

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

## Graduation Requirements for students admitted from AY2008/09 to AY2009/10

To be awarded a **B.Sc. or B.Sc.(Hons) with primary major in Applied 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	<ol style="list-style-type: none"> <li>Pass the 4 modules in List I</li> <li>Pass one of the following modules: <ul style="list-style-type: none"> <li>CZ1102 Problem Solving and Computation</li> <li>CS1101/CS1101C/CS1101S Programming Methodology</li> </ul> </li> </ol>	20-21	20-21
2000	<ol style="list-style-type: none"> <li>Pass all the following modules: <ul style="list-style-type: none"> <li>MA2101/MA2101S Linear Algebra II</li> <li>MA2108/MA2108S Mathematical Analysis I</li> <li>MA2213 Numerical Analysis I</li> <li>MA2216/ST2131 Probability</li> </ul> </li> <li>Pass one additional module from List II, III, IV</li> </ol>	20-23	40-44
3000	<ol style="list-style-type: none"> <li>Pass all the following modules: <ul style="list-style-type: none"> <li>MA3110/MA3110S Mathematical Analysis II</li> <li>MA3111/MA3111S Complex Analysis I</li> </ul> </li> <li>Pass two modules from List AM3</li> <li>Pass two additional modules from List III, IV</li> </ol>	24-27	64-71
4000	<ol style="list-style-type: none"> <li>Pass MA4199 Honours Project in Mathematics</li> <li>Pass four modules from List AM4</li> <li>Pass two additional modules from List IV</li> </ol>	36	100-107
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 Multivariable Calculus

**List II**

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

**List III**

- All MA modules at level 3000, **except MA3311 and MA3312\***
- CS3230 Design & Analysis of Algorithms
- CS3231 Theory of Computation
- CS3234 Logic and Formal Systems
- 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
- CS4235 Computational Geometry/CS5237 Computational Geometry and Applications
- CS4236 Cryptography Theory and Practice
- CS5230 Computational Complexity
- CS6209 Topics in Cryptography
- EC4101 Microeconomics Analysis III
- EC4311 Mathematical Economics II
- PC4248 Relativity
- PC4274 Mathematical Methods in Physics III
- ST4238 Stochastic Processes II

**List AM3**

- MA3209 Mathematical Analysis III
- MA3220 Ordinary Differential Equations
- MA3227 Numerical Analysis II
- MA3233 Combinatorics and Graph II
- MA3236 Nonlinear Programming
- MA3245 Financial Mathematics I
- MA3252 Linear and Network Optimization
- MA3264 Mathematical Modelling
- MA3266/MA3266S Introduction to Fourier Analysis

### List AM4

- MA4211 Functional Analysis
- MA4221 Partial Differential Equations
- MA4230 Matrix Computation
- MA4235 Topics in Graph Theory
- MA4254 Discrete Optimization
- MA4255 Numerical Methods in Differential Equations
- MA4257 Financial Mathematics II
- MA4260 Stochastic Operations Research

### 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	64-71 MC	100-107 MC
Unrestricted Free Electives	32-17 MC	36-17 MC
<b>Total</b>	<b>120 MC</b>	<b>160 MC</b>

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