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

## Graduation Requirements for students admitted in AY2012/13

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:

<table>
<thead>
<tr>
<th>Module Level</th>
<th>Major Requirements</th>
<th>Level MCs</th>
<th>Cumulative Major MCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>1. Pass the 4 modules in List I</td>
<td>16</td>
<td>16</td>
</tr>
</tbody>
</table>
| 2000         | 2. Pass all the following modules:  
|               |   - MA2101/MA2101S Linear Algebra II  
|               |   - MA2108/MA2108S Mathematical Analysis I  
|               |   - MA2202/MA2202S Algebra I  
|               |   - MA2216/ST2131 Probability  
|               | 3. Pass one additional module from List II, III, IV | 20-23 | 36-39 |
| 3000         | 4. Pass all the following modules:  
|               |   - MA3110/MA3110S Mathematical Analysis II  
|               |   - MA3111/MA3111S Complex Analysis I  
|               | 5. Pass two modules from List MA3  
|               | 6. Pass two additional modules from List III, IV | 24-26 | 60-65 |
| 4000         | 7. Pass MA4199 Honours Project in Mathematics  
|               | 8. Pass four modules from List MA4  
|               | 9. Pass two additional modules from List IV | 36 | 96-101 |
| 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
- 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***
### Modular Credit Cumulative Table

<table>
<thead>
<tr>
<th>Requirements</th>
<th>B.Sc.</th>
<th>B.Sc. (Hons)</th>
</tr>
</thead>
<tbody>
<tr>
<td>University Requirements</td>
<td>20 MC</td>
<td>20 MC</td>
</tr>
<tr>
<td>Faculty Requirements</td>
<td>4-12 MC</td>
<td>4-16 MC</td>
</tr>
<tr>
<td>Major Requirements</td>
<td>60-65 MC</td>
<td>96-101 MC</td>
</tr>
<tr>
<td>Unrestricted Free Electives</td>
<td>36-23 MC</td>
<td>40-23 MC</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>120 MC</strong></td>
<td><strong>160 MC</strong></td>
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</table>

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