School of Data Science
數據科學學院

CityU
香港城市大學
City University of Hong Kong

Bachelor of Science in Data Science
理學士(數據科學)

Bachelor of Science in Data and Systems Engineering
理學士（數據與系統工程）

For Common First Year Students

Student Handbook
2023-2024

For further information, please contact:

School of Data Science
Room 16-201, 16/F
Lau Ming Wai Academic Building
City University of Hong Kong
83 Tat Chee Avenue
Kowloon Tong, Hong Kong

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CITY UNIVERSITY OF HONG KONG
SCHOOL OF DATA SCIENCE

Common First Year

Student Handbook (2023-2024)

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(Aug 2023)

1 VISION AND MISSION OF SCHOOL OF DATA SCIENCE

Vision

SDSC is envisioned to be a world-class, leading school of excellence in data science education and research to address key challenges in the field.

Mission

SDSC's mission is:

- to serve as the campus-wide educational resource in data science to foster interdisciplinary collaborations across campus and the globe;
- to train high calibre students to equip them with the urgently needed tools to engage in leading-edge activities and research in data science;
- to develop cutting-edge and internationally competitive research with local/regional/global impact in targeted areas of data science;
- to produce a new breed of data science professionals engaging in data science related activities;
- to develop technology and services in the area of data science to serve local and international needs.

2   DEGREE REQUIREMENT FOR 4-YEAR DEGREE PROGRAMMES

2.1   Minimum Number of Credit Units Required for the Award

Curriculum Structure		Credit Requirement
Gateway Education requirement	University Requirements	9 credit units
	Distributional Requirements	12 credit units
	School-specified Requirements	9 credit units
College/School requirement		18 credit units
Major requirement		54 to 63 credit units
Free electives / Minor (optional)		9 to 18 credit units
Minimum number of credit units required for the award		**120 credit units**
Maximum number of credit units permitted		**144 credit units**

Normal Period of Study

	Normative 4-year Degree
Normal period of study	4 years
Maximum period of study	8 years

2.2   Gateway Education
(Please refer to *https://www.cityu.edu.hk/edge/ge*)

Requirements	Credit Units
University requirements	
English	
• GE1401 University English	3 credit units
• Discipline-specific English	3 credit units
GE1501 Chinese Civilisation – History and Philosophy	3 credit units
Distributional requirements Area 1: Arts and Humanities Area 2: Study of Societies, Social and Business Organisations Area 3: Science and Technology	12 credit units *(At least one course from each of the three areas)*
College/School-specified courses ^	9 credit units
Total	**30 credit units**

^College/School-specified courses for fulfilling the Gateway Education requirement

Course Code	Course Title	Level	Credit Units	Remarks
MA1508	Calculus	B1	4	
CS1315	Introduction to Computer Programming	B1	3	
SDSC1001	Introduction to Data Science	B1	2	

2.3 English Language Requirement

Normative 4-year degree students who passed the 6 credit units of specified GE English courses are recognized as fulfilling the University's English Language Requirement.

Students scoring below Level 4 in HKDSE English Language or Grade D in HKALE AS-level Use of English or students who do not possess an equivalent qualification are required to complete two 3-credit unit courses, LC0200A English for Academic Purposes 1 and LC0200B English for Academic Purposes 2, prior to taking the GE English courses. Students who demonstrate that they have achieved a grade B or above in their overall course results for LC0200A will achieve 3 credits and also be considered to have satisfied the pre-requisite for entry to the GE English courses without needing to take LC0200B. The credit units of LC0200A and LC0200B will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

2.4 Chinese Language Requirement

Students scoring below Level 4 in HKDSE Chinese Language, or below Grade D in HKALE AS-level Chinese Language and Culture will be required to complete a 3-credit unit course CHIN1001 University Chinese I. The 3 credit units will not be counted towards the minimum credit units required for graduation and will not be included in the calculation of the cumulative grade point average (CGPA). However, they will be counted towards the maximum credit units permitted.

