

School of Data Science  
數據科學學院



香港城市大學  
City University of Hong Kong

# Master of Science in Data Science (MSDS)

## 理學碩士(數據科學)



Student Handbook  
2021-2022

# Master of Science in Data Science

## Student Handbook (2021-2022)

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August, 2021

## 1. PROGRAMME AIMS

### **Programme Aims:**

The programme aims to produce data-analytic graduates to meet the growing demand for high-level data science skills and to prepare graduates to apply data science techniques to knowledge discovery and dissemination in organisational decision-making. It is also intended to help data analytic professionals upgrade their technical management and development skills, and to provide a solid path for students from related quantitative fields to rapidly transition to data science careers.

### **Programme Intended Learning Outcomes (PILOs):**

Upon successful completion of this Programme, students should be able to:

1. apply knowledge of science and engineering appropriate to the data science discipline;
2. understand theoretical foundation of contemporary techniques and apply them for managing, mining and analyzing data across multiple disciplines;
3. comprehend computational tools and use data-driven thinking to discover new knowledge and to solve real-world problems with complex structures;
4. recognize the need for and engage in continuous learning about emerging and innovative data science techniques and ideas;
5. communicate ideas and findings in written, oral and visual forms and work in a diverse team environment.

## 2. PROGRAMME OF STUDY

### **Core Courses (15 CUs)**

Course Code	Course Title	Level	Credit Units
SDSC5001	Statistical Machine Learning I	P5	3
SDSC5002	Exploratory Data Analysis and Visualization	P5	3
SDSC5003	Storing and Retrieving Data	P5	3
SDSC6001	Statistical Machine Learning II	P6	3
SDSC6002	Research Projects for Data Science	P6	3

### **Elective Courses (15 CUs)**

Course Code	Course Title	Level	Credit Units
CS5285	Information Security for eCommerce	P5	3
CS5487	Machine Learning: Principles and Practice	P5	3
CS6290	Privacy-enhancing Technologies	P6	3

CS6493	Natural Language Processing	P6	3
SDSC6003	Bayesian Data Analysis	P6	3
SDSC6004	Data Analytics for Smart Cities	P6	3
SDSC6006	Dissertation	P6	6
SDSC6007	Dynamic Programming and Reinforcement Learning	P6	3
SDSC6008	Experimental Design and Regression	P6	3
SDSC6009	Machine Learning at Scale	P6	3
SDSC6011	Optimization for Data Science	P6	3
SDSC6012	Time Series and Recurrent Neural Networks	P6	3
SDSC6013	Topics in Financial Engineering and Technology	P6	3
SDSC6014	Networked Life and Data Science	P6	3
SDSC6015	Stochastic Optimization and Online Learning	P6	3
SDSC6016	Predictive Analytics and Financial Applications	P6	3
SDSC8007	Deep Learning	R8	3
SDSC8008	Data-driven Operations Research	R8	3
SDSC8009	Data Mining And Knowledge Discovery	R8	3
SDSC8011	Social Foundations of Data Science	R8	3
SDSC8013	Statistical Methods in Categorical Data Analysis	R8	3
SDSC8014	Online Learning and Optimization	R8	3

*Remark: Programme electives will be offered subject to availability of resources.*

### 3. **ASSESSMENT AND AWARD CLASSIFICATIONS**

Students should observe the University's related regulations and guidelines on assessment at all times. More information can be available by referring to the websites maintained by Chow Yei Ching School of Graduate Studies.

[http://www.cityu.edu.hk/qac/assessment\\_policy/university\\_assessment\\_policy.htm](http://www.cityu.edu.hk/qac/assessment_policy/university_assessment_policy.htm)

Commencing from 2010/11 intake, students will be awarded the following classifications based on their CGPA attained upon completion of all appropriate graduation requirements.

<b>Master's Degree</b>	<b>CGPA</b>
Distinction	3.50 or above
Credit	3.20 – 3.49
Pass	2.00 – 3.19

#### 4. TUITION FEES AND PROGRAMME DURATION

**Tuition fees :** HK\$9,200 per credit (local students and non-local students)

**Credits required :** 30 CUs

Full time students who are not sure whether they will take up SDSC6006 Dissertation (6 CUs) in Semester B and the Summer Term, can study 15 CUs in semester A, i.e. 9 CUs core courses + 6 CUs elective courses.

For those who complete 15 CUs in Semester A, they can still register for 6 CUs core courses + 3 CUs of elective courses and 6 CUs of Dissertation giving a total of 30 CUs in Semester B and Summer Term. All the 30 CUs will be used to calculate the overall CGPA.

**Duration of study :**

<b>Normal Period</b>	<b>Maximum Period</b>
Full-time (1 year)	Full-time (2.5 years)
Part-time (2 years)	Part-time/ Combined mode (5 years)

#### 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 websites maintained by Chow Yei Ching School of Graduate Studies.

