City University of Hong Kong
Course Syllabus

offered by Department of Physics
with effect from Semester A 2024/25

Part I Course Overview

Course Title:	**Frontiers in Physics**
Course Code:	**PHY5502**
Course Duration:	**One Semester**
Credit Units:	**3 credits**
Level:	**5 (for MSc students)**
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

(A 150-word description about the course)

This course is to bring the recent advances of physics research to students. It will cover several research themes, such as Atomic, Molecular, and Optical Physics; Quantum materials; Soft Matter and Biophysics; Spectroscopy and Imaging; Theoretical and Computational Physics. Each lecture will cover a different topic.

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.	To be familiar with frontiers in physics			✓	
2.	To be able to write a literature review of a research area			✓	
** If weighting is assigned to CILOs, they should add up to 100%.*		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. Learning and Teaching Activities (LTAs)

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

LTA	Brief Description	CILO No.						Hours/week (if applicable)
		1	2	3	4			
1	Lectures to cover the recent advances of several research areas	√	√					14 hours

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						
Continuous Assessment: 100%								
Write a literature review	√	√					100%	Pick a research topic, read relevant literature and write a short review article
** The weightings should add up to 100%.*							100%	

5. Assessment Rubrics

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

Applicable to students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Fair (C+, C, C-)	Marginal (D)	Failure (F)
1.	Writing of a review article that clearly describe (i) the motivation of a research area; (ii) specific research problems of this research area; (iii) contributions made by the researchers in this research area; (iv) future directions of this research area.	High	Significant	Moderate	Reaching marginal level	Not reaching marginal level

Applicable to students admitted from Semester A 2022/23 to Summer Term 2024

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B)	Marginal (B-, C+, C)	Failure (F)
1.	Writing of a review article that clearly describe (i) the motivation of a research area; (ii) specific research problems of this research area; (iii) contributions made by the researchers in this research area; (iv) future directions of this research area.	High	Significant	Moderate	Not reaching marginal level

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.)

- Recent advances in various research areas of physics

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.)

N.A.

2.2 Additional Readings

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

1.	Articles in the journal “Reviews of Modern Physics”
2.	
3.	
…	