2.5 College/School Requirement

Course Code	Course Title	Level	Credit Units	Remarks
MA1503	Linear Algebra with Applications	B1	4	
MA2510	Probability and Statistics	B2	3	
MA2508	Multi-variable Calculus	B2	4	
SDSC2001	Python for Data Science	B2	4	
CS3402	Database Systems	B3	3	

2.6 Major Requirement

Minimum Requirement	Bachelor of Science in Data Science (BSc DS)	Bachelor of Science in Data and Systems Engineering (BSc DSE)
Core Courses	33 credit units	51 credit units^
Elective Courses	21 credit units	12 credit units^
Free Elective	18 credit units	9 credit units

^w.e.f. Semester B 2023/24, subject to approval

2.7 Assessment Policy

For courses offered by SDSC which comprise both coursework and examination assessment components, apart from obtaining a minimum 40% in the overall mark, a student must also obtain a minimum mark of 30% in both coursework and examination in order to pass a course.

2.8 Classification of Award

Degrees with Distinction are awarded based on the CGPA ranking for students in the respective departments/schools graduating in the same semester/term.

Classification	CGPA
summa cum laude (Highest Distinction)	the top 2%
magna cum laude (High Distinction)	the next 5%
cum laude (Distinction)	the next 8%

3 COMMON FIRST-YEAR AND MAJOR OPTIONS

Students admitted to the normative 4-year degree programme will study a broad range of Gateway Education (GE) courses together with core-curricular courses designed by the School of Data Science. At the end of Semester B 2023-24, students will be allocated to a major of their choice, subject to the availability of places and selection criteria set by individual majors.

Major Options	Programme Leader
Bachelor of Science in Data Science	Professor ZHOU, Xiang
Bachelor of Science in Data and Systems Engineering	Professor LI, Lishuai

4 FIRST-YEAR CURRICULUM

Subject Area	Course Code	Course Title	Credit Units
Gateway Education (30 credit units)			
English	GE1401 & GE2401	University English (3 CU) English for Science (3 CU)	6
Chinese	GE1501	Chinese Civilisation - History and Philosophy	3
GE Courses [Note 1, 2]	GE courses from the distributional areas: Area 1: Arts and Humanities Area 2: Study of Societies, Social and Business Organisations Area 3: Science and Technology		9-12
School-specified courses	MA1508	Calculus (4 CU)	9
	CS1315	Introduction to Computer Programming (3 CU)	
	SDSC1001	Introduction to Data Science (2 CU)	
School Requirement (4 credit units)			
Mathematics	MA1503	Linear Algebra with Applications	4
Major Requirement (3 credit units)			
Core Course	SDSC2004	Data Visualization	3
		Total no. of Credit Units:	**34**

[Note]

1. GE courses can be completed in later semesters.
2. Students who are interested in declaring major in BSc Data and System Engineering (DSE) are encouraged to enroll in GE2339 Smart City – a Systems Engineering Perspective in Semester A to fulfill the BSc DSE major requirement. GE2339 will be required for fulfilling the major requirement of the BSc DSE programme, and <u>cannot be double-counted</u> to fulfill the Gateway Education requirements.

5 ACADEMIC REGULATIONS AND GUIDELINES

Students should observe the University's academic regulations and guidelines at all times. More information can be available by referring to the following websites maintained by the Academic Regulations and Records Office (ARRO).

ARRO Homepage: http://www.cityu.edu.hk/arro/

6 ACADEMIC HONESTY

Academic honesty is central to the conduct of academic work. Students are responsible for knowing and understanding the Rules on Academic Honesty. To enhance students' understanding on academic honesty, all students are required to complete a tutorial on academic honesty and make a declaration on their understanding of this core academic principle online on or before **30 November 2023** in order to access their course grades. For details, please refer to the website: *http://www.cityu.edu.hk/provost/academic_honesty/*.

