City University of Hong Kong
Course Syllabus

offered by Department of Computer Science
with effect from Semester A 2022/23

Part I   Course Overview

Course Title: Research in Computer Science

Course Code: CS8695

Course Duration: One semester

Credit Units: 2 credits

Level: R8

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

The aim of this course is to develop a graduate student's participation in research planning.   Through attendance, a student will (i) be exposed to recent research trends and results in the literature from different areas; (ii) be aware of and appreciate various presentation skills and styles; (iii) come into contact with external and internal researchers; (iv) understand the importance of research ethics and integrity, and appreciate various research ethical issues such as research misconducts and reproducibility.   Through report writing, the student will (v) perform an in-depth study of a research topic by conducting literature search, and practice comprehension and writing skill.   Through seminar presentation, the student will (vi) develop and practise presentation skill.

2.   Course Intended Learning Outcomes (CILOs)

No.	CILOs	Weighting* (if applicable)	Discovery-enriched curriculum related learning outcomes (please tick where appropriate)		
			A1	*A2*	*A3*
1.	Identify the strengths and limitation of different research methods by conducting a comprehensive literature search.		✓		
2.	Develop an understanding of the importance of research ethics and integrity.			✓	
3.	Appreciate and report on different formats of presentation.		✓		
4.	Able to evaluate on existing research findings critically and discover possible solutions to these findings.		✓	✓	
5.	To communicate and deliver research findings effectively.		✓		
		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)

TLA	Brief Description	CILO No. 1	2	3	4	5	Hours/week (if applicable)
Lectures	The lectures, delivered by different faculty members, will focus on the introduction of research methodologies and topics from different research areas. In one of the lectures, different topics related to research ethics and integrity issues which include types of research misconduct, conflicts of interests, peer review process, etc. will be introduced to students, so that they can develop a capacity to make judicious decisions on research ethical issues. In one of the lectures, the major databases or search tools for computer science research, e.g., IEEE Xplore, ACM Digital Library, Science Citation Index, etc., will be introduced to the students, so that they can learn to conduct effective literature search in different areas of computer science.	✓	✓				2 hours/ week
Seminars	Students will attend at least four seminars or colloquia.			✓			
Presentations	Each student will give a seminar presentation based on a selected research topic in computer science.				✓		
Evaluation of research findings	Each student will perform a critical evaluation of the research findings in one of the seminars/colloquia attended, identify the advantages and limitations of the research methods adopted by effectively utilizing the main databases or search tools to conduct literature review, and summarize these findings in the form of a report. Students will learn about the importance of research reproducibility with respect to code and data, and should explain how to avoid pitfalls related to research ethics and integrity issues in their research findings.					✓	

4. **Assessment Tasks/Activities (ATs)**

Assessment Tasks/Activities	CILO No.					Weighting*	Remarks
	1	2	3	4	5		
Continuous Assessment: 100%							
Lecture/seminar attendance	✓	✓	✓			40%	
Presentation				✓		30%	
Report					✓	30%	
Examination: 0%							
						100%	

Grading pattern: Pass/Fail based on attendance, report submission and seminar presentation.

5. Assessment Rubrics

Applicable to students admitted in Semester A 2022/23 and thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1. Lecture/seminar attendance and reporting	Ability to judiciously apply research methodologies learnt from the lectures/seminars to various research topics in computer science.	High	Significant	Moderate to Basic	Not even reaching marginal levels
	Ability to understand the importance of research ethics and integrity, and make judicious decisions on research ethics issues, e.g. research misconducts and reproducibility in data/code.				
	Capability to summarize and communicate research findings from different research areas in an effective way.				
	Capacity to identify the merits/limitations of different research methodologies.				
	Ability to utilize the main databases and search tools for computer science research to conduct effective literature review.				
2. Presentation	Capacity to critically analyse existing research problems, and to discover possible solutions to these problems.	High	Significant	Moderate to Basic	Not even reaching marginal levels
	Capability to effectively prepare and deliver a seminar to provide a critical analysis of a current research problem.				

Applicable to students admitted before Semester A 2022/23

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1. Lecture/seminar attendance and reporting	Ability to judiciously apply research methodologies learnt from the lectures/seminars to various research topics in computer science.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Ability to understand the importance of research ethics and integrity, and make judicious decisions on research ethics issues, e.g. research misconducts and reproducibility in data/code.					
	Capability to summarize and communicate research findings from different research areas in an effective way.					
	Capacity to identify the merits/limitations of different research methodologies.					
	Ability to utilize the main databases and search tools for computer science research to conduct effective literature review.					
2. Presentation	Capacity to critically analyse existing research problems, and to discover possible solutions to these problems.	High	Significant	Moderate	Basic	Not even reaching marginal levels
	Capability to effectively prepare and deliver a seminar to provide a critical analysis of a current research problem.					

Part III   Other Information

1.   **Keyword Syllabus**

Research Seminars, Computer Science Research, Research Methodology, Presentations, Research Topics, Literature Search, Research ethics and integrity issues, Research reproducibility, Computer Networks, Distributed Systems, Information Security, E-commerce Technologies, Software Engineering, Service-Oriented Computing, Real-time Systems, Embedded Systems, Applied Algorithms, Multimedia Technologies, Computer Systems, E-learning, Innovative Technology for Education, Bioinformatics, Artificial Intelligence and Knowledge and Data Management.

2.   **Reading List**
2.1   **Compulsory Readings**

	N/A

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

	N/A