Majors: Statistics
Statistics (specialisation in Data Science)
Statistics (specialisation in Finance and Business Statistics)

Applicable to cohorts: AY 2016/2017
AY 2017/2018
AY 2018/2019

Levels	Major Requirements	Cum Units
Level 1000 (16 Units)	Pass – ST1131 Introduction to Statistics *or* ST1232 Statistics for Life Sciences – MA1101R/MA2001 Linear Algebra I – MA1102R/MA2002 Calculus – CS1010/—E/—S/—X Programming Methodology	16
Level 2000 (16–17 Units)	Pass – ST2131/MA2116/MA2216 Probability – ST2132 Mathematical Statistics – ST2137 Computer Aided Data Analysis – MA2311 Techniques in Advanced Calculus *or* MA2108 Mathematical Analysis I *or* MA2108S Mathematical Analysis I (S)	32–33
Level 3000 (28 Units)	Pass – ST3131 Regression Analysis – ST3236/MA3238 Stochastic Processes I – Three other courses from ST32xx (except ST328x) or ST4xxx courses – Two additional courses from ST32xx (except ST328x), ST4xxx, List A or List B courses	60–61
Level 4000 (32 Units)	Pass – ST4199 Honours Project in Statistics – ST4231 Computer Intensive Statistical Methods – ST4233 Linear Models – Two other courses from ST4xxx courses – One additional course from ST4xxx, ST5xxx or List B courses	92–93

Summary of Requirements	B.Sc.	B.Sc. (Hons.)
University Requirements	20 Units	20 Units
Faculty Requirements *	8 Units	8 Units
Major Requirements	60–61 Units	92–93 Units
Unrestricted Elective Courses	31–32 Units	39–40 Units
Total	120 Units	160 Units

* Faculty requirements of 12 Units and 16 Units [required for the B.Sc. and B.Sc. (Hons.) programmes respectively] are partially fulfilled through the reading of CS/MA courses within the major. Students undertaking the B.Sc. and B.Sc. (Hons.) programmes are required to fulfil the remaining 8 Units 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.

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 Units of the required 92–93 Units given in the above **Major Requirements** table must belong to the following two lists, with at least 8 Units from list DS 1:

DS 1

ST3240 / ST4250	Multivariate Statistical Analysis
ST3248	Statistical Learning I
CS3243	Introduction to Artificial Intelligence †
CS3244	Machine Learning †
ST4248	Data Mining

DS 2

ST3247	Simulation
CS3210	Parallel Computing †
MA3252	Linear and Network Optimisation
ST4234	Bayesian Statistics
CS4231	Parallel and Distributed Algorithms †
DSA4211	High-Dimensional Statistical Analysis
DSA4212	Optimisation for Large-Scale Data-Driven Inference
MA4268	Mathematics for Visual Data Processing †

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

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
DSA4211	High-Dimensional Statistical Analysis
DSA4212	Optimisation for Large-Scale Data-Driven Inference
EC4303	Econometrics III
MA4211	Functional Analysis
MA4229	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

(B) To be awarded a specialisation in **Finance and Business Statistics**, at least 24 Units of the required 92–93 Units given in the above **Major Requirements** table must belong to the follow two lists, with at least 8 Units from each of the lists:

FBS 1

ST3233 /	ST4253	Applied Times Series Analysis	ST3232	Design and Analysis of Experiments
ST3234		Actuarial Statistics	ST3239	Survey Methodology
ST3246		Statistical Models for Actuarial Science	ST3242 / ST4252	Introduction to Survival Analysis
MA3269		Mathematical Finance I	ST3244	Demographic Methods
ST4245		Statistical Methods for Finance	ST4238	Stochastic Processes II
MA4269		Mathematical Finance II		