7   STUDENT CONDUCT

City University of Hong Kong aims to provide a harmonious and supportive environment for teaching and learning. Students are expected to treat all other students and members of the University community with honesty, respect and maintain good conduct in student discipline. Students need to observe the Code of Student Conduct and other rules and regulations which are crucial in making the University an excellent place for learning.

For details of these rules and regulations, please refer to the website https://www.cityu.edu.hk/studentlife/about_us-sdc.aspx

8   ACADEMIC ADVISING

Under the 4-year degree structure, all first-year students will take a common first-year curriculum. To ease their transition to a new environment, and to provide academic advice for students on their choices of major, academic advising plays a vital role in enhancing students' overall learning experience at CityU.

8.1   Academic Advisors

Students are expected to have at least two meetings per semester with their respective academic advisors, one for course selection and another for review of university life. Other than the meetings, students should keep in contact with their respective academic advisors regularly (e.g. via emails or other means).

Roles of academic advisors:
- building rapport with the students, and serving as a bridge that connects them to the School;
- helping students to consider and clarify their intellectual, professional and personal goals;
- helping students to develop an appropriate study plan (particularly with regard to their major), and assisting in their selection of appropriate courses to achieve their identified goals;
- advising students on academic regulations and requirements, particularly those relating to the major;
- identifying students with special learning needs or early signs of learning problems, and referring/encouraging them to seek help or support; and
- being accessible and available to students, and responding to their questions and concerns.

8.2   Student Advisees

Effective student advising requires an active participation of student advisees in the process.

Responsibilities of student advisees:
- understanding the academic regulations and common first-year curriculum, as well as the requirements of their intended major;
- obtaining information actively, and consult academic advisors on a regular basis and as needed; and
- taking the final responsibility for making decisions and choices regarding their academic study based on the information and advice given.

8.3   Student Development Services (SDS)

The SDS offers many student-centred services to students. It provides support and assistance for students in the following areas:

- Attainment of an all-round development
- Enrichment of campus life
- Development of career plans and choices
- Solving personal problems
- Enhancement of physical and mental well-being
- Provision of financial assistance
- Scholarship application
- Welfare provisions

9   COMMUNICATIONS

Listed below are the normal channels of communication between students and courses / major / School:

a)   Students having difficulties in a course of study should first talk to the course instructor concerned.

b)   A student who wishes to discuss the overall organization of the major should speak to the Major Leader or Deputy Major Leader.

c)   The SDSC Joint Staff & Student Consultative Committee helps facilitate consultation and communication. A student from each entry cohort will be elected to sit in the Committee.

d)   In addition, a student from each entry catalogue term will be elected to sit in the Major Programme Committee which meets every semester to discuss major-related matters.

e)   Students should feel free to approach their respective academic advisors for advice regarding their study plan or personal and career development.

10   PROGRAMME LEADERS

School of Data Science (Common First Year)

Programme Leader:	Professor LI, Lishuai	3442-4726	lishuali@cityu.edu.hk
Deputy Programme Leader	Professor QIAO, Xiao	3442-4397	xiaoqiao@cityu.edu.hk

Bachelor of Science in Data Science

Programme Leader:	Professor ZHOU, Xiang	3442-6421	Xiang.Zhou@cityu.edu.hk
Deputy Programme Leader	Professor YANG, Yu	3442-4035	yuyang@cityu.edu.hk

Bachelor of Science in Data and Systems Engineering

Programme Leader:	Professor LI, Lishuai	3442-4726	lishuali@cityu.edu.hk
Deputy Programme Leader	Professor HO, Chin Pang Clint	3442-4031	clint.ho@cityu.edu.hk

11   INFORMATION TO NEW STUDENTS

11.1 How to access your Personal Class Schedule

i)   Go to ***http://www.cityu.edu.hk*** from any terminal on campus or off campus, then point to "**Quick Links**" at the top and click "**AIMS**".
ii) Log onto AIMS.
iii) Click "Course Registration" menu.
iv) Click "Main Menu for Wed Add/Drop"
v)   Click "Weekly Schedule", choose the appropriate term and press "Submit".
vi) You will find your class schedule in matrix form.
vii) Press the "View Detail Schedule" button at the bottom of your matrix timetable to display details of your class schedule.

