NUS National University of Singapore | Department of Mathematics Faculty of Science

B.Sc. & B.Sc. (Hons) with Major in Mathematics

Graduation Requirements for students admitted in AY2016/17

To be awarded a **B.Sc. or B.Sc.(Hons) with primary major in Mathematics**, in addition to the University and Faculty requirements, a candidate must satisfy the following:

Module Level	Major Requirements	Level MCs	Cumulative Major MCs
1000	1. Pass the 4 modules in List I 2. Pass CS1010/CS1010E/CS1010S/CS1010X/CS1101S* Programming Methodology *CS1101S (5MCs) may be read as an alternative to CS1010% (4MCs) to facilitate relevant programmes, e.g. Double Degree Programme with School of Computing. Registration for this module is subject to host availability.	20 (^16)	20 (^16)
2000	3. Pass all the following modules: • MA2101/MA2101S Linear Algebra II • MA2108/MA2108S Mathematical Analysis I • MA2202/MA2202S Algebra I • MA2216/ST2131 Probability 4. Pass one additional module from List II, III, IV	20-24 (^24-28)	40-44
3000	5. Pass all the following modules: • MA3110/MA3110S Mathematical Analysis II • MA3111/MA3111S Complex Analysis I 6. Pass two modules from List MA3 7. Pass one additional modules from List III, IV	20-23	60-66
4000	8. Pass MA4199 Honours Project in Mathematics 9. Pass four modules from List MA4 10. Pass one additional module from List IV	32-33	92-98
UROPS	At most one Mathematics UROPS module may be used to fulfil the requirements of Major in Mathematics		

List I

- MA1100 Fundamental Concepts of Mathematics or CS1231 Discrete Structures
- MA1101R Linear Algebra I
- MA1102R Calculus
- MA1104/MA2104^ Multivariable Calculus

List II

- All MA modules at level 2000, except those coded MA23XX
- PC2130 Quantum Mechanics I
- PC2132 Classical Mechanics
- ST2132 Mathematical Statistics
- EC2101 Microeconomic Analysis I

List III

- All MA modules at level 3000, except MA3311 and MA3312
- BSE3703 Econometrics for Business I
- CS3230 Design & Analysis of Algorithms
- CS3234 Logic and Formal Systems
- ~~CS4232 Theory of Computation~~
- DSA3102 Essential Data Analytics Tools: Convex Optimisation
- EC3101 Microeconomic Analysis II
- EC3303 Econometrics I
- PC3130 Quantum Mechanics II
- PC3236 Computational Methods in Physics
- PC3238 Fluid Dynamics
- ST3131 Regression Analysis
- ST3236 Stochastic Processes I

List IV

- All MA modules at level 4000 or higher
- CS4232 Theory of Computation
- CS4234 Optimisation Algorithms
- CS4236 Cryptography Theory and Practice
- CS5230 Computational Complexity
- CS5237 Computational Geometry and Applications
- DSA4211 High-Dimensional Statistical Analysis
- DSA4212 Optimisation for Large-Scale Data-Driven Inference
- EC4301 Microeconomics Analysis III
- EC5104/EC5104R Mathematical Economics
- PC4248 Relativity
- PC4274 Mathematical Methods in Physics III
- ST4238 Stochastic Processes II
- ST4245 Statistical Methods for Finance

List MA3
• MA3201 Algebra II • MA3205 Set Theory • MA3209 Mathematical Analysis III • MA3220 Ordinary Differential Equations • MA3265 Introduction to Number Theory • MA3266 Introduction to Fourier Analysis
List MA4
• MA4203 Galois Theory • MA4207 Mathematical Logic • MA4211 Functional Analysis • MA4221 Partial Differential Equations • MA4247 Complex Analysis II • MA4262 Measure and Integration • MA4266 Topology • MA4271 Differential Geometry of Curves and Surfaces

Modular Credit Cumulative Table		
Requirements	**B.Sc.**	**B.Sc. (Hons)**
University Requirements	20 MC	20 MC
Faculty Requirements	4-8 MC*	4-12 MC*
Major Requirements	60-66 MC	92-98 MC
Unrestricted Free Electives	26-36 MC	30-44 MC
Total	**120 MC**	**160 MC**

*Faculty requirements of 12MCs and 16MCs (required for the B.Sc. and B.Sc.(Hons) programmes respectively) are partially fulfilled through the reading of CS/PC/ST modules within the major.

^Adjusted Level and Cumulative Major MCs respectively if taking MA2104 to fulfil List I.

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