

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

## Graduation Requirements for students admitted in AY2014/15

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 ( <sup>^</sup> 12)	16 ( <sup>^</sup> 12)
2000	2. 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>MA2202/MA2202S Algebra I</li> <li>MA2216/ST2131 Probability</li> </ul> 3. Pass one additional module from List II, III, IV	20-24* ( <sup>^</sup> 24-28)	36-40*
3000	4. 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> 5. Pass two modules from List MA3 6. Pass two additional modules from List III, IV	24-27*	60-66*
4000	7. Pass MA4199 Honours Project in Mathematics 8. Pass four modules from List MA4 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
- MA1101R Linear Algebra I
- MA1102R Calculus
- MA1104/MA2104<sup>^</sup> 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
- 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/**EC5104R** 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\***

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
<b>Total</b>	<b>120 MC</b>	<b>160 MC</b>

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

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