11.2 How to get Instructors' handouts through Canvas

i)   Log onto the CityU e-Portal from any terminal on campus or off campus.
ii) Enter the course under "My Courses"
iii) Click "Files".

11.3 How to check Major Programme Requirement and Course Syllabi

Go to the CityU home page, select "Academics" from the top menu and click "Programme and Course Catalogue".

11.4 Course Registration for Semester A 2023-24

For Semester A 2023-24, students will be pre-registered in required courses and major electives in most cases if possible.

i)   The date for release of your class schedule is **25 July 2023**. Please check your curriculum requirements, review your study plan and then make appropriate adjustments to your pre-registered courses.
ii) Add/Drop of courses can be made through AIMS for web-enabled courses during the web registration period. For non-web-enabled courses, approval is required from the major department and you can submit your application via an electronic form available in AIMS. After logging-in AIMS, go to tab "Course Registration" and click "Application for Add/Drop of Non-Web-enabled Course & Study Load Adjustment".

> How to do the Add/Drop:
> - Go to *http://www.cityu.edu.hk* from any terminal on campus or off campus and click "AIMS".
> - Log onto "AIMS" and then click "Course Registration".
> - Choose "Add or Drop Classes".
> - Select and choose the correct term.

iii) Web registration begins on **28 August 2023** but <u>you need to check your time ticket first from "AIMS"</u>.
iv) All add/drops end at **11:30pm, 11 September 2023**.

v) Details of course registration arrangements for Semester A 2023-24 will be available near the end of July 2023. For details, please refer to ARRO website: *http://www.cityu.edu.hk/arro/content.asp?cid=163*

11.5 How to access your Student Email Account

i) Access **http://www.cityu.edu.hk** and point to "**Quick Links**" at the top of the screen and select "**Email**".

ii) In the Email Services home page, click "**@my.cityu.edu.hk**" under column of "**Student**" to go to **M365 Web Logon**.

iii) Read through the whole page if you are not familiar with webmail. Then click button "**M365 Sign-in page**" at the bottom.

iv) Enter Sign-in ID in such format "**YourEID-c@my.cityu.edu.hk**" and click "Next".

v) Click "Sign in" after keying in password.

> ***Important notes:***
>
> For email communication:
> Please state your ***student name, number and contact telephone number***.

11.6 Credit Exemption

Applications for credit exemption must be made before the first semester of the student's admission. Students granted course exemption are required to take other courses to make up the credits required for fulfilling the award requirements. For Semester A 2023-24, the application period is from **13 July to 1 September 2023**. For details, please refer to ARRO website: *http://www6.cityu.edu.hk/arro/content.asp?cid=10*.

11.7 Administrative Support from General Office

Counter Services Hours	
Mon to Fri	9:00am to 12:30 pm
	2:00pm to 5:30pm
Sat, Sun & Public Holiday	Closed
Inquiry:	3442-7887
Fax:	3442-0515
Email:	sdscgo@cityu.edu.hk

Appendix I :
Overview of Majors

Bachelor of Science in Data Science

Award title: Bachelor of Science in Data Science
                理學士(數據科學)

Programme leader:	Professor ZHOU, Xiang Email: Xiang.Zhou@cityu.edu.hk Tel: 3442 6421
General enquiry:	School of Data Science Email: sdscgo@cityu.edu.hk Tel: 3442 7887

1. **Aims of the Major**

This major is to provide graduates in data science with essential training of quantitative knowledge, statistical theory, machine learning technology for the effective use and analysis of big and complex data for real-world applications. The primal goal of this data science major is to train a generation of students who are equally versed in data processing, data analysis, predictive modeling, and computational techniques and enable them the skills for the challenges in future that involve making sense of complex data to realize planning and decision making. The major offers a suite of courses and programs to equip and empower students of quantitative background to become professionals and practitioners of rigorous, actionable, and ethical data science. To this end, besides providing rigorous education about data science models and methods, the major also emphasizes the interdisciplinary training and the expertise of particular subject domains as well as communication skills and ethical awareness.

