

**Do you have any advice for young mathematicians?**

If you wish to work in the financial industry, I would advise mathematicians to work on their soft skills: presentation skills; ability to explain complex concepts in a simple and understandable way; social skills to be able to maintain successful professional relationships and lead meetings and calls; team working and solving of disputes; etc. Often these soft skill areas can be forgotten in a mathematical education.

# Testimonials from our graduates

## Working in **consulting**



### **Theodoros Christos Nikolaidis**

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**LINK WITH THE UNIVERSITY  
OF LUXEMBOURG:**  
MASTER IN MATHEMATICS  
GRADUATE IN 2019

**JOB TITLE:**  
MANAGER IN FINANCIAL RISK  
CONSULTING

**COMPANY:**  
ERNST & YOUNG LUXEMBOURG



What is really appreciated in the job market is the precision, consistency and methodology of a mathematician in problem solving.



**What is your job about?**

I specialise in helping financial institutions excel in risk management and measurement by designing and implementing control frameworks and quantitative models that enhance risk measurement and regulatory compliance. I also oversee the valuation team for over-the-counter derivatives, which provides quantitative audit support.

**What interests you most?**

Analysing the needs of my clients in risk management and measurement, designing and implementing tailor-made solutions that are in line with regulatory expectations.

**How did your studies prepare you?**

The Master in Financial Mathematics at the University of Luxembourg includes financial courses such as introduction to stochastic processes, option valuation and a sufficient amount of theoretical background. Indeed, the challenges faced in the financial industry are a bit simpler than what is being taught in academia. Nevertheless, it is highly beneficial to acquire a solid academic background.

**Please describe your curriculum. What previous jobs have you had?**

I was a private tutor for high school students in mathematics and physics. I also did an internship as analyst of life insurance policies.

**How do you see career perspectives for mathematicians?**

Frankly speaking, there is an abundance of jobs and careers a mathematician can follow. From computer science related data analysis, software development, market analysis, consulting and teaching. What is really appreciated in the job market is the precision, consistency and methodology in problem solving. Studies in mathematics offer skills in problem solving which make graduates reliable future employees.

**Do you have any advice for young mathematicians?**

Studying mathematics seems like climbing a mountain; often times you don't even see the peak and indeed it is a difficult ride. But, even with failures and no matter how difficult it might seem at the beginning, with effort and by making mistakes one eventually learns the objective and achieves their goal. Furthermore, studying mathematics is truly a brain-training; all the knowledge and skills a student acquires through their studies will follow them throughout their life. The core of education is mathematics to be understood as a language, and as such is a truly powerful skill to unlock.

# Testimonials from our graduates

## Working in **consulting**



### Jasper Van Hirtum

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**LINK WITH THE UNIVERSITY  
OF LUXEMBOURG:**

PHD IN MATHEMATICS  
GRADUATE IN 2017

**JOB TITLE:**

MANAGING CONSULTANT  
- INNOVATION INCENTIVES

**COMPANY:**

LEYTON

**LEYTON**

Any job, especially a first one, will require training and learning new things. I believe the skills learned during my mathematical studies allowed me to learn new things very fast and helped accelerate my career.



**How did your studies prepare you?**

My studies did not prepare me for any particular job. Instead, it helped me develop abstract and logical thinking. Any job, especially a first one, will require training and learning new things. I believe the skills learned during my mathematical studies allowed me to learn new things very fast and helped accelerate my career.

**Please describe your curriculum. What previous jobs have you had?**

After my PhD, I worked for a start-up that develops a web-based solution for travel and expense management. I started as an analyst-developer and quickly advanced to lead a team of four developers.

**How do you see career perspectives for mathematicians?**

The hard skills required for scientific jobs are evolving very fast. By the time you finish a specialised education, the field might have already evolved to the next big thing. However, any future technical or scientific career requires abstract thinking and logical reasoning. A mathematics degree shows a future employer that you have that skill and that you will be able to apply it in any context.

**Do you have any advice for young mathematicians?**

Studying pure mathematics does not fix you into one single career, this makes mathematics an ideal path toward those jobs that do not exist yet.

# Testimonials from our graduates

## Working in **education**



### Florence Zeyen

**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**

MASTER IN SECONDARY EDUCATION  
GRADUATE IN 2018

**JOB TITLE:**

SECONDARY SCHOOL  
MATHEMATICS TEACHER

**COMPANY:**

LYCÉE MICHEL LUCIUS



Mathematicians are those who sent one job application or none.



**What is your job about?**

I finished my traineeship in 2021 at the secondary school where I was a student myself (Lycée Michel-Rodange Luxembourg). I was accompanied by qualified teachers who shared their practical experience with me. I'm very grateful for those three years of reflective teaching. I am currently teaching at Lycée Michel Lucius in Luxembourg City.

