3.4.2.4 Second Major in Mathematics

Students with strong interest in mathematics but majoring in other disciplines such as computer science, economics/business, engineering, physics or statistics, are encouraged to take up a Second Major in Mathematics. This programme offers a broad-based education in mathematics and covers the same nine core mathematics modules as in the primary Major in Mathematics/Applied Mathematics. The three more elective modules in the requirements, from a list of interdisciplinary subjects, allow flexibility and ample scope for the student to design a programme which complements his/her primary major and other interests.

To be awarded a BSc with a second major in Mathematics, candidates must satisfy at least 48 MCs from non-overlapping modules of the following:
<table>
<thead>
<tr>
<th>MODULE LEVEL</th>
<th>SECOND MAJOR REQUIREMENTS</th>
<th>CUMULATIVE MAJOR MCS</th>
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<tbody>
<tr>
<td>Level-1000</td>
<td>Pass</td>
<td>16 - 18</td>
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<tr>
<td>(16 - 18 MCs)</td>
<td>MA1100 Fundamental Concepts of Mathematics or CS1231 Discrete Structures or MA1101R Linear Algebra I or MA1506 Mathematics II or MA1508 Linear Algebra with Applications or MA1508E Linear Algebra for Engineering or (MA1513 Linear Algebra with Differential Equations and one additional module from List II)</td>
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</table>
### MODULE LEVEL | SECOND MAJOR REQUIREMENTS | CUMULATIVE MAJOR MCS
---|---|---

#### Level-2000 (16 – 19 MCs)
- Pass
- MA2101/ Linear Algebra II
- MA2101S
- MA2108/ Mathematical Analysis I
- MA2108S
- MA2216/ Probability
- ST2131
- **One additional module from List II, III, IV**

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#### Level-3000 & Level-4000 (16 – 19 MCs)
- Pass
- MA3110/ Mathematical Analysis II
- MA3110S
- MA3111/ Complex Analysis I
- MA3111S
- **Two additional modules from List III, IV**

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List II:
- All MA modules at Level-2000, except those coded MA23XX
- PC2130 Quantum Mechanics I
- PC2132 Classical Mechanics
- ST2132 Mathematical Statistics
- EC2101 Microeconomic Analysis I

List III:
- All MA modules at Level-3000, except MA3311 and MA3312
- BSE3703 Econometrics for Business I
- CS3230 Design & Analysis of Algorithms
- CS3234 Logic and Formal Systems
- DSA3102 Essential Data Analytics Tools: Convex Optimisation
- 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
- CS4232 Theory of Computation
- CS4234 Optimisation Algorithms
- CS4236 Cryptography Theory and Practice
This second major is not offered with a primary major in Applied Mathematics, Mathematics, Quantitative Finance or Data Science and Analytics, and minor in Mathematics or Financial Mathematics.