City University of Hong Kong
Course Syllabus

offered by School of Data Science
with effect from Semester A 2020/21

Part I Course Overview

Course Title:	Research Projects for Data Science
Course Code:	SDSC6002
Course Duration:	One Semester
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: *(Course Code and Title)*	Nil
Precursors: *(Course Code and Title)*	Nil
Equivalent Courses: *(Course Code and Title)*	Nil
Exclusive Courses: *(Course Code and Title)*	Nil

Part II Course Details

1. Abstract

This course offers the student ample opportunity to demonstrate innovative abilities and initiatives in his/her independent treatment of data analytics problems, develop the capability to integrate and apply data science knowledge and data analytical skills to practical scenarios, and explore considerations regarding the ethical and privacy implication of data collection and management. The course also serves as a platform of presenting and sharing novel investigations of real problems via data science knowledge among students.

2. Course Intended Learning Outcomes (CILOs)

(CILOs state what the student is expected to be able to do at the end of the course according to a given standard of performance.)

No.	CILOs	Weighting (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Carry out independent study for problem solving and solution seeking in data science	20%	✓		
2.	Apply machine learning and statistical learning techniques to formulate and analyze the real-life data analytics problem	20%	✓	✓	
3.	Evaluate the effectiveness of data analytics methods and examine the data ethical concerns in addressing real problems	20%	✓	✓	
4.	Interpret insights and novel findings in conducted data analytics studies	20%	✓		
5.	Write well-structured report and present completed studies professionally	20%		✓	✓
		100%			

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to self-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

3. Teaching and Learning Activities (TLAs)

(TLAs designed to facilitate students' achievement of the CILOs.)

TLA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4	5		
Consultation	Consultation sessions will be made up via instructor and students to assist students in identifying appropriate project topics and to supervise the project progress	✓	✓	✓	✓			26 hours/sem
Individual Coursework	Learn through individual work to help students develop the independent capability of formulating and solving problems via sufficient diligence		✓	✓	✓	✓		13 hours/sem

Lectures cover not only the narrowly focused techniques in engineering economy but also the wider issues of the environment that affect engineering economic decision making. Students are expected to participate in class discussion when needed.

4. Assessment Tasks/Activities (ATs)

(ATs are designed to assess how well the students achieve the CILOs.)

Assessment Tasks/Activities	CILO No.						Weighting	Remarks
	1	2	3	4	5			
Continuous Assessment: 100 %								
Project Proposal	✓	✓	✓				0-20%	
Project Milestone Meetings	✓	✓	✓	✓			30%	
Final Report and Poster Presentation		✓	✓	✓	✓		50-70%	
Examination: 0 % (duration: , if applicable)								
							100%	

5. Assessment Rubrics

(Grading of student achievements is based on student performance in assessment tasks/activities with the following rubrics.)

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Project Proposal	0-20%	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Project Milestone Meetings	30%	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Final Report and Poster Presentation	50-70%	High	Significant	Moderate	Basic	Not even reaching marginal levels

Part III Other Information (more details can be provided separately in the teaching plan)

1. Keyword Syllabus

(An indication of the key topics of the course.)

This is a project-based course. It should include substantial academic content and requires the student to apply his/her intellect through a wide variety of activities to arrive at a practical and implementable solution. Guest lectures on practical applications of data science as well as data ethical and privacy issues may be arranged.

2. Reading List

2.1 Compulsory Readings

(Compulsory readings can include books, book chapters, or journal/magazine articles. There are also collections of e-books, e-journals available from the CityU Library.)

NIL

2.2 Additional Readings

(Additional references for students to learn to expand their knowledge about the subject.)

NIL