2. **What You Will Be Studying**

Data science encompasses a set of principles, problem definitions, algorithms, and processes for extracting non-obvious and useful patterns from large data sets. A skills-set desideratum for a data scientist includes statistics and probability, computer science and databases, data wrangling and processing, data visualization, machine learning, data ethics and regulation, communication, and domain expertise. After the preparation of foundation courses of calculus and linear algebra, the students should acquire quantitative knowledge of methods from statistics and probability, which are applied throughout the data science process. The series of courses on computer science skills range from Python programming to bigdata database system. Machine learning courses as the core curriculum on models and methods of data science are offered at both compulsory (low) and elective (high) levels. Students will acquire expertise in a broad family of elective courses in a particular application domain – including but not limited to – financial technology, artificial intelligence, social media, and learning theory. The major also educates students about the societal and ethical impact of data science so that they can make responsible decisions as data science practitioners.

The programme provides three flexible modules of advance knowledge:

- Artificial Intelligence
- Social Media Analytics
- Statistical Learning

3. **Career Prospects**

The unique power of data science knowledge and technology is gaining unprecedented attention in the job market, as big data analytics, data mining, machine learning and artificial intelligence become more and more relevant to mainstream industries. It is no wonder that data science has been heralded by the Harvard Business Review as one of the hottest fields in the 21st century. Data scientists solve some of the hardest problems that businesses face, and their work is relevant to almost all realms of business.

CityU's BSc Data Science is an elite programme to offer students a rigorous theoretical and methodological knowledge of data science along with in-depth analysis and evaluation for applied problems. Graduates with such solid theoretical knowledge and rich practical experience capable of working alongside domain experts are in great demand in virtually all fields, including but not limited to the following.

- Finance and Banking
- Innovative Industry
- E-commerce
- IT and Software Companies
- Smart City
- Logistics and Transportation Systems
- Retail and Digital Marketing
- Power and Energy
- Healthcare and Medical Research
- Government and Public Organisations
- Consultancy
- Education and Research
- Small Business, Start-ups, Multi-industry Opportunities

4. **Student Exchange/Internship**

The School provides student exchange and internship opportunities to our students to gain international perspectives, global engagement and industry experience.

Students may choose between the overseas student exchange opportunities at world-leading institutions provided by the School or the University. Paying the tuition at CityU, students will spend a study semester abroad and may transfer the academic credits earned at the host institution to fulfil the graduation requirement.

The School also partners with premier corporates in a wide range of sectors to offer internship opportunities relevant to our majors. With these placements, students are expected to gain practical knowledge and hands-on experience in real-world applications.

Bachelor of Science in Data and Systems Engineering

Award title: Bachelor of Science in Data and Systems Engineering
工學士(數據與系統工程)

Programme leader:	Professor LI, Lishuai Email: lishuali@cityu.edu.hk Tel: 3442 4726
General enquiry:	School of Data Science Email: sdscgo@cityu.edu.hk Tel: 3442 7887

1.   **Aims of the Major**

This major aims at equipping students with strong analytical and decision-making skills in *analyzing*, *managing*, and *improving* nowadays *enterprise class systems* via offering solid disciplines in data science and intelligent systems. An *enterprise* under consideration can mean an engineering, business, governmental, or service-oriented organization. The targets of management and improvement can be the strategies, *operations* and supply chain of an enterprise, and the *products* and *services* offered by an enterprise. A BSc DSE student is nurtured to become an analytical and versatile graduate, competent in collecting, analysing and interpreting large data and transforming the massive information into relevant insights for making better decisions in his or her organization.

