

Module Code	Module Title	ECTS Credit	Semester/Duration	% Exam	% CA	Pre-requisite
MAU11100	Linear Algebra	10	Full Year	80	20	None
MAU22101	Abstract Algebra I: Group Theory	5	Semester 1	90	10	None
MAU22102	Abstract Algebra II: Fields, Rings, Modules	5	Semester 2	85	15	MAU22101 Group theory
MAU22E01	Engineering Mathematics III	5	Semester 1	90	10	MAU11E02
MAU22E02	Engineering Mathematics IV	5	Semester 2	90	10	MAU22E01 Engineering mathematics III
MAU22S01	Multivariable Calculus For Science	5	Semester 1	80	20	MAU11S02 Mathematics for scientists II
MAU22S02	Vector Calculus For Science	5	Semester 2	80	20	MAU22S01 Multivariable calculus for science
MAU22S03	Fourier Analysis For Science	5	Semester 1	80	20	MAU11S02 Mathematics for scientists II
MAU23403	Equations Of Mathematical Physics I	5	Semester 1	80	20	MAU11202 Advanced calculus
MAU33E01	Engineering Mathematics V	5	Semester 1	80	20	MAU22E02 Engineering mathematics IV
MAU34301	Differential Geometry	5	Semester 1	100	0	MAU23206 Calculus on manifolds
MAU34401	Classical Field Theory	5	Semester 1	80	20	MAU23402 Advanced classical mechanics II
MAU34402	Classical Electrodynamics	5	Semester 2	80	20	MAU34401 Classical field theory
MAU34403	Quantum Mechanics I	5	Semester 1	90	10	MAU23402 Advanced classical mechanics II
MAU34404	Quantum Mechanics II	5	Semester 2	80	20	MAU34403 Quantum mechanics I
MAU34405	Statistical Physics I	5	Semester 1	80	20	AU23402 Advanced classical mechanics II
MAU34406	Statistical Physics II	5	Semester 2	80	20	MAU34405 Statistical physics I

MAU34601	Practical Numerical Simulations	5	Semester 1	60	40	MAU11400 Mechanics and one of MAU11404 Techniques in theoretical physics OR MAU23205 Ordinary differential equations
MAU44404	General Relativity	5	Semester 2	85	15	MAU34301 Differential geometry and MAU34402 Classical electrodynamics
MAU44406	The standard model of elementary particle physics	5	Semester 2	100	0	MAU34402 Classical electrodynamics and MAU34404 Quantum mechanics II
MAU11400	Mechanics	10	Full Year	80	20	none
MAU22200	Advanced Analysis	10	Full Year	85	15	MAU11204
MAU22C00	Discrete Mathematics	10	Full Year	60	40	CSU11001
MAU11601	Introduction to Programming	5	Semester 1	70	30	
MAU34205	Topics in Complex Analysis 1	5	Semester 1	100	0	
MAU11001	Mathematics, statistics and computation	10	Semester 1	50	50	None
MAU11202	Advanced calculus	5	semester 2	80	20	MAU11201 Single-variable calculus
MAU11204	Analysis on the real line	5	Semester 2	90	10	MAU11201 Single-variable calculus
MAU11404	Techniques in theoretical physics	5	Semester 2	70	30	MAU11201 Single-variable calculus
MAU11602	Computation theory and logic	5	Semester 2	70	30	MAU11201 Single-variable calculus
MAU11E02	Engineering mathematics II	5	Semester 2	80	20	MAU11E01 Engineering mathematics I
MAU11S02	Mathematics for scientists II	10	Semester 2	80	20	MAU11S01 Mathematics for scientists I
MAU22204	Introduction to complex analysis	5	Semester 2	100	0	MAU11204 Analysis on the real line OR MAU23203 Analysis in several real variables
MAU22206	Calculus on manifolds	5	Semester 2	80	20	MAU23203 Analysis in several real variables

