

Module Code	Premium fee	Module Title	Credit Value	Level	Semester 2023/24	Available to Associates/Intercollegiate?	Overlap	Required pre-Requisite 2022/23
MTH4104	N	Introduction to Algebra	15	4	Semester 2	Y	None	None
MTH4112	N	Actuarial Professional Development I	0	4	Semester 1 & 2	N	None	None
MTH4*13	N	Numbers, Sets and Functions	15	4	Semester 1	N	None	In taking this Module you cannot take MTH4213 Numbers, sets and Functions, must have passed A-Level Maths or equivalent
MTH4*15	N	Vectors and Matrices	15	4	Semester 2	Y	MTH4103, MTH4203	In taking this Module you cannot take MTH4215 Vectors and Matrices; Before taking this Module you must take MTH4*00 Calculus I and take MTH4*07 Introduction to Probability
MTH4000	N	Programming in Python	15	4	Semester 1	N		In taking this module you cannot take MTH5001
MTH4300	N	Introduction to Analysis with Calculus.	30	4	Semester 1 & 2	N		In taking this module you cannot take MTH4400
MTH4400	N	Applied Calculus	30	4	Semester 1 & 2	N		In taking this module you cannot take MTH4300
MTH4500	N	Probability and Statistics.	30	4	Semester 1 & 2	N		In taking this module you cannot take MTH4600
MTH4600	N	Applied Probability and Statistics.	30	4	Semester 1 & 2	N		In taking this module you cannot take MTH4500
MTH5*12	N	Linear Algebra I/Applied Linear Algebra	15	5	Semester 1	Y	MTH5212	In taking this Module you cannot take MTH5212 Applied Linear Algebra before taking this Module you must take MTH4*15 Vectors and Matrices
MTH5001	N	Introduction to Computer Programming	15	5	Semester 2	N	None	Only students in the School of Mathematics can take this module. Before taking this Module you must take MTH4*16 Probability and Statistics I and take MTH4*01 Calculus II and take MTH5212 Applied Linear Algebra or take MTH5112 Linear Algebra
MTH5103	N	Complex Variables	15	5	Semester 2	Y	None	None
MTH5104	N	Convergence and Continuity	15	5	Semester 1	Y	None	Before taking this Module you must take MTH4*01 Calculus I and take MTH4*13 Numbers, Sets and Functions
MTH5105	N	Differential and Integral Analysis	15	5	Semester 2	Y	None	MTH5104 Convergence And Continuity
MTH5113	N	Introduction to Differential Geometry	15	5	Semester 2	Y	MTH5102/MTH5109	In taking this Module you cannot take SPA4122 Mathematical Techniques II; Before taking this Module you must take MTH4*01 Calculus II and take MTH4*15 Vectors and Matrices
MTH5114	N	Linear Programming and Games	15	5	Semester 2	Y	None	Before taking this Module you must take MTH5112 Linear Algebra 1 or take MTH5212 Applied Linear Algebra
MTH5120	N	Statistical Modelling I	15	5	Semester 2	Y	None	Before taking this Module you must take MTH5129 Probability and Statistics II and take MTH4*15 Vectors and Matrices
MTH5123	N	Differential Equations	15	5	Semester 1	N	None	Before or while taking this Module you must take MTH5112 Linear Algebra I or take MTH5212 Applied Linear Algebra before taking this Module you must take MTH4*01 Calculus II
MTH5124	N	Actuarial Mathematics I	15	5	Semester 1	Y	None	Before taking this Module you must take MTH4*00 Calculus I and take MTH4*07 Introduction to Probability
MTH5125	N	Actuarial Mathematics II	15	5	Semester 2	N	None	MTH5124 Actuarial Maths I
MTH5126	N	Statistics for Insurance	15	5	Semester 2	N	None	MTH5122 Statistical Methods or MTH5129 Probability and Statistics II
MTH5127	N	Actuarial Professional Development II	0	5	Semester 1 & 2	N	None	None
MTH5129	N	Probability and Statistics II	15	5	Semester 1	N	MTH5122	Before taking this Module you must take MTH4*00 Calculus II and take MTH4*16 Probability Statistics I
MTH5130	N	Number Theory	15	5	Semester 1	Y		Before taking this Module you must take MTH4104 Introduction to Algebra
MTH5131	N	Actuarial Statistics	15	5	Semester 2	N		Before taking this Module you must take MTH5120 Statistical Modelling I and MTH5129 Probability and Statistics II. The module is reserved for Actuarial Science students only.
