![NUS Department of Mathematics, Faculty of Science logo]

Second Major in Mathematics

Graduation Requirements for students admitted from AY2012/13 to AY2016/17

To be awarded a 2nd major in Mathematics, candidates must satisfy at least 48 MCs from non-overlapping modules of the following:

Module Level	2nd Major Requirements	Cumulative Major MCs
1000 (16-18 MCs) (*12 MCs)	Pass • MA1100 Fundamental Concepts of Mathematics or CS1231 Discrete Structures • MA1101R Linear Algebra I or MA1506 Mathematics II or MA1508 Linear Algebra with Applications or MA1508E Linear Algebra for Engineering or (MA1513 Linear Algebra with Differential Equations and one additional module from List II) • MA1102R Calculus or MA1505 Mathematics I or MA1507 Advanced Calculus or MA1521 Calculus for Computing or (MA1511 Engineering Calculus and MA1512 Differential Equations for Engineering) • MA1104/MA2104* Multivariable Calculus or MA2501 Differential Equations and Systems	16-18 (*12)
2000 (16-19 MCs) (*20-23 MCs)	Pass • MA2101/MA2101S Linear Algebra II • MA2108/MA2108S Mathematical Analysis I • MA2216/ST2131 Probability • One additional module from List II, III, IV	32-37
3000 (16-19 MCs)	Pass • MA3110/MA3110S Mathematical Analysis II • MA3111/MA3111S Complex Analysis I • Two additional modules from List III, IV	48-56

(*adjusted Level and Cumulative Major MCs respectively if taking MA2104 or MA2501 instead of MA1104)

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 those coded MA33XX
- BSE3703 Econometrics for Business I
- CS3230 Design & Analysis of Algorithms
- CS3234 Logic and Formal Systems
- 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
- EC4101 / EC4301 Microeconomic Analysis III
- EC5104 / EC5104R Mathematical Economics
- PC4248 Relativity
- PC4274 Mathematical Methods in Physics III
- ST4238 Stochastic Processes II
- ST4245 Statistical Methods for Finance

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