<http://www.sgs.cityu.edu.hk/student/TPg/regulation>

#### 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 2021** in order to access their course grade.

[http://www.cityu.edu.hk/provost/academic\\_honesty/](http://www.cityu.edu.hk/provost/academic_honesty/)

#### 7. COMMUNICATIONS

In general, students are encouraged to discuss freely any of their problems with the Programme Leaders, Year Tutors, Course Leaders and Instructors.

Specifically, the following communication channels between students and the department are recommended:

- i) Students who are having academic difficulties with a course should speak directly to the Course Leader or Instructors of that course.
- ii) A student who wishes to discuss issues on a particular part of the programme should speak to the Year Tutor.
- iii) A student who wishes to discuss the overall organization of the programme should speak to the Programme Leader or his/her deputy.
- iv) A formal consultative process between students and staff exists in the department in the form of a Joint Staff & Student Consultative Committee (JSSCC). One student from each year will be elected to sit in the JSSCC Committee.
- v) One part-time student from each year of the programme and two full-time students will be elected to sit in the Programme Committee.

## 8. **PROGRAMME LEADER AND YEAR TUTORS**

<b><u>Position</u></b>	<b><u>Staff Name</u></b>	<b><u>Tel.</u></b>	<b><u>Email</u></b>
<b>Programme Leader</b>	Dr Tan Hwai Yong Matthias	3442-5651	mathtan@cityu.edu.hk
<b>Deputy Programme Leader</b>	Dr Feng Long	3442-4037	longfeng@cityu.edu.hk
<b>FT Year Tutor</b>			
2021-2022 Cohort	Dr Tan Hwai Yong Matthias	3442-5651	mathtan@cityu.edu.hk
<b>PT Year Tutor</b>			
2021-2022 Cohort	Dr Feng Long	3442-4037	longfeng@cityu.edu.hk
<b>Dissertation Tutor</b>	Dr Feng Long	3442-4037	longfeng@cityu.edu.hk

## 9. **INFORMATION TO NEW STUDENTS**

### 9.1 **How to access your Personal Class Schedule**

- i) Go to <http://www.cityu.edu.hk>, then point to “Quick Links” at the top and click “AIMS”.
- ii) Log onto AIMS.
- iii) Click “Course Registration” menu.
- iv) Main menu for Web Add/drop.
- v) Click “My Detail Schedule” to display details of your class schedule.

## 9.2 How to get Instructors' handouts through Canvas

- i) Go to <http://www.cityu.edu.hk>, then point to “Quick Links” at the top and click “Canvas”.
- ii) Click “Courses”.

## 9.3 How to check Programme Requirements and Course Syllabus

Go the CityU home page and click “Programme and Course Catalogue” under “Academics”, and then click “Taught Postgraduate Programmes”.

## 9.4 Course Registration for Semester A 2021-2022

For Semester A 2021-2022, students will be pre-registered in required courses and programme electives in most cases if possible.

- i) The date for release of your class schedule is **27 July 2021**. 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 change request by using the Add/Drop Form.

How to do the Add/ Drop:

- Go to <http://www.cityu.edu.hk> and click “AIMS”.
- Login to AIMS with your EID and password.
- Select the Course Registration menu.
- Main menu for Web Add/drop.
- Click **Add or Drop Classes** and you will find your pre-registered course sections under **Current Schedule**.

- iii) Web registration begins on **23 August 2021** but you need to check your time ticket first from “AIMS”.
- iv) All add/drops end on **6 September 2021**.
- v) Detailed arrangements on Course Registration for Semester A 2021-2022 will be posted by **in early August 2021**. For details, please refer to SGS website: <http://www.sgs.cityu.edu.hk/student/tpg/coursereg>.

## 9.5 How to access your Student Email Account

- i) Go to <http://www.cityu.edu.hk>, then point to “Quick Links” at the top and click “Email”.
- ii) In the Email Service home page, click “@my.cityu.edu.hk” under “Student” to go to CityU "M365 Sign-in page".

- iii) At the M365 Sign-in page, please enter your CityU M365 account name in the format of "<EID>-c@my.cityu.edu.hk", where your *EID* is your CityU Electronic ID.
- iv) Click [ [M365 Sign-in page](#) ], logon your email account then click [ Next ] to enter your account password.
- v) You can read and compose mail after signing in.

***Important note:***

The CityU email account is the official means of communications at CityU. Students are responsible for checking their mails regularly and be responsive.

For email communication:  
please state your ***student name, number and HK contact telephone number.***

## **9.6 How to check your Course Grade and GPA**

Go to <http://www.cityu.edu.hk>, then point to “Quick Links” at the top and click “AIMS” then “Student Record” → “My academic record” → “Grade display” → “Select programme”.

