

Discrete Mathematics Optional Modules 2026-27

These modules have been approved by the Course Director and agreed with contributing departments for the below courses of study:

- BSc Discrete Mathematics
- MEng Discrete Mathematics
- BSc Discrete Mathematics (with Intercalated Year)
- MEng Discrete Mathematics (with Intercalated Year)

Year 1

Code	Module Title	Term	Additional requirements/ restrictions
CS133-15	Professional Skills	1,2	
CS139-15	Web Development Technologies	2	
CS140-15	Computer Security	1	
CS141-15	Functional Programming	2	
MA133-10	Differential Equations	2	cannot be taken with MA145 or MA147
MA145-10	Mathematical Methods and Modelling 2	2	must have taken MA147 in Term 1
MA147-10	Mathematical Methods and Modelling 1	1	pre-requisite for MA145. Recommended to take MA147 and MA145 together
ST121-10	Statistical Laboratory	2	pre-requisite for ST231-10. Introduces R.

Year 2

Code	Module Title	Term	Additional requirements/ restrictions
MA222	Metric Spaces	2	Core for MEng
CS266	Data Analytics	2	List A
MA267	Groups and Rings	1	List A
MA257	Introduction to Number Theory	1	List A
MA250	Partial Differential Equations	1	List A
MA271	Mathematical Analysis 3	1	List A
ST227	Stochastic Processes	2	List A
CS241	Operating Systems and Computer Networks	2	
CS249	Digital Communications and Signal Processing	2	
CS255	Artificial Intelligence	1	
CS257	Advanced Computer Architecture	2	
CS258	Database Systems	1	
CS261	Software Engineering	2	
CS263	Cyber Security	1	
CS276	Principles of Video Game Development	1	
MA240	Modelling Nature's Nonlinearity	1	
MA243	Geometry	1	
MA254	Theory of ODEs	2	
MA256	Introduction to Mathematical Biology	1	

MA259	Multivariable Calculus	2	
MA299	Complex Methods	2	
MS2A4	Asymptotic Methods	1	
MA2L4	Numerical Analysis and Ordinary Differential Equations	2	
ST231	Linear Statistical Modelling with R	2	must have taken ST121 in Year 1. Requires R.
ST234	Games and Decisions	1	

Year 3

Code	Module Title	Term	Additional requirements/ restrictions
MA3J2	Combinatorics II	2	Core for MEng
CS313-15	Mobile Robotics	2	
CS324-15	Computer Graphics	1	
CS325-15	Compiler Design	1	
CS331-15	Neural Computing	2	
CS342-15	Machine Learning	1	
CS345-15	Sensor Networks and Mobile Data Communications	1	
CS346-15	Advanced Databases	2	
CS352-15	Project Management for Computer Scientists	1	
CS355-15	Digital Forensics	2	
CS357-15	Responsible Computing	1	
CS359-15	Computational Social Choice	2	
MA300-15	Mathematics of Cryptography	2	
MA301-15	Waves and Metamaterials	2	
MA302-15	Electromagnetism	2	
MA359-15	Measure Theory	1	
MA377-15	Rings and Modules	2	
MA390-15	Topics in Mathematical Biology	1	
MA395-15	Essay	1,2	
MA397-15	Consolidation	1	
MA398-15	Matrix Analysis & Algorithms	1	
MA3A6-15	Algebraic Number Theory	2	
MA3B8-15	Complex Analysis	1	
MA3D1-15	Fluid Dynamics	1	
MA3D4-15	Fractal Geometry	2	
MA3D5-15	Galois Theory	1	
MA3D9-15	Geometry of Curves & Surfaces	2	
MA3E1-15	Groups & Representations	2	
MA3F1-15	Introduction to Topology	1	
MA3G1-15	Theory of Partial Differential Equations	2	
MA3G6-15	Commutative Algebra	1	
MA3G7-15	Functional Analysis I	1	