MAU22302	Euclidean and non-Euclidean geometry	5	Semester 2	90	10	MAU11100 Linear Algebra & MAU11201 Single - variable calculus
MAU11002	Mathematics, statistics and computation	10	Semester 2	50	50	None
MAU11201	Single-variable calculus	10	Semester 1	85	15	None
MAU11E01	Engineering mathematics I	5	Semester 1	80	20	None
MAU11S01	Mathematics for scientists I	10	Semester 1	80	20	None
MAU22103	Introduction to number theory	5	Semester 1	85	15	None
MAU22203	Analysis in several real variables	5	Semester 1	90	10	MAU11100 Linear algebra, MAU11202 Advanced calculus and MAU11204 Analysis on the real line
MAU22205	Ordinary differential equations	5	Semester 1	80	20	MAU11100 Linear algebra and MAU11204 Analysis on the real line
MAU22401	Advanced classical mechanics I	5	Semester 1	65	35	MAU11400 Mechanics
MAU22402	Advanced classical mechanics II	5	Semester 2	65	35	MAU22401 Advanced classical mechanics I
MAU22602	Introduction to numerical analysis	5	Semester 2	70	30	MAU11202 Advanced calculus
MAU33101	Introduction to number theory	5	Semester 1	85	15	None
MAU33200	Advanced analysis	10	Full Year	85	15	MAU11204 Analysis on the real line
MAU33204	Introduction to complex analysis	5	Semester 2	100	0	MAU11204 Analysis on the real line OR MAU23203 Analysis in several real variables
MAU33205	Ordinary differential equations	5	Semester 1	80	20	MAU11100 Linear algebra and MAU11204 Analysis on the real line
MAU33301	Topics in combinatorial algebraic geometry	5	Semester 1	0	100	MAU11100 Linear algebra and MAU22101 Group theory
MAU33302	Euclidean and non-Euclidean geometry	5	Semester 2	90	10	MAU11100 Linear Algebra & MAU11201 Single - variable calculus
MAU33401	Advanced classical mechanics I	5	Semester 1	65	35	MAU11400 Mechanics

MAU33402	Advanced classical mechanics II	5	Semester 2	65	35	MAU22401 Advanced classical mechanics I
MAU34104	Group representations	5	Semester 2	80	20	MAU11100 Linear algebra and MAU22101 Group theory
MAU34106	Galois theory	5	Semester 2	80	20	MAU22102 Fields, rings and modules
MAU34107	Combinatorics	5	Semester 1	80	20	MAU11100 Linear algebra
MAU34109	Algebraic number theory	5	Semester 1	80	20	MAU22102 Fields, rings and modules and MAU23101 Introduction to number theory
MAU34201	Algebraic topology I	5	Semester 1	90	10	MAU22200 Advanced analysis MAU23203 Analysis in several real variables
MAU34202	Algebraic topology II	5	Semester 2	85	15	MAU22200 Advanced analysis (required) MAU34201 Algebraic topology I (recommended)
MAU34203	Functional analysis	5	Semester 1	80	20	MAU22200 Advanced analysis
MAU34206	Harmonic analysis	5	Semester 2	100	0	MAU22200 Advanced analysis
MAU34207	Elliptic functions and modular forms	5	Semester 1	90	10	MAU23204 Introduction to complex analysis
MAU34210	Linear partial differential equations	5	Semester 2	90	10	MAU11404 Techniques in theoretical physics OR MAU23205 Ordinary differential equations
MAU34214	Calculus on manifolds	5	Semester 2	90	10	MAU23203 Analysis in several real variables
MAU34302	Introduction to algebraic geometry	5	Semester 2	80	20	MAU22102 Fields, rings and modules and MAU23206 Calculus on manifolds
MAU34303	Discrete geometry	5	Semester 1	90	10	MAU11100 Linear algebra and MAU11201 Single-variable calculus
MAU34304	Groups and geometry	5	Semester 2	90	10	MAU22101 Group theory and MAU23203 Analysis in several real variables
MAU34407	Lie groups, Lie algebras and physics	5	Semester 1	70	30	MAU34404 Quantum Mechanics II
MAU34410	Interacting quantum system (Quantum Many Body Physics)	5	Semester 2	70	30	and MAU34406 Statistical physics II are required. MAU44400 (Quantum Field Theory, semester 1 only)
MAU34604	Introduction to numerical analysis	5	Semester 2	70	30	MAU11202 Advanced calculus

MAU34801	The theory of linear programming	5	Semester 1	80	20	MAU11100 Linear algebra
MAU34900	Mathematics education	10	Full Year	0	100	None
MAU44400	Quantum field theory	10	Full Year	100	0	MAU34404 Quantum mechanics II and MAU34406 Statistical physics II
The Mathematics department manages enrolment locally. If you wish to enrol in Math modules, please contact the coordinator directly - Florian Naef NAEFF@tcd.ie with mathdep@maths.tcd.ie in copy.						
For more information on module descriptors please click the module code						
Please note that Modules relate to the 2024/25 Academic Year and are subject to change						