(For students admitted in 2023-24 under the 4-year degree)

BSc in Data Science and Technology

Students taking the BSc Program in Data Science and Technology as their first major are exempted from the School Requirements. However, they are still required to complete the University requirements in addition to the major requirements for graduation. For details please refer to the respective sections on this website.

Students may use no more than 9 credits earned from courses offered in self-paced online delivery mode to satisfy the graduation requirements of a degree program. This 9-credit limit does not apply to credits obtained through the credit transfer procedures of the University.

For students graduating with an additional major, they must take all the requirements specified for that major, within which they must complete at least 20 single-counted credits. These 20 credits cannot be used to fulfill any other requirements for graduation except for the 120-credit degree requirement.

Under the new 30-credit Common Core Program which is applicable to students admitted to the University in 2022-23 and thereafter, courses that have been counted towards Major Requirements are not allowed to be reused for fulfilment of the University Common Core Requirements. Students should look up the details of the Common Core Program including the general and School-/program-specific distributional requirements posted on the Common Core website where the link to it is available on this website.

Major Requirements

Students MUST take the following courses prior to enrollment into the major

Major Pre-requisite course(s)

			Credit(s) attained
MATH		Note: [(MATH 1012 OR MATH 1013 OR MATH 1023) AND (MATH 1014 OR MATH 1024)] OR [MATH 1020]	4-7
MATH	1012**	Calculus IA	4
MATH	1013	Calculus I	3
MATH	1014	Calculus II	3
MATH	1020	Accelerated Calculus	4
MATH	1023	Honors Calculus I	3
MATH	1024	Honors Calculus II	3
COMP		Note: COMP 1021 OR COMP 1022P	3
COMP	1021	Introduction to Computer Science	3
COMP	1022P**	Introduction to Computing with Java	3

Required Course(s)

			Credit(s) attained
DSCT	4900	Academic and Professional Development	0
MATH	2023	Multivariable Calculus	4

MATH		Note: MATH 2121 OR MATH 2131	4
MATH	2121	Linear Algebra	4
MATH	2131	Honors in Linear and Abstract Algebra I	4
MATH	2411	Applied Statistics	4
MATH		Note: MATH 2421 OR MATH 2431	4
MATH	2421	Probability	4
MATH	2431	Honors Probability	4
MATH	3322	Matrix Computation	3
MATH	3332	Data Analytic Tools	3
MATH	3423	Statistical Inference	3
MATH	3424	Regression Analysis	3
MATH/COMP		Note: MATH 4432 OR COMP 4211	3
MATH	4432	Statistical Machine Learning	3
COMP	4211	Machine Learning	3
MATH/COMP		Note: MATH 4995 OR COMP 4910 OR COMP 4981 OR COMP 4981H	3-6
MATH	4995	Capstone Project for Data Science	3
COMP	4910	Co-op Program	6
COMP	4981	Final Year Project	6
COMP	4981H	Final Year Thesis	6
COMP		Note: (COMP 2011 AND COMP 2012) OR COMP 2012H	5-8
COMP	2011	Programming with C++	4
COMP	2012	Object-Oriented Programming and Data Structures	4
COMP	2012H	Honors Object-Oriented Programming and Data Structures	5
COMP		Note: COMP 2711 OR COMP 2711H	4
COMP	2711	Discrete Mathematical Tools for Computer Science	4
COMP	2711H	Honors Discrete Mathematical Tools for Computer Science	4
COMP		Note: COMP 3711 OR COMP 3711H	3-4
COMP	3711	Design and Analysis of Algorithms	3
COMP	3711H	Honors Design and Analysis of Algorithms	4
LANG		Note: (LANG 2010 OR LANG 2010H OR LANG 2030 OR LANG 2030H) AND (LANG 3021 OR LANG 4030)	6
LANG	2010	English for Science I	3
LANG	2010H	English for Science I	3
LANG	2030	Technical Communication I	3
LANG	2030H	Technical Communication I	3
LANG	3021	Science Communication in English (Mathematics)	3
LANG	4030	Technical Communication II for CSE, CPEG & DSCT	3

Elective(s)

			Minimum credit(s) required
MATH/COMP/ ELEC		Data Science Electives [Students opting for MATH 4995 should take a minimum of 4 courses (12 credits) from the specified elective list, of which at least 2 courses should be taken from COMP/ELEC; those opting for COMP 4910 or COMP 4981 or COMP 4981H should take a minimum of 3 courses (9 credits), of which at least 1 course should be taken from COMP/ELEC. Out of the total 4 (or 3) elective courses taken, at least 1 course but no more than 2 courses should be from MATH.]	9-12
COMP/ELEC courses			
COMP	2211	Introduction to Artificial Intelligence	3
COMP	3211	Learning, Reasoning, and Decision Making in AI	3
COMP	3311	Database Management Systems	3
COMP	3631	Cryptography	3
COMP	4021	Internet Computing	3
COMP	4221	Introduction to Natural Language Processing	3
COMP	4222	Machine Learning with Structured Data	3
COMP	4331	Data Mining	3
COMP	4332	Big Data Mining and Management	3
COMP	4421	Image Processing	3
COMP	4462	Data Visualization	3
COMP	4471	Deep Learning in Computer Vision	3
COMP	4541	Blockchain, Cryptocurrencies and Smart Contracts	3
COMP	4634	Cybersecurity	3
COMP	4641	Social Information Network Analysis and Engineering	3
COMP	4651	Cloud Computing and Big Data Systems	3
ELEC	4240	Deep Learning in Computer Vision	3
MATH courses			
MATH	2033	Mathematical Analysis	4
MATH	2043	Honors Mathematical Analysis	4
MATH	2351	Introduction to Differential Equations	3
MATH	2352	Differential Equations	4
MATH	3033	Real Analysis	4
MATH	3043	Honors Real Analysis	4
MATH	3312	Numerical Analysis	3
MATH	3425	Stochastic Modeling	3
MATH	3427	Bayesian Statistics	3
MATH	3428	Statistical Computing	3
MATH	4023	Complex Analysis	3
MATH	4052	Partial Differential Equations	3
MATH	4335	Introduction to Optimization	3
MATH	4336	Introduction to Mathematics of Image Processing	3

MATH	4343	Introduction to Graph Theory	4
MATH	4423	Nonparametric Statistics	3
MATH	4424	Multivariate Analysis	3
MATH	4425	Introductory Time Series	3
MATH	4433	Spatial Data Analysis	3
MATH	4434	Deep Learning	3

***Remarks on course(s):*

- COMP 1022P: The course was last offered in 2024-25 and was deleted subsequently.
- MATH 1012: The course was last offered in 2024-25 and was deleted subsequently.