In addition to the general education studies and language proficiency, to equip BSc DSE graduates with the competence needed, this Major includes the following core and elective components:

- University level mathematics and essential computer studies;
- Core components – (a) a broad understanding of the principles, techniques, and problem-solving skills in statistics, machine learning, artificial intelligence, optimization, and information technology, as a way to obtain and analyze information from large enterprise datasets, data streams and complex systems. (b) fundamental concepts and techniques in systems/enterprise engineering and management;
- Elective components – more advanced concepts and techniques in systems analytics, in internet of things, and in smart city;
- Problem solving, teamwork and integration skills development;

Purposefully designed courses that infuse CityU's unique discovery-enriched curriculum (DEC) concept.

2.   **What You Will Be Studying**

Offering a solid foundation in data science and intelligent systems, the BSc Data and Systems Engineering programme equips students with strong analytical and decision-making skills, enabling them to analyse, manage and improve enterprise-class systems. The enterprises considered may be businesses, governmental institutions or service-oriented engineering organisations. Main data science application in this programme covers data-driven financial technologies, smart city artificial intelligence, and industrial internet of thins. BSc Data and Systems Engineering students are nurtured to become analytically

minded and versatile graduates capable of collecting, analysing and interpreting big data and transforming these massive amounts of information into insights into ways of improving decision making in their organisations.

The programme provides four flexible categories of advanced knowledge:

- FinTech
- Industrial Artificial Intelligence
- Smart City
- Internet of Things (IoT)

3. **Career Prospects**

The unique power of data science knowledge and technology is gaining unprecedented attention in the job market, as big data analytics, data mining, machine learning and artificial intelligence become more and more relevant to mainstream industries. It is no wonder that data science has been heralded by the Harvard Business Review as one of the hottest fields in the 21st century. Data scientists solve some of the hardest problems that businesses face, and their work is relevant to almost all realms of business.

CityU's BSc Data and Systems Engineering is an elite programme to offer students a solid foundation in data science analytics, fostering their ability to apply emerging data science knowledge and technologies to produce advanced solutions to real emerging system-level business and industrial problems. Graduates with such solid theoretical knowledge and rich practical experience capable of working alongside domain experts are in great demand in virtually all fields, including but not limited to the following.

- Finance and Banking
- Innovative Industry
- E-commerce
- IT and Software Companies
- Smart City
- Logistics and Transportation Systems
- Retail and Digital Marketing
- Power and Energy
- Healthcare and Medical Research
- Government and Public Organisations
- Consultancy
- Education and Research
- Small Business, Start-ups, Multi-industry

4. **Student Exchange/Internship**

The School provides student exchange and internship opportunities to our students to gain international perspectives, global engagement and industry experience.

Students may choose between the overseas student exchange opportunities at world-leading institutions provided by the School or the University. Paying the tuition at CityU, students will spend a study semester abroad and may transfer the academic credits earned at the host institution to fulfil the graduation requirement.

The School also partners with premier corporates in a wide range of sectors to offer internship opportunities relevant to our majors. With these placements, students are expected to gain practical knowledge and hands-on experience in real-world applications.

Appendix II :
Model Study Path

Model Study Path for BSc in Data Science 2023/24 (normative 4-year)

