

Financial Mathematics

CAO code: DN200 Option: Mathematical, Physical & Geological Sciences (MPG)

Sample pathway for a degree in Financial Mathematics *



- Develop strong mathematical, problem-solving and analytical skills used in banking and finance
- Learn the mathematical theories that underpin financial models, as well as computational expertise in the algorithms used to price financial products

“ When I learned about Financial Mathematics, it sounded like the perfect way to continue to study mathematics while also combining it with my interest in financial markets. I was lucky enough to get to go abroad for my third year to UC Berkeley in California which was an amazing experience. I completed an internship in the summer between third and fourth year at Credit Suisse and was able to earn credits as part of the professional placement module. After I graduated, I went back to work at that same firm full time. ”

Joseph Mulligan, Graduate

YEAR 1 ENGAGE WITH THE PRINCIPLES

<p>MATHEMATICS Modules include:</p> <ul style="list-style-type: none"> ▶ Calculus in the Mathematical and Physical Sciences ▶ Linear Algebra in the Mathematical and Physical Sciences ▶ Numbers and Functions ▶ Mathematical Analysis 	<p>STATISTICS Modules include:</p> <ul style="list-style-type: none"> ▶ Statistical Modelling 	<p>APPLIED & COMPUTATIONAL MATHEMATICS Modules include:</p> <ul style="list-style-type: none"> ▶ Applications of Differential Equations 	<ul style="list-style-type: none"> ▶ One Elective module ▶ One Small-Group Project
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YEAR 2 CHOOSE YOUR SUBJECTS

The subject combinations listed below are illustrative of what a student who graduates in Financial Mathematics could choose in Year 2. Further subject combinations are possible depending on the choices in Year 1. Further information is available on page 19.

<p>FINANCIAL MATHEMATICS Modules include:</p> <ul style="list-style-type: none"> ▶ Calculus of Several Variables ▶ Linear Algebra 2 ▶ Theory of Games ▶ Business Economics ▶ Foundations in Finance 	<p>STATISTICS Modules include:</p> <ul style="list-style-type: none"> ▶ Inferential Statistics ▶ Probability Theory ▶ Predictive Analytics 	<p>APPLIED AND COMPUTATIONAL MATHEMATICS Modules include:</p> <ul style="list-style-type: none"> ▶ Computational Science ▶ Vector Calculus 	<ul style="list-style-type: none"> ▶ Two Elective modules
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YEAR 3 FOCUS ON YOUR CHOSEN SUBJECT

<p>FINANCIAL MATHEMATICS – Modules include:</p>			
<ul style="list-style-type: none"> ▶ Foundations for Financial Mathematics ▶ Partial Differential Equations ▶ Metric Spaces 	<ul style="list-style-type: none"> ▶ Fundamentals of Actuarial and Financial Mathematics ▶ Optimization in Finance ▶ Corporate Finance 	<ul style="list-style-type: none"> ▶ Statistical Machine Learning ▶ Computational Finance ▶ Stochastic Models 	<ul style="list-style-type: none"> ▶ Two Elective modules

YEAR 4 REFINE YOUR KNOWLEDGE

<p>FINANCIAL MATHEMATICS – Modules include:</p>			
<ul style="list-style-type: none"> ▶ Measure Theory and Integration ▶ Stochastic Analysis 	<ul style="list-style-type: none"> ▶ Financial and Actuarial Mathematics ▶ Investment and Trading ▶ Advanced Risk Management 	<ul style="list-style-type: none"> ▶ Time Series Analysis ▶ Monte Carlo Inference ▶ Advanced Topics in Computational Science 	

BSc (Honours) Financial Mathematics

<p>MSc (Taught)</p> <ul style="list-style-type: none"> ▶ MSc Financial Mathematics ▶ MSc Mathematical Science ▶ MSc Statistics ▶ MSc Actuarial Science ▶ MSc Business Analytics ▶ MSc Data Analytics 	<p>PhD</p> <ul style="list-style-type: none"> ▶ Graduates can pursue a PhD in algorithmic trading, or stochastic differential equations, for example. 	<p>Industry</p> <ul style="list-style-type: none"> ▶ Quantitative positions in the financial sector ▶ Risk modelling in banking and insurance ▶ Computing in business, technology, research and academia ▶ Trainee Actuary 	<p>Conversion Courses</p> <ul style="list-style-type: none"> ▶ Professional Master in Education (PME) ▶ MSc Computer Science (conversion)
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*See pages 4 and 5 for information on the terminology used above. Potential combinations shown here are examples only and are not guaranteed by UCD. Modules are subject to change each year.