![NUS | Department of Mathematics Faculty of Science]

# B.Sc. & B.Sc. (Hons) with Major in Applied Mathematics with Specialization in Operations Research and Financial Mathematics (ORFM)

**Sample Study Plan for Students Admitted in AY2017/18 or after and AY2018/19**

Occasionally certain modules listed below may not be offered in a particular year.

| LEVEL | RECOMMENDED MODULES |
|---|---|
| 1000 | <ul><li>MA1100 Fundamental Concepts of Mathematics</li><li>MA1101R Linear Algebra I</li><li>MA1102R Calculus</li><li>CS1010/CS1010E/CS1010S/CS1010FC/CS1010X Programming Methodology</li></ul> |
| 2000 | <ul><li>MA2101/MA2101S Linear Algebra II</li><li>MA2104 Multivariable Calculus</li><li>MA2108/MA2108S Mathematical Analysis I</li><li>MA2213 Numerical Analysis I</li><li>MA2216/ST2131 Probability</li><li>One of the following modules:<br>– MA2214 Combinatorics and Graphs I<br>– ST2132 Mathematical Statistics<br>– ST3131 Regression Analysis [2]</li></ul> |
| 3000 | <ul><li>MA3110/MA3110S Mathematical Analysis II</li><li>MA3111/MA3111S Complex Analysis I</li><li>MA3236 Nonlinear Programming</li><li>MA3252 Linear and Network Optimization</li><li>MA3269 Mathematical Finance I</li><li>*Optional unrestrictive elective module*:<br>QF3101 Investment Instruments: Theory and Computation</li></ul><br>*One may need to take additional Level 3000 modules as unrestrictive elective modules to serve as prerequisites for certain Level 4000 modules. |

| LEVEL | RECOMMENDED MODULES |
|-------|---------------------|
| **4000** | • MA4199 Honours Project in Mathematics<br>• MA4254 Discrete Optimization<br>• MA4260 Stochastic Operations Research<br>• MA4264 Game Theory<br>• MA4269 Mathematical Finance II<br>• One* of the following modules:<br>  – MA4230 Matrix Computation<br>  – MA4255 Numerical Methods in Differential Equations [1]<br>  – ST4245 Statistical Methods for Finance [2]<br><br>Notes:<br>[1] MA4255 requires MA3220 as prerequisite<br>[2] ST4245 requires ST3131 as prerequisite |

*Updated 30 June 2017*
*Updated 01 July 2019*