Yr	Sem	Major Requirements					University Requirements				CUs
2023 / 24 (Year 1)	A	School Specified - MA1508 Calculus (4)	School Specified - CS1315 Introduction to Computer Programming (3)	School Specified - SDSC1001 Introduction to Data Science (2)			English 1 - GE1401 University English (3)		Gateway Education 1 (3)	Gateway Education 2 (3)	18
	B	School Requirement - MA1503 Linear Algebra with Applications (4)	SDSC2004 Data Visualization (3)				English 2 - Discipline-specific English GE2401 English for Science (3)	GE1501 Chinese Civilisation – History and Philosophy (3)	Gateway Education 3 (3)		16
	S										0
2024 / 25 (Year 2)	A	School Requirement - MA2510 Probability and Statistics (3)	School Requirement - MA2508 Multi-variable Calculus (4)	School Requirement - SDSC2001 Python for Data Science (4)	CS2334 Data Structures for Data Science (3)	Free Elective 1 (3)					17
	B	School Requirement - CS3402 Database Systems (3)	SDSC2002 Convex Optimization (3)	SDSC2005 Introduction to Computational Social Science (3)	SDSC2102 Statistical Methods and Data Analysis (3)				Gateway Education 4 (3)		15
	S										0
2025 / 26 (Year 3)	A	SDSC3006 Fundamentals of Machine Learning I (3)	SDSC3007 Advanced Statistics (3)	Major Elective 1 (3)	Major Elective 2 (3)	Free Elective 2 (3)					15
	B	SDSC2003 Human Contexts and Ethics in Data Science (3)	CS3273 Data Protection and System Security (3)	Major Elective 3 (3)	Major Elective 4 (3)	Free Elective 3 (3)					15
	S										0
2026 / 27 (Year 4)	A	SDSC4116 Data Science Capstone (3)	Major Elective 5 (3)	Major Elective 6 (3)	Free Elective 4 (3)						12
	B	SDSC4116 Data Science Capstone (3)	Major Elective 7 (3)	Free Elective 5 (3)	Free Elective 6 (3)						12
( ) indicates number of credit units									**Total credits required = 120**		

Model Study Path for BSc in Data and Systems Engineering 2023/2024 (normative 4-year)

Yr	Sem	Major Requirements					University Requirements			CUs
2023 / 24 (Year 1)	A	School Specified - MA1508 Calculus (4)	School Specified - CS1315 Introduction to Computer Programming (3)	School Specified - SDSC1001 Introduction to Data Science (2)	GE2339 Smart City – a Systems Engineering Perspective (3)		English 1 - GE1401 University English (3)	Gateway Education 1 (3)		18
	B	School Requirement - MA1503 Linear Algebra with Applications (4)	SDSC2004 Data Visualization (3)				English 2 - Discipline-specific English GE2410 English for Engineering (3)	Gateway Education 2 (3)	Gateway Education 3 (3)	16
	S									
2024 / 25 (Year 2)	A	School Requirement - MA2510 Probability and Statistics (3)	School Requirement - MA2508 Multi-variable Calculus (4)	School Requirement - SDSC2001 Python for Data Science (4)	PHY1201 General Physics I (3)			Gateway Education 4 (3)		17
	B	School Requirement - CS3402 Database Systems (3)	SDSC2002 Convex Optimization (3)	SDSC2102 Statistical Methods and Data Analysis (3)	SDSC3060 Operations Research (3)		GE1501 Chinese Civilisation – History and Philosophy (3)			15
	S									0
2025 / 26 (Year 3)	A	SDSC3006 Fundamentals of Machine Learning I (3)	SDSC3008 Systems Dynamics and Control (3)	SDSC3020 Engineering Economics (3)	Major Elective 1 (3)	Major Elective 2 (3)				15
	B	SDSC3002 Data Mining (3)	SDSC4026 Systems Modelling and Simulation (3)	SDSC4107 Financial Engineering and Analytics (3)	Major Elective 3 (3)	Free Elective 1 (3)				15
	S									0
2026 / 27 (Year 4)	A	SDSC4116 Data Science Capstone (3)	CS4480 Data-Intensive Computing (3)	Major Elective 4 (3)	Free Elective 2 (3)					12
	B	SDSC4116 Data Science Capstone (3)	SDSC2003 Human Contexts and Ethics in Data Science (3)	SDSC4103 Decision Analytics and Risk Management (3)	Free Elective 3 (3)					12
( ) indicates number of credit units									**Total credits required = 120**	

Note: Students who are interested in declaring major in BSc Data and System Engineering (DSE) are encouraged to enroll in GE2339 Smart City – a Systems Engineering Perspective in year 1 to fulfill the BSc DSE major requirement.
GE2339 will be required for fulfilling the major requirement of the BSc DSE programme, and cannot be double-counted to fulfill the Gateway Education requirements.

Notes

Notes