

Requirements for Major in Statistics

Applicable to cohorts AY2019/2020 and AY2020/2021

Levels	Major Requirements	Cumulative Major Units
Level 1000 (16 Units)	Pass - ST1131 Introduction to Statistics or Introduction to Statistics and Statistical Computing <i>or</i> ST1232 Statistics for Life Sciences - MA1101R/MA2001 Linear Algebra I - MA1102R/MA2002 Calculus - CS1010/CS1010E/CS1010S/CS1010X Programming Methodology	16
Level 2000 (16-17 Units)	Pass - ST2131/MA2216/MA2116 Probability - ST2132 Mathematical Statistics - ST2137 Computer Aided Data Analysis or Statistical Computing and Programming - MA2311 Techniques in Advanced Calculus <i>or</i> MA2104 Multivariable Calculus <i>or</i> MA2108 Mathematical Analysis I <i>or</i> MA2108S Mathematical Analysis I (S)	32-33
Level 3000 (28-29 Units)	Pass - ST3131 Regression Analysis - ST3236 Stochastic Processes I - Three other courses from ST32xx (except ST328x) or ST4xxx courses - Two additional courses from ST32xx (except ST328x) or ST4xxx or List A or List B courses	60-62
Level 4000 (32-33 Units)	Pass - ST4199 Honours Project in Statistics <i>or</i> ST4299 Applied Project in Statistics - ST4231 Computer Intensive Statistical Methods - ST4233 Linear Models - Two other courses from ST4xxx courses - One additional course from ST4xxx or List B courses	92-94

List A

CS3210 Parallel Computing

CS3223 Database Systems Implementation

CS3230 Design and Analysis of Algorithms

CS3243 Introduction to Artificial Intelligence

CS3244 Machine Learning

EC3304 Econometrics II

MA3209 Metric and Topological Spaces or 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 Instrument and Risk Management or Investment Instruments: Theory and Computation

List B

CS4220 Knowledge Discovery Methods in Bioinformatics
CS4231 Parallel and Distributed Algorithms
CS4243 Computer Vision and Pattern Recognition
CS4248 Natural Language Processing
DSA4211 High-Dimensional Statistical Analysis
DSA4212 Optimisation for Large-Scale Data-Driven Inference
EC4303 Econometrics III
MA4211 Functional Analysis
MA4229 Fourier Analysis and Approximation or Approximation Theory
MA4230 Matrix Computation
MA4233 Dynamical Systems
MA4254 Discrete Optimisation
MA4260 Stochastic Operations Research
MA4261 Coding and Cryptography
MA4262 Measure and Integration
MA4268 Mathematics for Visual Data Processing
MA4269 Mathematical Finance II

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**, pass at least **five courses (20 Units)** from the following two lists, with at least two courses (8 Units) from list DS 1, as part of the major requirements for BSc (Hons) with a primary major in Statistics:

DS 1

ST3248 Statistical Learning I
CS3243 Introduction to Artificial Intelligence^
CS3244 Machine Learning^

DSA4213 Natural Language Processing for Data Science
ST4248 Statistical Learning II
ST4250/ST3240 Multivariate Statistical Analysis

DS 2

ST3247 Simulation
CS3210 Parallel Computing^
MA3252 Linear Network Optimisation
ST4234 Bayesian Statistics
CS4231 Parallel and Distributed Algorithms^
DSA4211 High-Dimensional Statistical Analysis
DSA4212 Optimisation for Large-Scale Data-Drive Inference
MA4268 Mathematics for Visual Data Processing^
DSE4211/QF4211 Digital Currencies^
DSE4212/QF4212 Data Science in FinTech^

(B) To be awarded a **specialisation in Finance and Business Statistics**, pass at least **five courses (20 Units)** from the following two lists, with at least two courses (8 Units) from each of the lists (FBS 1, FBS 2), as part of the major requirements for BSc (Hons) with a primary major in Statistics:

FBS 1

ST3234 Actuarial Statistic
ST3246 Statistical Models for Actuarial Science
MA3269 Mathematical Finance I
ST4245 Statistical Methods for Finance
ST4253/ST3233 Applied Time Series Analysis
MA4269 Mathematical Finance II *or* QF4103 Mathematical Models of Financial Derivatives^
DSE4211/QF4211 Digital Currencies^
DSE4212/QF4212 Data Science in FinTech^

FBS 2

ST3232 Design and Analysis of Experiments
ST3239 Survey Methodology
ST3242 Introduction to Survival Analysis *or* ST4252 Applied Survival Analysis
ST3244 Demographic Methods
ST4238 Stochastic Processes II

^ 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.