

**Majors: Statistics**

**Statistics (specialisation in Biostatistics)**

**Statistics (specialisation in Finance and Business Statistics)**

**Applicable to cohorts: AY 2015/2016**

**AY 2014/2015**

Levels	Major Requirements	Cum MCs
Level 1000 (16 MCs)	Pass – ST1131 Introduction to Statistics <b>or</b> ST1232 Statistics for Life Sciences – MA1101R Linear Algebra I – MA1102R Calculus – CS1010/–E/–FC/–S/–X Programming Methodology	16
Level 2000 (16–17 MCs)	Pass – ST2131/MA2216 Probability – ST2132 Mathematical Statistics – ST2137 Computer Aided Data Analysis – MA2311 Techniques in Advanced Calculus <b>or</b> MA2108 Mathematical Analysis I <b>or</b> MA2108S Mathematical Analysis I (S)	32–33
Level 3000 (28–29 MCs)	Pass – ST3131 Regression Analysis – ST3236/MA3238 Stochastic Processes I – Three other modules from ST32xx (except ST328x) or ST4xxx <sup>†</sup> modules – Two additional modules from ST32xx (except ST328x), ST4xxx <sup>†</sup> , <b>List A</b> or <b>List B</b> modules	60–62
Level 4000 (36–37 MCs)	Pass – ST4199 Honours Project in Statistics – ST4231 Computer Intensive Statistical Methods – ST4233 Linear Models – Two other modules from ST4xxx <sup>†</sup> modules – Two additional module from ST4xxx <sup>†</sup> , ST5xxx or <b>List B</b> modules	96–98

<sup>†</sup> The following modules are recognised as ST4xxx modules:

DSA4211 High-Dimensional Statistical Analysis

DSA4212 Optimisation for Large-Scale Data-Driven Inference

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

(A) To be awarded a specialisation in **Biostatistics**, at least 24 MCs of the required 96–98 MCs given in the above **Major Requirements** table must belong to the following list:

- ST3232 Design and Analysis of Experiments
- ST3242 Introduction to Survival Analysis
- ST3243 Statistical Methods in Epidemiology
- ST3244 Demographic Methods
- MA3259 Mathematical Methods in Genomics
- ST4232 Nonparametric Statistics
- ST4241 Design and Analysis of Clinical Trials
- ST4242 Analysis of Longitudinal Data

(B) To be awarded a specialisation in **Finance and Business Statistics**, at least 24 MCs of the required 96–98 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 **or** MA3245 Financial Mathematics I
- ST4245 Statistical Methods for Finance
- MA4269 Mathematical Finance II **or** MA4257 Financial Mathematics II

Summary of Requirements	B.Sc.	B.Sc. (Hons.)
University Requirements	20 MCs	20 MCs
Faculty Requirements *	8 MCs	8 MCs
<b>Major Requirements</b>	60–62 MCs	96–98 MCs
Unrestricted Elective Modules	30–32 MCs	34–36 MCs
Total	120 MCs	160 MCs

\* 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 fulfil 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.

**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  
**or** MA3245 Financial Mathematics I
- QF3101 Investment Instruments: Theory and Computation

**List B**

- CS4220 Knowledge Discovery Methods in Bioinformatics
- CS4231 Parallel and Distributed Algorithms
- EC4303 Econometrics III
- MA4211 Functional Analysis
- MA4229 Approximation Theory
- MA4230 Matrix Computation
- MA4233 Dynamical Systems
- MA4254 Discrete Optimisation
- MA4260 Stochastic Operations Research
- MA4261 Coding and Cryptography
- MA4262 Measure and Integration
- MA4269 Mathematical Finance II  
**or** MA4257 Financial Mathematics II

**FBS 2**

- ST3239 Survey Methodology
- ST3240 Multivariate Statistical Analysis
- ST3248 Statistical Learning I <sup>^</sup> <sup>#1</sup>
- ST4238 Stochastic Processes II
- ST4240 Data Mining <sup>^</sup>
- ST4248 Statistical Learning II <sup>^</sup> <sup>#1</sup>

<sup>#1</sup>: ST3248 and ST4248 (new modules) added to List FBS 2

<sup>^</sup> Students who have already passed ST4240 will be precluded from reading both ST3248 and ST4248.