Actuarial Science and Mathematics (3 years) [BSc]

Year 3 Programme Structure

The third year of this degree programme consists of eight compulsory (= mandatory) 10-credit MATH course units, plus four optional 10-credit MATH course units (three in semester 1 and one in semester 2) chosen from the list below, giving 60 credits in each semester. You can access all course descriptions* via your 'My Manchester' student portal, and you are advised to check the timetables for all course units before selection.

Students may wish to substitute up to 40 credits of approved outside (non-MATH) course units in place of optional MATH course units. However note the programme must include at least 100 credits of level 3 course units, of which 80 credits must be level 3 MATH course units. Therefore third-year students can take a maximum of 20 credits of level 2 course units (and note that UCIL2**** course units are level 2). Outside course units not listed below will need the permission of the Year Tutor and a course unit permission form will need to be completed. Please check the timetables before selecting course units.

Appropriate MATH options for students on this degree programme are MATH37001 and MATH39032, while appropriate non-MATH course units are BMAN39001 (Financial Derivatives), BMAN30242 (Financial Engineering) and University College (UCIL) course units. Note students wishing to take these two BMAN course units must have achieved at least 40% at the first attempt in BMAN20242 (but a mark of 50% is preferred for BMAN30091).

Important information: The IFoA (the UK Institute and Faculty of Actuaries) is currently undertaking a review of its curriculum, looking at the study route needed to become a fully qualified actuary. For further details and to keep students informed of the status of the review the relevant information is available from http://www.maths.manchester.ac.uk/~kschaik/CR_IFoA.html.

Details of the current accreditation and exemption arrangements are available under the section on Accreditation.

*Course descriptions for each course unit includes information on assessment criteria's, lecturer, syllabus, learning outcomes, etc., is available from the 'My Course' tab in 'My Manchester' by searching the subject code or you can browse them from the Schools 'Study' website.

Level 3 course units

Description	Semester	Requirement	Credit Rating	Level
MATH38001 - Statistical Inference	1	Mandatory	10	3
MATH38141 - Regression Analysis	1	Mandatory	10	3
MATH39511 - Actuarial Models 1	1	Mandatory	10	3
MATH38032 - Time Series Analysis	2	Mandatory	10	3
MATH38052 - Generalised Linear Models	2	Mandatory	10	3
MATH39512 - Actuarial Models 2	2	Mandatory	10	3
MATH39522 - Contingencies 2	2	Mandatory	10	3
MATH39542 - Risk Theory	2	Mandatory	10	3
BMAN30091 - Financial Derivatives	1	Optional	10	3
MATH30011 - Project (Semester One)	1	Optional	10	3
MATH31001 - Linear Analysis	1	Optional	10	3
MATH32001 - Group Theory	1	Optional	10	3
MATH32011 - Commutative Algebra	1	Optional	10	3
MATH32071 - Number Theory	1	Optional	10	3
MATH32091 - Combinatorics and Graph Theory	1	Optional	10	3
MATH33011 - Mathematical Logic	1	Optional	10	3

Description	Semester	Requirement	Credit Rating	Level
MATH34001 - Applied Complex Analysis	1	Optional	10	3
MATH34011 - Asymptotic Expansions & Perturbation Methods	1	Optional	10	3
MATH35001 - Viscous Fluid Flow	1	Optional	10	3
MATH35021 - Elasticity	1	Optional	10	3
MATH36001 - Matrix Analysis	1	Optional	10	3
MATH36041 - Essential Partial Differential Equations	1	Optional	10	3
MATH36061 - Convex Optimization	1	Optional	10	3
MATH37001 - Martingales with Applications to Finance	1	Optional	10	3
MATH38161 - Multivariate Statistics and Machine Learning	1	Optional	10	3
MATH38181 - Extreme Values and Financial Risk	1	Optional	10	3
MCEL30001 - Tools and Techniques for Enterprise	1	Optional	10	3
UCIL20021 - Leadership in Action Unit	1	Optional	10	2
UCIL20031 - Manchester Leadership Programme: Leadership in Action Online Unit	1	Optional	10	2
BMAN30242 - Financial Engineering	2	Optional	10	3

Description	Semester	Requirement	Credit Rating	Level
EART20002 - Manchester Sustainable City Project	2	Optional	10	2
MATH30002 - Mathematics Education	2	Optional	10	3
MATH30022 - Project (Semester 2)	2	Optional	10	3
MATH31042 - Fractal Geometry	2	Optional	10	3
MATH31052 - Topology	2	Optional	10	3
MATH31082 - Riemannian Geometry	2	Optional	10	3
MATH32032 - Coding Theory	2	Optional	10	3
MATH32052 - Hyperbolic Geometry	2	Optional	10	3
MATH32062 - Algebraic Geometry	2	Optional	10	3
MATH34032 - Green's Functions, Integral Equations and Applications	2	Optional	10	3
MATH35012 - Wave Motion	2	Optional	10	3
MATH35032 - Mathematical Biology	2	Optional	10	3
MATH35082 - Symmetry in Geometry and Nature	2	Optional	10	3
MATH36022 - Numerical Analysis II	2	Optional	10	3
MATH36032 - Problem Solving by Computer	2	Optional	10	3
MATH37012 - Markov Processes	2	Optional	10	3

Description	Semester	Requirement	Credit Rating	Level
MATH38072 - Medical Statistics	2	Optional	10	3
MATH39032 - Mathematical Modelling in Finance	2	Optional	10	3
MCEL30002 - Tools & Techniques for Enterprise	2	Optional	10	3
MCEL30022 - Interdisciplinary Sustainable Development	2	Optional	10	3
MATH30000 - Double Project	1 and 2	Optional	20	3
UCIL20020 - Leadership in Action 20 Credit Unit	1 and 2	Optional	20	2