MTH5200	N	Mathematical and Actuarial Work Experience	120	5	Semester 1 & 2	N	None	None
MTH6101	N	Introduction to Machine Learning	15	6	Semester 2	N		MTH5120 Statistical Modelling I (cannot be taken concurrently)
MTH6102	N	Bayesian Statistical Methods	15	6	Semester 1	N		MTH5120 Statistical Modelling I (cannot be taken concurrently)
MTH6105	N	Algorithmic Graph Theory	15	6	Semester 2	Y		Before taking this module you must take MTH4*13 Number, Sets and Function
MTH6106	N	Group Theory	15	6	Semester 1	Y	None	MTH4104 Intro to Algebra
MTH6107	N	Chaos and Fractals	15	6	Semester 1	Y	None	Before taking this Module you must take MTH4*00 Calculus II and take MTH4*15 Vectors and Matrices
MTH6110	N	Communicating and Teaching Mathematics: the Undergraduate Ambassadors Scheme	15	6	Semester 2	N	None	None
MTH6112	N	Actuarial Financial Engineering	15	6	Semester 2	N	MTH6155	In taking this Module you cannot take MTH6155 Financial Mathematics II; Before taking this Module you must take MTH6141 Random Process and take MTH6154 Financial Mathematics I
MTH6113	N	Mathematical Tools for Asset Management	15	6	Semester 2	N		Before taking this Module you must take MTH6154 Financial Mathematics I
MTH6115	N	Cryptography	15	6	Semester 1	N	None	Before taking this module you must take MTH4104 Intro to Algebra and MTH5112 Linear Algebra or take MTH5212 Applied Linear Algebra
MTH6127	N	Metric Spaces and Topology	15	6	Semester 2	Y	None	MTH5104 Convergence and Continuity
MTH6132	N	Relativity	15	6	Semester 2	Y	None	MTH5123 Differential Equations
MTH6134	N	Statistical Modelling II	15	6	Semester 1	Y	None	MTH5120 Statistical Modelling I
MTH6138	N	Third Year Project (Semester 5 or 6)	15	6	Semester 1 or semester 2	N	None	

MTH6139	N	Time Series	15	6	Semester 2	Y	ECN323	MTH5120 Statistical Modelling I and either i) MTH5121 Probability Models or ii) MTH5129 Probability And Statistics II
MTH6140	N	Linear Algebra II	15	6	Semester 1	Y	None	MTH4104 Intro to Algebra and MTH5112 Linear Algebra or take MTH5212 Applied Linear Algebra
MTH6141	N	Random Processes	15	6	Semester 1	Y	None	Before taking this Module you must take MTH5129 Probability and Statistics II
MTH6142	N	Complex Networks	15	6	Semester 2	Y (not to intercollegiate students)	None	None
MTH6150	N	Numerical Computing with C and C++	15	6	Semester 2	Y	SPA4321, MTH770U/P	Before taking this module you must take MTH5001 Introduction to Programming
MTH6151	N	Partial Differential Equations	15	6	Semester 1	Y	None	MTH5123 Differential Equations
MTH6154	N	Financial Mathematics I	15	6	Semester 1	Y (not to intercollegiate students)	None	Before taking this module you must take MTH5129 Probability and Statistics II
MTH6155	N	Financial Mathematics II	15	6	Semester 2	N	MTH6112	In taking this module you cannot take MTH6112 Actuarial Financial Engineering; Before taking this module you must take MTH6141 Random Processes and take MTH6154 Financial Mathematics I
MTH6157	N	Survival Models	15	6	Semester 1	N	None	Before taking this Module you must take MTH5125 Actuarial Financial Mathematics II and take MTH5129 Probability and Statistics II
MTH6158	N	Ring Theory	15	6	Semester 2	N	None	MTH4104 Intro to Algebra
MTH6991/MTH791U/MTH791P	N	Computational Statistics with R	15	6/7	Semester 2	Y	MTH6931	MTH5120 Statistical Modelling I and MTH5129 Probability and Statistics II
MTH700U/MTH700P	N	Research Methods in Mathematical Sciences	15	7	Semester 1	N	None	None
