

National University of Singapore — Faculty of Science

Department of Mathematics & Department of Statistics and Applied Probability

Bachelor of Science (Honours) in **DATA SCIENCE AND ANALYTICS**

Pathway for **Co-Operative Education**

The NUS **co-operative education (co-op)** programme provides opportunities for students to work in a company during their third and fourth years of study and link what they have studied to real-world issues.

Data Science and Analytics students from cohort AY 2017/2018 onwards have the option to undertake the **co-op** pathway comprising the following study/work sequence:

	Semester 1	Semester 2	Special Term
Year 1	Study	Study	Study
Year 2	Study	Study	Internship
Year 3	Internship & Study	Internship	Internship
Year 4	Internship & Study	Study	

The first three internship segments ride on the Undergraduate Professional Internship Programme (UPIP) of the FoS. Upon successful completion of each segment, a student will receive a grade on “CS/CU” (aka “pass/fail”) basis.

The last two internship segments take the form of an Honours-level project. Upon successful completion of the Honours-level project, a student will receive a letter grade.

It is expected that the internship projects offered to **Data Science and Analytics co-op** students will have substantial data-scientific content (to reinforce programme learning outcomes) and the complexity of these projects will increase progressively over the period of 18 months to culminate in an Honours-level project.

Tentative Timeline (for AY 2017/2018 intake)

August 2017 – February 2019	DSA students indicate interest to participate in co-op Prospective co-op partners engage with prospective DSA co-op students Prospective DSA co-op students attend CFG preparatory programme(s)
January 2019 – February 2019	Prospective DSA co-op students are checked for eligibility for co-op Eligible DSA co-op students apply to available co-op internship positions Co-op partners process internship applications (e.g., conduct interviews)
March 2019 – April 2019	Co-op partners offer internships to selected DSA co-op students DSA co-op students who accept an offer are confirmed for co-op
May 2019	Confirmed DSA co-op students embark on their internships
May 2019 – December 2020	Co-op supervisors and academic advisors are expected to meet regularly with DSA co-op students to offer guidance on progress and performance

Sample Study Plan for **Data Science and Analytics Co-Operative Education Pathway**

Year 1			Year 2			Year 3			Year 4	
Sem 1	Sem 2	Sp Term	Sem 1	Sem 2	Sp Term	Sem 1	Sem 2	Sp Term	Sem 1	Sem 2
CS1010S	CS2040	CMxxxx/ LSMxxxx/ PCxxxx/ GEQ1000	DSA2101	DSA2102	DSA3310C	DSA3101	DSA3313C	DSA4299C	DSA4299C	Four modules*
DSA1101	MA1101R	MA2311/ MA2104	MA2311/ MA2104	DSA3102	DSA3312C	DSA3312C		One additional module*		
MA1102R	ST2131	GER1000	Three of these modules in each semester:							
Two of these modules in each semester:		GER1000	CS3244, ST2132, ST3131, three additional modules*							
GEHxxxx, GESxxxx, GETxxxx, SP1541										
20 MCs	20 MCs	12 MCs	20 MCs	20 MCs	4 MCs	16 MCs	12 MCs	8 MCs	12 MCs	16 MCs

* Of these eight modules, six modules must be DSA or DSA-recognised modules fulfilling the DSA major requirements and the remaining 8 MCs may be unrestricted elective modules.

University level requirements (20 MCs)

GEQ1000 Asking Questions
 GER1000 Quantitative Reasoning
 GEHxxxx one module from Human Cultures pillar
 GESxxxx one module from Singapore Studies pillar
 GETxxxx one module from Thinking and Expression pillar

Faculty requirements (8 MCs nett)

SP1541 Exploring Science Communication through Popular Science
 CMxxxx }
 LSMxxxx } one module from CM/LSM/PC
 PCxxxx } modules

Major requirements (96 MCs)

CS1010S Programming Methodology
 CS2040 Data Structures and Algorithms
 CS3244 Machine Learning
 DSA1101 Introduction to Data Science
 DSA2101 Essential Data Analytics Tools: Data Visualisation
 DSA2102 Essential Data Analytics Tools: Numerical Computation
 DSA3101 Data Science in Practice
 DSA3102 Essential Data Analytics Tools: Convex Optimisation
 DSA4299C Applied Project in Data Science (16 MCs)
 MA1101R Linear Algebra I
 MA1102R Calculus
 MA2311 Advanced Techniques in Calculus
 or MA2104 Multivariate Calculus

Unrestricted elective modules (36 MCs)

ST2131 Probability
 ST2132 Mathematical Statistics
 ST3131 Regression Analysis
 Six additional DSA or DSA-recognised modules from List A and List B subject to the restrictions that there must be at least two modules each from List A and from List B1 and/or B2 and that there must be at least four modules at level 4000
 DSA3310C Undergraduate Professional Internship (4 MCs)
 DSA3312C Enhanced Undergraduate Professional Internship (12 MCs)
 DSA3313C Enhanced Undergraduate Professional Internship (12 MCs)
 Two additional modules (8 MCs)