**What interests you most?**

Although it can be challenging sometimes, positive student-teacher interactions are truly amazing and very fulfilling.

**How did your studies prepare you?**

My mathematical studies have helped me provide my students with mathematically correct materials.

**Please describe your curriculum. What previous jobs have you had?**

I have never had another job, nor would I have wanted to work as anything else but a teacher. I went straight from high school to university and back to school as a teacher.

**How do you see career perspectives for mathematicians?**

It is very easy to find a job as a mathematician. I was once told by a medical doctor that "Mathematicians are those who sent one job application or none", and I think that this is accurate.

**Do you have any advice for young mathematicians?**

Never give up. It's tough to graduate in mathematics, and by the time I got to university, I thought that it would be unachievable for me. The students before you made it too, so you should give it your best and believe that you can achieve your goal as well. The final result is worth the hard work.

# Testimonials from our graduates

## Working in **research**



### **Aleksandra Frania**

**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**

MASTER IN DATA SCIENCE  
GRADUATE IN 2025

**JOB TITLE:**

RESEARCH AND DEVELOPMENT  
SPECIALIST

**COMPANY:**

UNIVERSITY OF LUXEMBOURG



Mathematics opens a crazy number of doors, simply because all companies need mathematicians.



**What is your job about?**

I work at the Luxembourg Centre for Educational Testing (LUCET), within the University of Luxembourg. I am part of a few different projects, splitting my time between machine learning and database migration. While this may not sound very mathematical, it is the structured thinking that mathematics has taught me that forms the basis of everything I do.

**Why did you choose to study mathematics?**

I like how precise and explainable mathematics is. In a world full of ambiguity, there is a lot of inner peace to be found in such a black-and-white field.

**How did your studies prepare you?**

Most of all, they taught me how to think. I think many people do not realise just how much structure mathematics creates in your mind, and how strongly your thought process changes the deeper you dive into complex topics. At some point, you realise you've even started doing house chores in a different way or order, simply because it's more logical than the methods you'd always used before, and you end up laughing at yourself. I do have to say that it's a blessing and a curse, though – it can be very frustrating to become more and more aware of the lack of logic and structure in the world around you.

**When did you decide on your career path after graduation?**

At first, I was planning to become a teacher, but during my bachelor's I realised that I wanted my brain to keep working on more complex mathematics than the ones I would be teaching in a high school. So I pursued a Master in data science, and by the end of the first year, I knew it was the right choice. What fully shaped my career choices, though, was my six-month end-of-studies internship at Goodyear, where I experienced first-hand what it's like to work in a team of data scientists – and that's when I knew this was the path for me. However, since data science is quite a broad field, I knew I wanted to stick with the more mathematical side of it.

**How do you see career perspectives for mathematicians?**

I think they're much better than we're led to believe in high school. I used to think that after studying mathematics, the only possible career was teaching, but in reality, mathematics opens a crazy number of doors – simply because all companies need mathematicians, even if their services have nothing to do with mathematics directly.

**Do you have any advice for young mathematicians?**

The beginning of the studies is tough, but it does get better. Explore what interests you, stick to what you like, survive what you don't – and your career path will shape itself!

# Testimonials from our graduates

## Working in **industry**



### **Cristina Barbolan**

**LINK WITH THE UNIVERSITY  
OF LUXEMBOURG:**  
MASTER IN MATHEMATICS  
GRADUATE IN 2013

**JOB TITLE:**  
HEAD OF CONTROLLING

**COMPANY:**  
ARCELORMITTAL



Initially I applied for an internship in ArcelorMittal. I was then proposed to join permanently and since then my career has been evolving to supervisor and manager.



**What is your job about?**

As Manager in the Performance Management team, my key mission has been to review, analyse and comment on the performance of business units and segments of the company based on Key Performance Indicators, preparing group presentations to support business leadership in decision making. This was achieved in close collaboration with other transversal departments in corporate finance. I've been responsible for the database used by the team for reporting, strongly contributing to the improvement and optimisation of the systems and processes in place. In addition, I've coordinated the implementation of robotic process automation to automate repetitive tasks.

**Please describe your curriculum.****What previous jobs have you had?**

Initially, I applied for a 6-month internship at ArcelorMittal during the last year of my Master programme. Before the end of the internship, I was proposed to join permanently the Performance team as a junior analyst. Since then, my career has been evolving: I have assumed different responsibilities within the team and I was promoted to Supervisor, becoming Manager.

# Testimonials from our graduates

## Working in **information technology**



### Francis Osei

**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**  
MASTER IN DATA SCIENCE  
GRADUATE IN 2023

**JOB TITLE:**  
LEAD CLINICAL AI & DATA  
SCIENTIST

**COMPANY:**  
BAYEZIAN LIMITED



Mathematics provides a solid foundation for understanding complex systems and offers the tools needed to analyse and solve a wide range of real-world problems.



