

Levels	Second Major Requirements	Cum MCs
Level 1000 (16 MCs)	Pass – CS1010/—E/—S/—X Programming Methodology – CS1020/—E Data Structures and Algorithms I – One of the following modules: + MA1101R Linear Algebra I + MA1311 Matrix Algebra + MA1506 Mathematics II + MA1508 Linear Algebra with Applications – One of the following modules: + MA1102R Calculus + MA1312 Calculus with Applications + MA1505 Mathematics I + MA1507 Advanced Calculus + MA1521 Calculus for Computing	16
Level 2000 (16 MCs)	Pass – CS2010 Data Structures and Algorithms II – ST2131/MA2216 Probability – ST2132 Mathematical Statistics – One of the following modules: + DSA2101 Essential Data Analytics Tools: Data Visualisation + DSA2102 Essential Data Analytics Tools: Numerical Computation	32
Levels 3000 and 4000 (16 MCs)	Pass – ST3131 Regression Analysis – One of the following modules: + DSA3102 Essential Data Analytics Tools: Convex Optimisation* + DSC3214 Introduction to Optimisation + MA3236 Nonlinear Programming* + MA3252 Linear and Network Optimisation – One module from <b>List I</b> – One module from <b>List I</b> or <b>List II</b>	48

This second major is not offered with the following primary majors: Applied Mathematics, Business Analytics, Computational Biology, Computer Engineering, Computer Science, Data Science and Analytics, Industrial and Systems Engineering, Information Security, Mathematics, Quantitative Finance, Statistics.

**List I**

- DSA4211 High-Dimensional Statistical Analysis
- DSA4212 Optimisation for Large-Scale Data-Driven Inference\*

Students who participate in credit-bearing full-time internships/industrial attachments/professional placements as part of their degree requirements may be approved to double-count up to 8 MCs into **List I** if their internships/industrial attachments/professional placements have substantial data-analytics content, provided the limit of 16 MCs of double-counting in primary and second major requirements is not exceeded.

**List II**

- CS3244 Machine Learning
- ST3240 Multivariate Statistical Analysis
- ST3247 Simulation
- ST4240 Data Mining

\* Students may need to read additional modules outside the second major requirements to satisfy the pre-requisites of these modules.

