

**City University of Hong Kong
Course Syllabus**

**offered by Department of Chemistry
with effect from Semester A 2022/23**

Part I Course Overview

Course Title:	Workshop on Cell and Molecular Biology
Course Code:	CHEM8006M
Course Duration:	3 weeks (Semester B + Semester Summer)
Credit Units:	4 credits
Level:	R8
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>	BCH8006M Workshop on Cell and Molecular Biology
Exclusive Courses: <i>(Course Code and Title)</i>	Nil

Part II Course Details

1. Abstract

This course aims to introduce to postgraduate research students at the CityU Suzhou campus the scope of Cell and Molecular Biology with a strong emphasis on first hand experience. The students will learn about molecular and cell biology in the context of the latest technological development. The students will acquire various techniques for basic molecular and cell biology experiments and extend to work on the model organism *C elegans*. The aim is to encourage students to consider their own research projects and interests based on the knowledge and techniques acquired in this course. This is an intensive 3-week course based entirely on coursework and is not research project-oriented. The students are expected to complete a pre-course reading assignment.

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.	Summarise advancement in cell and molecular biology	30%	✓	✓	
2.	Acquire data using basic equipment used in molecular and cell biology based on established protocols	40%	✓	✓	
3.	Discover, analyse, interpret and record data	20%		✓	✓
4.	Apply molecular and cell biology principles to experiments and write a report in the format of journal manuscript	10%		✓	✓
		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.				Hours/week (if applicable)
		1	2	3	4	
Lectures	Lectures / discussions /reading	✓				40 hours in total
Experiments	Experimentation		✓			60 hours in total
Data analysis	Data analysis tutorials and data analyses, using online resources to obtain probes, cells and <i>C. elegans</i> strains			✓		35 hours in total
Report writing	Report writing tutorials and report writing				✓	35 hours in total

4. Assessment Tasks/Activities (ATs)

Assessment Tasks/Activities	CILO No.				Weighting*	Remarks
	1	2	3	4		
Continuous Assessment: 100%						
Quiz on pre-course reading assignment and lecture materials	✓				20%	
Logbook entry of experimental data to demonstrate ability to follow protocols, operate equipment and acquire data		✓			30%	
Scientific presentation of data in the format of graphs and figures			✓		20%	
Written manuscript in journal publication format				✓	30%	
Examination: 0% (duration: --)						
					100%	

Starting from Semester A, 2015-16, students must satisfy the following minimum passing requirement for courses offered by CHEM:

“A minimum of 40% in both coursework and examination components.”

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. Quiz	Ability to solve problems related to cell and molecular biology	High	Significant	Basic	Not even reaching marginal levels
2. Logbook entry of experimental data	Ability to acquire data using basic equipment used in molecular and cell biology based on established protocols	High	Significant	Basic	Not even reaching marginal levels
3. Scientific data presentation	Ability to discover, analyse, interpret, and present data	High	Significant	Basic	Not even reaching marginal levels
4. Written manuscript	Ability to apply molecular and cell biology principles to experiments and write a report in the format of journal manuscript	High	Significant	Basic	Not even reaching marginal levels

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. Quiz	Ability to solve problems related to cell and molecular biology	High	Significant	Moderate	Basic	Not even reaching marginal levels
2. Logbook entry of experimental data	Ability to acquire data using basic equipment used in molecular and cell biology based on established protocols	High	Significant	Moderate	Basic	Not even reaching marginal levels
3. Scientific data presentation	Ability to discover, analyse, interpret, and present data	High	Significant	Moderate	Basic	Not even reaching marginal levels
4. Written manuscript	Ability to apply molecular and cell biology principles to experiments and write a report in the format of journal manuscript	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

Light and fluorescent microscopy; cell culture techniques; measurement of cell growth and cell cycle; staining techniques for cell surface markers, organelle and cytoskeleton; DNA and RNA extraction; PCR and gel electrophoresis, gene cloning, Southern and western blots, *C elegans* culture and microscopy; online resources

2. Reading List

2.1 Compulsory Readings

1.	
2.	
3.	
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2.2 Additional Readings

1.	How to write dissertations & project reports. McMillan, Weyers, Pearson Education books ISBN 13: 97980273713586, ISBN10: 0273713582
2.	Reading primary literature: a practical guide to evaluating research articles in biology. Gillen. Pearson Education Books ISBN13: 9780805345995, ISBN10: 080534599X
3.	Molecular Cell Biology. Lodish, Berk, Kaiser, Krieger, Scott, Bretscher, Ploegh, Matsudaira, W.H. Freeman. ISBN: 0-7167-7601-4
4.	Online Resources: http://www.protocol-online.org/prot/Molecular_Biology/ http://collections.plos.org/ploscompbiol/tensimplerules.php http://www.invitrogen.com/site/us/en/home/References/Molecular-Probes-The-Handbook.html