**What is your job about?**

I lead the development of AI and statistical approaches that drive innovation and improve automation in clinical research. My work brings together generative AI, data science, and governance to help ensure technology is used responsibly and in line with regulatory standards across healthcare and the pharmaceutical industry.

**What interests you most?**

I'm most interested in how AI and statistics can be used to make a real difference in healthcare. I'm interested in work that improves how we run clinical research and make decisions while making sure everything stays transparent, ethical, and in line with what's right for patients. I find it rewarding when technical work leads to meaningful change in the real world, especially when I can bring together knowledge from statistics, machine learning, generative AI, and network modelling to solve complex problems.

**How did you decide on your career path after graduation?**

I decided on my career path after graduation when I recognised the potential for AI and data science to revolutionise industries, particularly through automating complex processes like clinical trials.

**Why did you choose mathematics as your field of study?**

I chose mathematics as my field of study because I have always been fascinated by the logical structure and problem-solving nature of the subject. Mathematics provides a solid foundation for understanding complex systems and offers the tools needed to analyse and solve a wide range of real-world problems.

**Which courses turned out to be the most useful for your career and why?**

Every course I completed during my studies played a crucial role in shaping my career. Courses in mathematics and statistics provided the essential foundation for understanding and developing complex models in data science and AI, while advanced courses in machine learning and artificial intelligence equipped me with the skills to design and implement sophisticated algorithms.

**In your opinion, what aspects of your study profile gave you an advantage on the job market?**

The aspects of my study profile that gave me a significant advantage in the job market were my strong background in mathematics and statistics, along with the practical experience gained during my student job at the Luxembourg Institute of Socio-Economic Research (LISER).

# Testimonials from our graduates

## Working in **insurance**



### Patrick Hilger

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**LINK WITH THE UNIVERSITY OF LUXEMBOURG:**

MASTER IN MATHEMATICS  
GRADUATE IN 2011

**JOB TITLE:**

ACTUARY - HEAD OF  
THE ACTUARIAL AND  
REINSURANCE SERVICE

**COMPANY:**

LALUX ASSURANCES



Stay curious! Embrace  
the challenge of facing  
new problems and  
discovering new things.



**What is your job about?**

I work as an actuary at one of the leading Luxembourgish non-life insurance companies. My responsibilities include topics like pricing and reserving, but also profitability analysis, statistical and regulatory reporting, risk analysis and management, and multiple other topics relating to the technical piloting of the company.

**What interests you most?**

The most interesting part of my job is the diversity of the challenges I face daily, which gives me the possibility to continuously learn new things. The variety of subjects I work on ranges from technical tasks, where I can put in use my theoretical knowledge and implement mathematical models, to more interdisciplinary tasks, which require the logical mindset of a mathematician. The balance between application of knowledge, analytical skills, problem solving, creating and improving solutions, as well as learning new things from various domains is what keeps me interested and motivated in my job.

**How did your studies prepare you?**

Most importantly, my mathematical studies allowed me to develop my analytical mindset, critical and logical thinking, the capacity of abstraction, as well as problem solving skills. These are assets I can rely on every day.

**Please describe your curriculum.****What previous jobs have you had?**

I went into this field because of my interest and love for mathematics, the logical and analytical thinking that is so often associated with it, and my passion for problem solving. During my studies, I was still thinking about different career choices. After my bachelor and master studies in general mathematics at the University of Luxembourg, I had a brief excursion into teaching. As much as I value the experience, I soon realised that I missed “doing maths”. Taking a leap of faith, I reoriented my career path towards actuarial sciences, which I see as an application of mathematical tools and skills in a specific domain.

**How do you see career perspectives for mathematicians?**

Mathematics and science are needed in our society. Job opportunities for mathematicians exist in a lot of different domains. You might have to look more broadly at job descriptions, because a lot of positions are looking for the way of abstract thinking and approaching problems logically, rather than a direct application of theoretical knowledge.

**Do you have any advice for young mathematicians?**

Stay curious! Embrace the challenge of facing new problems and discovering new things. Your analytical mindset and problem-solving skills are your greatest asset in the job world. You might have to look a bit over the edge of what you are used to and work on other skills, but eventually you will find the job that suits you the most and allows you to reach your goals.



Faculty of Science  
Technology  
and Medicine

## Contact

### University of Luxembourg

Faculty of Science, Technology  
and Medicine (FSTM)

[fstm.uni.lu](http://fstm.uni.lu)

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L-4365 Esch-sur-Alzette

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L-1359 Luxembourg

### Campus Limpertsberg

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L-1511 Luxembourg

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## Stay in touch