MTH709U/MTHM042/MTH776P	N	Bayesian Statistics	15	7	Semester 2	N	In taking this module you cannot take MTH6102	Before taking this module you must take MTH6134
MTH712P/MTH6934/MTH734U	N	Topics in Probability and Stochastic Processes	15	6/7	Semester 1	N	None	Before or while taking this module you must take MTH6141
MTH717U	N	MSci Project	30	7	Semester 1 & 2	N	None	None
MTH739U/MTH739P	N	Topics in Scientific Computing	15	7	Semester 1	N	None	None
MTH743U/MTH743P	N	Complex Systems	15	7	Semester 2	N	None	None
MTH744U/MTH744P	N	Dynamical Systems	15	7	Semester 1	N	None	None
MTH745U/MTH745P	N	Further Topics in Algebra	15	7	Semester 2	N	None	Before taking this module you must ( take MTH5101 or take MTH5100 ) and ( take MTH5212 or take MTH5112 )
MTH761P	Y	Financial Instruments and Markets	15	7	Semester 1	N		None
MTH761U (MSci Financial Mathematics students only)	N	Financial Instruments and Markets	15	7	Semester 1	N MSci Financial Mathematics students only	None	None
MTH762P	Y	Continuous-time Models in Finance	15	7	Semester 2	N		Before taking this module you must take MTH771P Foundations in Mathematical Modelling in Finance
MTH762U (MSci Financial Mathematics students only)	N	Continuous-time Models in Finance	15	7	Semester 2	N MSci Financial Mathematics students only	None	Before taking this module you must take MTH771P
MTH765P	Y	Storing, Manipulating and Visualising Data	15	7	Semester 1	N		None
MTH766P	Y	Programming in Python	15	7	Semester 1	N		None
MTH767P	Y	Neural Networks and Deep Learning	15	7	Semester 2	N		Before taking this module you must take MTH786P Machine Learning with Python
MTH771P	Y	Foundations of Mathematical Modelling in Finance	15	7	Semester 1	N	None	
MTH771U (MSci Financial Mathematics students only)	N	Foundations of Mathematical Modelling in Finance	15	7	Semester 1	N MSci Financial Mathematics students only	None	None
MTH773P	Y	Advanced Computing in Finance	15	7	Semester 2	N	None	Before taking this module you must take MTH790P Programming in C++ for Finance
MTH773U (MSci Financial Mathematics students only)	N	Advanced Computing in Finance	15	7	Semester 2	N MSci Financial Mathematics students only	None	None
MTH781P	Y	Data Analytics	15	7	Semester 1	N	None	None
MTH782P	Y	SAS for Business Intelligence	15	7	Semester 2	N	None	None
MTH783P	Y	Time Series Analysis for Business	15	7	Semester 2	N	None	In taking this module you cannot take MTH6139P
MTH784P	Y	Optimization for Business Processes	15	7	Semester 2	N	None	None
MTH785P	Y	Programming for Business Analytics	15	7	Semester 1	N	None	None
MTH786U/P	N	Machine Learning with Python	15	7	Semester 1	N	None	In taking this module you cannot take SPA7033U/P
MTH787P	Y	Advanced Derivatives Pricing and Risk Management	15	7	Semester 2	N		None
MTH787U (MSci Financial Mathematics students only)	N	Advanced Derivatives Pricing and Risk Management	15	7	Semester 2	N MSci Financial Mathematics students only	None	None
MTH790P	Y	Programming in C++ for Finance	15	7	Semester 1	N	MTH6150	In taking this module you cannot take MTH6150
MTH790U (MSci Financial Mathematics students only)	N	Programming in C++ for Finance	15	7	Semester 1	N MSci Financial Mathematics students only	MTH6150	In taking this module you cannot take MTH6150
MTH792P	Y	Financial Data Analytics	15	7	Semester 2	N	None	None
MTH793P	N	Advanced Machine Learning	15	7	Semester 2	N	None	Before taking this module you must take MTH786P Machine Learning with Python
MTH794P	Y	Probability and Statistics for Data Analytics	15	7	Semester 1			
MTHM038	N	Project Dissertation	60	7	Semester 1 & 2	N	None	None