MA3G8-15	Functional Analysis II	2	
MA3H0-15	Numerical Analysis & PDE's	2	
MA3H2-15	Markov Processes and Percolation Theory	2	
MA3H3-15	Set Theory	1	
MA3H5-15	Manifolds	1	
MA3H6-15	Algebraic Topology	2	
MA3H7-15	Control Theory	2	
MA3J3-15	Bifurcations, Catastrophes and Symmetry	2	
MA3J8-15	Approximation Theory and Applications	2	
MA3K0-15	High-Dimensional Probability	2	
MA3K1-15	Mathematics of Machine Learning	2	
MA3K4-15	Introduction to Group Theory	1	
MA3K6-15	Boolean Functions	1	
MA3K7-15	Problem Solving with Python	1	
MA3K9-15	Mathematics of Digital Signal Processing	1	
MA3L2-15	Optimisation	1	
MA3L3-15	Communicating Mathematics	1	
MA3P2-15	Knot Theory	2	
ST301-15	Bayesian Statistics and Decision Theory	1	
ST318-15	Probability Theory	2	
ST323-15	Multivariate Statistics	1	
ST332-15	Medical Statistics	2	
ST333-15	Applied Stochastic Processes	1	
ST337-15	Bayesian Forecasting and Intervention	2	
ST343-15	Topics in Data Science	2	
ST346-15	Generalised Linear Models for Regression and Classification	1	
ST350-15	Measure Theory for Probability	1	

Year 4

Code	Module Title	Term	Additional requirements/ restrictions
CS402-15	High Performance Computing	2	
CS413-15	Image and Video Analysis	2	
CS416-15	Optimisation Methods	1	
CS424-15	Computational Biology	2	
CS429-15	Data Mining	1	
CS430-15	Foundations of Data Analytics	1	
CS435-15	Advanced Computer Security	1	

MA424-15	Dynamical Systems	1	
MA426-15	Elliptic Curves	1	
MA427-15	Ergodic Theory	2	
MA433-15	Fourier Analysis	1	
MA448-15	Hyperbolic Geometry	2	
MA453-15	Lie Algebras	2	
MA473-15	Reflection Groups	1	
MA482-15	Stochastic Analysis	1	
MA4A2-15	Advanced PDEs	1	
MA4A5-15	Algebraic Geometry	1	
MA4C0-15	Differential Geometry	1	
MA4E0-15	Lie Groups	1	
MA4H4-15	Geometric Group Theory	1	
MA4J0-15	Advanced Real Analysis	2	
MA4J1-15	Continuum Mechanics	2	
MA4J3-15	Graph Theory	1	
MA4J7-15	Cohomology and Poincare Duality	2	
MA4J8-15	Commutative Algebra II	1	
MA4L0-15	Advanced Topics in Fluids	2	
MA4L2-15	Statistical Mechanics	2	
MA4L5-15	Mathematics of Cancer	2	
MA4L6-15	Analytic Number Theory	2	
MA4L7-15	Algebraic Curves	2	
MA4M1-15	Epidemiology by Example	2	
MA4M2-15	Mathematics of inverse problems	1	
MA4M8-15	Theory of Random Graphs	2	
MA4M9-15	Mathematics of Neuronal Networks	2	

MA4N1-15	Theorem Proving with Lean	1	
MA4N6-15	Finite-Element methods for PDEs	1	
ST403-15	Brownian Motion	2	If you take this module, you cannot also take: MA4F7-15 Brownian Motion
ST405-15	Bayesian Forecasting and Intervention with Advanced Topics	2	not allowed if ST337 already taken
ST406-15	Applied Stochastic Processes with Advanced Topics	1	not allowed if ST333 already taken
ST407-15	Monte Carlo Methods	1	
ST412-15	Multivariate Statistics with Advanced Topics	1	not allowed if ST323 already taken
ST413-15	Bayesian Statistics and Decision Theory with Advanced Topics	1	not allowed if ST301 already taken
ST420-15	Statistical Learning and Big Data	2	