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:

<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 ((^12))</td>
<td>16 ((^12))</td>
</tr>
<tr>
<td>2000</td>
<td>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</td>
<td>20-24* ((^24-28))</td>
<td>36-40*</td>
</tr>
<tr>
<td>3000</td>
<td>4. Pass all the following modules: • MA3110/MA3110S Mathematical Analysis II • MA3111/MA3111S Complex Analysis I 5. Pass two modules from ListMA3 6. Pass two additional modules from List III, IV</td>
<td>24-27*</td>
<td>60-66*</td>
</tr>
<tr>
<td>4000</td>
<td>7. Pass MA4199 Honours Project in Mathematics 8. Pass four modules from List MA4 9. Pass two additional modules from List IV</td>
<td>36-37*</td>
<td>96-102*</td>
</tr>
<tr>
<td>UROPS</td>
<td>At most one Mathematics UROPS module may be used to fulfil the requirements of Major in Mathematics</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

List I
• MA1100 Fundamental Concepts of Mathematics or CS1231 Discrete Structures
• MA1101R Linear Algebra I
• MA1102R Calculus
• MA1104/MA2104\(^1\) 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*

<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>60-66* MC</td>
<td>96-102* MC</td>
</tr>
<tr>
<td>Unrestricted Free Electives</td>
<td>36-22*MC</td>
<td>40-22*MC</td>
</tr>
<tr>
<td>Total</td>
<td>120 MC</td>
<td>160 MC</td>
</tr>
</tbody>
</table>

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

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Updated 16 May 2018
Updated 11 Sep 2019