## Major Requirements

### Levels

<table>
<thead>
<tr>
<th>Levels</th>
<th>Major Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1000</td>
<td><strong>Pass</strong> — ST1131 Introduction to Statistics or ST1232 Statistics for Life Sciences, MA1101R Linear Algebra I, MA1102R Calculus, CS1010/—E/—S/—X Programming Methodology</td>
</tr>
<tr>
<td>Level 2000</td>
<td><strong>Pass</strong> — ST2131/MA2216 Probability or ST2132 Mathematical Statistics or ST2137 Computer Aided Data Analysis or MA2311 Techniques in Advanced Calculus or MA2104 Multivariable Calculus or MA2108/—S Mathematical Analysis I/— (S)</td>
</tr>
<tr>
<td>Level 3000</td>
<td><strong>Pass</strong> — ST3131 Regression Analysis or ST3236/MA3238 Stochastic Processes I or Three other modules from ST32xx (except ST328x) or ST4xxx modules or Two additional modules from ST32xx (except ST328x), ST4xxx, List A or List B modules</td>
</tr>
<tr>
<td>Level 4000</td>
<td><strong>Pass</strong> — ST4199 Honours Project in Statistics or ST4231 Computer Intensive Statistical Methods or ST4233 Linear Models or Two other modules from ST4xxx modules or One additional module from ST4xxx, ST5xxx or List B modules</td>
</tr>
</tbody>
</table>

### Cum MCs

<table>
<thead>
<tr>
<th>Levels</th>
<th>Cum MCs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1000</td>
<td>16</td>
</tr>
<tr>
<td>Level 2000</td>
<td>32–33</td>
</tr>
<tr>
<td>Level 3000</td>
<td>60–62</td>
</tr>
<tr>
<td>Level 4000</td>
<td>92–94</td>
</tr>
</tbody>
</table>

**Honours students majoring in Statistics have the option to qualify for specialisation in (A) Data Science or (B) Finance and Business Statistics.**

(A) To be awarded a specialisation in **Data Science**, at least 24 MCs of the required 92–94 MCs given in the above **Major Requirements** table must belong to the following two lists, with at least 8 MCs from list **DS 1**:  

**DS 1**

- ST3240 Multivariate Statistical Analysis
- ST3248 Statistical Learning I #2
- CS3244 Machine Learning †
- ST4248 Statistical Learning II #2

(B) To be awarded a specialisation in **Finance and Business Statistics**, at least 24 MCs of the required 92–94 MCs given in the above **Major Requirements** table must belong to the following two lists, with at least 8 MCs from each of the lists:

**FBS 1**

- ST3233 Applied Times Series Analysis
- ST3234 Actuarial Statistics
- ST3246 Statistical Models for Actuarial Science
- MA3269 Mathematical Finance I
- ST4245 Statistical Methods for Finance
- MA4269 Mathematical Finance II

**FBS 2**

- ST3232 Design and Analysis of Experiments
- ST3239 Survey Methodology
- ST3242 Introduction to Survival Analysis
- ST3244 Demographic Methods
- ST4238 Stochastic Processes II

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**Summary of Requirements**

<table>
<thead>
<tr>
<th>University Requirements</th>
<th>B.S.</th>
<th>B.S. (Hons.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 MCs</td>
<td>20 MCs</td>
<td>8 MCs</td>
</tr>
<tr>
<td>Faculty Requirements †</td>
<td>8 MCs</td>
<td>8 MCs</td>
</tr>
<tr>
<td>Major Requirements</td>
<td>60–62 MCs</td>
<td>92–94 MCs</td>
</tr>
<tr>
<td>Unrestricted Elective Modules</td>
<td>30–32 MCs</td>
<td>38–40 MCs</td>
</tr>
<tr>
<td>Total</td>
<td>120 MCs</td>
<td>160 MCs</td>
</tr>
</tbody>
</table>

* Faculty requirements of 12 MCs and 16 MCs [required for the B.Sc. and B.Sc. (Hons.) programmes respectively] are partially fulfilled through the reading of CS/MA modules within the major. Students undertaking the B.Sc. and B.Sc. (Hons.) programmes are required to fulfill the remaining 8 MCs of Faculty requirements from any two (2) of the following subject groups: Chemical Sciences, Life Sciences, Physical Sciences and Multidisciplinary & Interdisciplinary Sciences; but not from the following groups: Computing Sciences and Mathematical & Statistical Sciences.

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### List A

- CS3223 Database Systems Implementation
- CS3230 Design and Analysis of Algorithms
- CS3243 Introduction to Artificial Intelligence
- CS3244 Machine Learning
- EC3304 Econometrics II
- MA3209 Mathematical Analysis III
- MA3218 Applied Algebra
- MA3227 Numerical Analysis II
- MA3229 Introduction to Geometric Modelling
- MA3233 Combinatorics and Graphs I
- MA3236 Nonlinear Programming
- MA3252 Linear and Network Optimisation
- MA3256 Applied Cryptography
- MA3259 Mathematical Methods in Genomics
- MA3269 Mathematical Finance I
- QF3101 Investment Instruments: Theory and Computation

### List B

- CS4220 Knowledge Discovery Methods in Bioinformatics
- CS4231 Parallel and Distributed Algorithms
- DA211 High-Dimensional Statistical Analysis
- DA212 Optimisation for Large-Scale Data-Driven Inference
- EC4303 Econometrics III
- MA211 Functional Analysis
- MA229 Approximation Theory
- MA4230 Matrix Computation
- MA4233 Dynamical Systems
- MA4253 Mathematical Programming
- MA4254 Discrete Optimisation
- MA4260 Stochastic Operations Research
- MA4261 Coding and Cryptography
- MA4262 Measure and Integration
- MA4269 Mathematical Finance II

† Students who wish to read these modules would have to read additional pre-requisite modules and should consult the Faculty/Department for academic advice on their study plans.