

**City University of Hong Kong
Course Syllabus**

**offered by School of Data Science
with effect from Semester B 2019/20**

Part I Course Overview

Course Title:	Topics in Financial Engineering and Technology
Course Code:	SDSC6013
Course Duration:	One Semester
Credit Units:	3
Level:	P6
Medium of Instruction:	English
Medium of Assessment:	English
Prerequisites: <i>(Course Code and Title)</i>	Nil
Precursors: <i>(Course Code and Title)</i>	Nil
Equivalent Courses: <i>(Course Code and Title)</i>	Nil
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

Innovation of technologies are transforming the financial services industry disruptively in realms of consumer financial services, including mobile payments, foreign exchange, marketplace lending, saving and investing, financial advice (robo-advisers), and personalized insurance. This course aims to understand the economic and technological forces driving this change in areas: i) payments, ii) consumer credit, iii) wealth management, and iv) insurance. For each area, we will center around selected cases with industrial applications and study selected academic papers in order to understand the underlying economics, the technology, and the research matters. The course intends to be interactive, including classroom discussion, lectured cases, group projects, and possibly guest speakers.

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.	Articulate fundamentals of the fintech and explain specific applications.	15%	✓		
2.	Elaborate the key ideas behind each area that enable it to be successful for its purpose.	25%	✓	✓	
3.	Assess prevailing practices in fintech and identify approaches that enhance the existing financial services.	30%	✓	✓	✓
4.	Utilize ideas and methods learned to solve given practical problems in potential fintech areas.	30%	✓	✓	✓
		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		
In-class Activities	Lectures and interactive discussions on identified latest academic research papers and/or industrial practices of identified topics.	✓	✓	✓	✓		26 hours/sem
Project	Practicing on projects so that students to learn problem-solving using selected projects pertaining to the subjects discussed.	✓	✓	✓	✓		13 hours/sem

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			
Continuous Assessment: <u>50</u> %							
<p><u>In-classroom discussion</u> Attendance and in-class discussion are strongly emphasized for this course, more important than assignments.</p> <p>In particular, the in-class discussion component will focus on discussing selected research papers and identified industrial practice through student groups.</p> <p>Scoring favour those demonstrate well in these activities.</p>	✓	✓	✓	✓		0-10%	
<p><u>Project report & Presentation</u> One single-person independent project on selected topics by the teacher.</p> <p>Assessments will be based on individual's presentation, academic difficulties of the project, quality of the implementation, and most importantly, whether there are new discoveries throughout the process of the conducting the project.</p>	✓	✓	✓	✓		40-50%	
Examination: <u>50</u> % (duration: <u>2</u> hours, if applicable)							
<u>Examination</u>	✓	✓	✓	✓		50%	
						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. In-classroom discussion	Percentage of classroom attendance The quality and intensity of participating in-class discussion, answering questions, etc.	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Assignments	Quality of the written Assignments. Ability to learn the basic concepts, apply methods learned to fintech problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Projects	Quality of presentation and implementation, whether there are new discoveries throughout the process of the conducting the project. Ability to solve conceptual and real-world problems using methods learned in class.	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Examination	Grade into 100 points system then map into letter grades.	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).

- Mobile Payments and its Financial Implication
- Marketplace (online) Borrowing and Lending
- Fintech Approach to Consumer Credit and its Risk Management
- Data-driven Wealth Management
- Personalization of Health, Life and Auto Insurances

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.)

1.	Lecture Notes; Selected Academic Papers.
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2.2 Additional Readings

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

NIL