

**The Objective** of this four year, full-time degree is to produce graduates with the ability to apply mathematical methods to problems in the financial sector. The application of such techniques has revolutionised many areas of these industries over the last forty years.

### Programme Summary

The course is of four years' duration and falls naturally into two halves. In the first four semesters (i.e. Years 1 and 2), the aim of the programme is to provide the student with a broad introduction to the main branches of modern mathematics and its applications, enabling students to make informed choices regarding their choice of specialist topics in the latter half of the course. In the second half (Years 3 and 4), the course concentrates on those areas of mathematics that may be applied to problems in finance, insurance and banking, and in particular in the methods of financial mathematics.

### Relevant Work Experience

Students in the degree have the opportunity of gaining experience as an employee in a commercial environment through DCU's work experience programme *INTRA* (Integrated TRAIning). *INTRA* is a central feature of education at DCU and an integral part of most undergraduate and some postgraduate degree programmes. Students who are particularly interested in pursuing a financial career often take their work placement with a major financial institution.

**Students from the BSc Financial Mathematics are required to complete an eight-month *INTRA* placement at the end of the third academic year, from February to September inclusive.**

#### Work Areas

- Investment and Commercial Banking
- Financial Analysis and Trading
- Business and Actuarial Consultancy
- Statistical Analysis
- Software Development

#### Student Availability

Students are available for interview from October onwards. Please post vacancies on the *INTRA* online website at [www.intra.dcu.ie](http://www.intra.dcu.ie), or send details to:

*INTRA* Unit, Student Support & Development,  
Dublin City University,  
Glasnevin, Dublin 9, Ireland.  
Phone: 00 353 1 700 5514  
Fax: 00 353 1 700 5505  
Website: [www.intra.dcu.ie](http://www.intra.dcu.ie)



# B.Sc. Financial Mathematics

## Year 1

Semester 1	Semester 2
Computing for Mathematics	Computing for Mathematics
Calculus	Analysis I
Introduction to Economics	Introduction to Economics II
Linear Mathematics	Linear Mathematics II
The Mathematical Experience	Probability I

## Year 2

Semester 1	Semester 2
Statistics I	Statistics II
Calculus of Several Variables	Complex Analysis
Analysis II	Differential Equations
Numerical Methods	Mathematics of Finance: An Introduction
Linear Algebra	Probability II
	Accounting I

## Year 3

Semester 1	Semester 2
Financial Economics I	I N T R A
Stochastic Modelling	
Simulation for Finance	
Time Series	
Option: Treasury Mathematics	

## Year 4

Semester 1	Semester 2
Probability and Finance I	Fixed Income Securities
Partial Differential Equations	Advanced Stochastic Finance
Probability and Finance II	Credit Risk
Numerical Solution of P.D.E.s	Financial Engineering
	Monte Carlo Methods in Finance