

BSc (Hons) Mathematics with Applied Mathematics

Mathematical Sciences / Faculty of Science and Engineering

Year 1 Modules

The preliminary year is designed to help you develop your English language skills so that you can make the most of your degree programme.

This special English language programme designed by the English for Academic Purposes experts at the University's Centre for English Language Education is carefully integrated with academic content modules so that you are prepared fully for years two to four of your degree programme.

Module Code	Module Title	Credits
CELEF008	Introduction to Academic Skills	10
CELEN086	Introduction to Algorithms	10
CELEF005	Foundation Algebra	20
CELEN056	Electricity and Magnetism	10
CELEN057	Foundation Mechanics	10
CELEF003	Foundation Calculus	20
CELEF006	English for Specific Academic Purposes: Science and Engineering	10
CELEN087	Introduction to Mathematical Software and Programming	15
CELEN058	Further Foundation Mechanics	15

Year 2 Modules

You will learn core mathematical topics such as sequences and series, calculus and matrices, probability and statistics, that are fundamental to your later mathematical studies. In addition, a variety of optional modules in physics, computer science, engineering, economics and management will be offered.

Compulsory Modules

Module Code	Module Title	Credits
MATH1032	Probability	10
MATH1027	Calculus	20
MATH1028	Analytical and Computational Foundations	20

MATH1029	Applied Mathematics	20
MATH1030	Linear Mathematics	20
MATH1033	Statistics	10

Optional Modules

Module Code	Module Title	Credits
BUSI1122	Introduction to Accounting	10
MATH1052	Foundations of Pure Mathematics	10
MMME1019	Thermodynamics & Fluid Mechanics 1	20
BUSI1113	Fundamentals of Financial & Management Accounting	20
BUSI1070	Business Finance	10
BUSI1073	The Digital Economy	10
MATH1053	Mathematical Structures	10

Year 3 Modules

The mathematical tools you will need are developed to a more advanced level, enabling you to model problems from real-life applications in physics, engineering, finance and economics. You will also receive a solid education in pure mathematics, allowing you to use mathematical techniques and ways of thinking to innovate.

Compulsory Modules

Module Code	Module Title	Credits
MATH2032	Vector Calculus	10
MATH2033	Introduction to Scientific Computation	20
MATH2035	Modelling with Differential Equations	20
MATH2034	Differential Equations and Fourier Analysis	10

Optional Modules

Module Code	Module Title	Credits
MATH2037	Mathematical Analysis	10
MATH2038	Statistical Models and Methods	20
MATH2039	Probability Models and Methods	20
MATH2036	Complex Functions	10

Year 4 Modules

In this year, you will have the chance to study a range of advanced topics in mathematics and its applications, as well as subjects from natural sciences, economics and/or engineering. Your studies will include project work in the field of mathematics or applied mathematics, which leads students to systematic research experience.

Optional Modules

Module Code	Module Title	Credits
MATH3048	Mathematical Medicine and Biology	20
MATH3049	Scientific Computation and Numerical Analysis	20
MATH3039	Stochastic Models	20
MATH3050	Metric and Topological Spaces	20
MATH3052	Coding and Cryptography	10
MATH3040	Mathematical Finance	20
MATH3051	Optimization	20
MATH3053	Game Theory	10
MATH3054	Discrete Mathematics and Graph Theory	10
EEEE3069	Digital Communications	10
MMME2017	Thermodynamics & Fluid Mechanics 2	20
MMME2020	Design for Manufacture	10