# NUS | Department of Mathematics
## Faculty of Science

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

## Graduation Requirements for students admitted in AY2013/14

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 | 16 | 16 |
| 2000 | 2. Pass all the following modules:<br>• MA2101/MA2101S Linear Algebra II<br>• MA2108/MA2108S Mathematical Analysis I<br>• MA2202/MA2202S Algebra I<br>• MA2216/ST2131 Probability<br>3. Pass one additional module from List II, III, IV | 20-24* | 36-40* |
| 3000 | 4. Pass all the following modules:<br>• MA3110/MA3110S Mathematical Analysis II<br>• MA3111/MA3111S Complex Analysis I<br>5. Pass two modules from List MA3<br>6. Pass two additional modules from List III, IV | 24-27* | 60-66* |
| 4000 | 7. Pass MA4199 Honours Project in Mathematics<br>8. Pass four modules from List MA4<br>9. Pass two additional modules from List IV | 36-37* | 96-102* |
| 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<br>• MA1101R Linear Algebra I<br>• MA1102R Calculus<br>• MA1104 Multivariable Calculus |

| List II |
|---|
| • All MA modules at level 2000, except those coded MA23XX<br>• PC2130 Quantum Mechanics I<br>• PC2132 Classical Mechanics<br>• ST2132 Mathematical Statistics |

## List III

- All MA modules at level 3000, except MA3311 and MA3312
- CS3230 Design & Analysis of Algorithms
- CS3234 Logic and Formal Systems
- CS4232 Theory of Computation
- 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
- CS4236 Principles of Computer Security
- CS5230 Computational Complexity
- CS5237 Computational Geometry and Applications
- EC4101/EC4301* Microeconomics Analysis III
- EC5104 Mathematical Economics
- PC4248 Relativity
- PC4274 Mathematical Methods in Physics III
- ST4238 Stochastic Processes II

## List MA3

- MA3201 Algebra II
- MA3205 Set Theory
- MA3209 Mathematical Analysis III
- MA3215 Three-dimensional Differential Geometry
- 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*

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| Modular Credit Cumulative Table | | |
|---|---|---|
| **Requirements** | **B.Sc.** | **B.Sc. (Hons)** |
| University Requirements | 20 MC | 20 MC |
| Faculty Requirements | 4-12 MC | 4-16 MC |
| Major Requirements | 60-66* MC | 96-102* MC |
| Unrestricted Free Electives | 36-22* MC | 40-22*MC |
| **Total** | **120 MC** | **160 MC** |