Second Major: Data Analytics — Applicable to cohorts: AY 2017/2018 and after

Levels	Second Major Requirements	Cum MCs
Level 1000 (10–12 MCs)	Pass – One of the following modules: + CS1010/—E/—J/—S/—X Programming Methodology + IT1007 Introduction to Programming with Python and C – One of the following modules: + MA1101R Linear Algebra I + MA1311 Matrix Algebra + MA1508E Linear Algebra for Engineering + MA1513 Linear Algebra with Differential Equations (2 MCs) ^ – One of the following (pair of) modules: + MA1102R Calculus + MA1312 Calculus with Applications + MA1505 Mathematics I + MA1507 Advanced Calculus + MA1511 Engineering Calculus (2 MCs) **and** MA1512 Differential Equations for Engineering (2 MCs) + MA1521 Calculus for Computing	10–12
Level 2000 (16 MCs)	Pass – CS2040 Data Structures and Algorithms – 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	26–28
Levels 3000 and 4000 (20–24 MCs)	Pass – ST3131 Regression Analysis – One of the following modules: + DSA3102 Essential Data Analytics Tools: Convex Optimisation* + DBA3701 Introduction to Optimisation + MA3236 Nonlinear Programming* + MA3252 Linear and Network Optimisation – One module from **List I** – One module from **List II** – One other module from **List I** or **List II** – One additional module from **List I** or **List II** ^	48–50

^ Applicable only to students who use MA1513 Linear Algebra with Differential Equations (2 MCs) to fulfil the second major requirements.

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, and the following minors: Financial Mathematics, Mathematics, Statistics.

[continues …]

[… continued]

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
ST3248 Statistical Learning I
ST4248 Statistical Learning II

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

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Click on the module codes for module information