## **9.7 Credit Transfer**

Applications for credit transfer must be made before a semester begins. For Semester A 2021-2022, the application period is from **15 July to 28 August 2021**. For details, please refer to SGS website:

<http://www.sgs.cityu.edu.hk/student/TPg/record/credittransfer>

## **9.8 Administrative Support from General Office**

### **Normal**

Mon to Fri	9:00am to 5:30 pm
<i>Lunch Break</i>	<i>12:30pm to 1:45pm</i>
Sat and public holidays	Closed

Inquiry:	3442-7887
Fax:	3442-0515
Email:	<a href="mailto:sdscgo@cityu.edu.hk">sdscgo@cityu.edu.hk</a>



**Model Study Path for MSDS 2021-2022 Entry without Dissertation (1 Year Full-time)**

Yr.	Sem.	Courses					CU's
1	A	Statistical Machine Learning I (3CU's)	Exploratory Data Analysis and Visualization (3CU's)	Storing and Retrieving Data (3CU's)	Elective 1 (3CU's)	Elective 2 (3CU's)	15
	B	Statistical Machine Learning II (3CU's)	Research Projects for Data Science (3CU's)	Elective 3 (3CU's)	Elective 4 (3CU's)	Elective 5 (3CU's)	15

**Total CU's = 30**

**Model Study Path for MSDS 2021-2022 Entry with Dissertation (1 Year Full-time)**

- Students opting for the dissertation should work out his / her study path in consultation with the Year / Dissertation Tutor.

Yr.	Sem.	Courses					CU's
1	A	Statistical Machine Learning I (3CU's)	Exploratory Data Analysis and Visualization (3CU's)	Storing and Retrieving Data (3CU's)	Dissertation-1 (3CU's)	Elective 1 (3CU's)	15
	B	Statistical Machine Learning II (3CU's)	Research Projects for Data Science (3CU's)	Dissertation -2 (3CU's)	Elective 2 (3CU's)	Elective 3 (3CU's)	15

**Total CU's = 30**

**Model Study Path for MSDS 2021-2022 Entry without Dissertation (1 Year Full-time, who wish to graduate in October)**

Yr.	Sem.	Courses					CU's
1	A	Statistical Machine Learning I (3CU's)	Storing and Retrieving Data (3CU's)	Exploratory Data Analysis and Visualization (3CU's)	Elective 1 (3CU's)		12
	B	Statistical Machine Learning II (3CU's)	Elective 2 (3CU's)	Elective 3 (3CU's)	Elective 4 (3CU's)	Elective 5 (3CU's)	15
	S	Research Projects for Data Science (3CU's)					3

**Total CU's = 30**

**Model Study Path for MSDS 2021-2022 Entry with Dissertation (1 Year Full-time, who wish to graduate in October)**

- Students opting for the dissertation should work out his / her study path in consultation with the Year / Dissertation Tutor.

Yr.	Sem.	Courses					CU's
1	A	Statistical Machine Learning I (3CU's)	Storing and Retrieving Data (3CU's)	Exploratory Data Analysis and Visualization (3CU's)	Elective 1 (3CU's)		12
	B	Statistical Machine Learning II (3CU's)	Dissertation-1 (3CU's)	Elective 2 (3CU's)	Elective 3 (3CU's)		12
	S	Research Projects for Data Science (3CU's)	Dissertation-2 (3CU's)				6

**Total CU's = 30**

**Model Study Path for MSDS 2021-2022 Entry without Dissertation (2 Years Part-time)**

Yr.	Sem.	Courses			CU's
1	A	Statistical Machine Learning I (3CU's)	Core Course (3CU's)	Elective 1 (3CU's)	9
	B	Statistical Machine Learning II (3CU's)	Elective 2 (3CU's)		6
2	A	Core Course (3CU's)	Elective 3 (3CU's)	Elective 4 (3CU's)	9
	B	Research Projects for Data Science (3CU's)	Elective 5 (3CU's)		6

**Total CU's = 30****Model Study Path for MSDS 2021-2022 Entry with Dissertation (2 Years Part-time)**

- Students opting for the dissertation should work out his / her study path in consultation with the Year / Dissertation Tutor.

Yr.	Sem.	Courses			CU's
1	A	Statistical Machine Learning I (3CU's)	Core Course (3CU's)	Elective 1 (3CU's)	9
	B	Statistical Machine Learning II (3CU's)	Elective 2 (3CU's)		6
2	A	Core Course (3CU's)	Dissertation-1 (3CU's)	Elective 3 (3CU's)	9
	B	Research Projects for Data Science (3CU's)	Dissertation-2 (3CU's)		6

**Total CU's = 30**