

**City University of Hong Kong**  
**Course Syllabus**

**offered by Department of Biomedical Sciences**  
**with effect from Semester A 2024/2025**

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**Part I Course Overview**

<b>Course Title:</b>	<b>Cell and Molecular Biology Research</b>
<b>Course Code:</b>	<b>BMS8103</b>
<b>Course Duration:</b>	<b>One semester</b>
<b>Credit Units:</b>	<b>3</b>
<b>Level:</b>	<b>R8</b>
<b>Medium of Instruction:</b>	<b>English</b>
<b>Medium of Assessment:</b>	<b>English</b>
<b>Prerequisites:</b> <i>(Course Code and Title)</i>	<b>Nil</b>
<b>Precursors:</b> <i>(Course Code and Title)</i>	<b>Nil</b>
<b>Equivalent Courses:</b> <i>(Course Code and Title)</i>	<b>Nil</b>
<b>Exclusive Courses:</b> <i>(Course Code and Title)</i>	<b>Nil</b>

## Part II Course Details

### 1. Abstract

This course aims to introduce the most recent research in cell and molecular biology field to postgraduate research students. The students will learn about advanced research in cell and molecular biology based on the basic concepts. The students will acquire various techniques for cell and molecular biology experiments. It also aims to encourage students to develop their own research projects and interests based on the knowledge and techniques acquired in this course. This course is based entirely on coursework. The students are expected to complete a pre-course reading assignment.

### 2. Course Intended Learning Outcomes (CILOs)

No.	CILOs <sup>#</sup>	Weighting	Discovery-enriched curriculum related learning outcomes		
			A1	A2	A3
1.	Summarise advancement in cell and molecular biology	20%	✓		
2.	Apply molecular and cell biology principles to experiments	30%		✓	✓
3.	Critically evaluate outcomes and discuss advanced approaches to improve outcomes	30%		✓	✓
4.	Write a report in the format of journal manuscript	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)

TLA	Brief Description	CILO No.				Hours/week
		1	2	3	4	
Lecture	To learn and understand advanced knowledge and state-of-the-art technologies in cell and molecular biology; To practice critical analysis and trouble-shooting	✓				3 hours/week (2-hour lecture + 1-hour tutorial/week. 39 hours in total)
Reading and presentation			✓	✓		
Data analysis and discussion			✓	✓		
Report writing		✓			✓	

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

Assessment Tasks/Activities	CILO No.				Weighting	Remarks
	1	2	3	4		
Continuous Assessment: 100%						
Critical discussion in the class and attendance		✓	✓		20%	
Scientific presentation of data in the format of graphs and figures		✓	✓		40%	
Written manuscript in journal publication format	✓			✓	40%	
Examination: 0%						
					100%	

## 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)
Presentation, group discussion, critique etc.	Ability to show the learning progress, analyse and express the synthesis of ideas	Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Substantial performance on all CILOS. Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.	Satisfactory performance on the majority of CILOS possibly with a few weaknesses. Being able to profit from the course experience; understanding of the subject; ability to develop solutions to simple problems in the material.	Unsatisfactory performance on a number of CILOS. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature

Applicable to students admitted before Semester A 2022/23

Assessment Task	Criterion	Excellent (A+, A, A-)	Good (B+, B, B-)	Adequate (C+, C, C-)	Marginal (D)	Failure (F)
Presentation, group discussion, critique etc.	Ability to show the learning progress, analyse and express the synthesis of ideas	Outstanding performance on all CILOs. Strong evidence of original thinking; good organization, capacity to analyse and synthesize; superior grasp of subject matter; evidence of extensive knowledge base.	Substantial performance on all CILOS. Evidence of grasp of subject, some evidence of critical capacity and analytic ability; reasonable understanding of issues; evidence of familiarity with literature.	Satisfactory performance on the majority of CILOS possibly with a few weaknesses. Being able to profit from the course experience; understanding of the subject; ability to develop solutions to simple problems in the material.	Barely satisfactory performance on a number of CILOS. Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.	Unsatisfactory performance on a number of CILOS. Failure to meet specified assessment requirements, little evidence of familiarity with the subject matter; weakness in critical and analytic skills; limited or irrelevant use of literature

## Part III Other Information

### 1. Keyword Syllabus

Light and fluorescent microscopy; cell culture techniques; measurement of cell growth; immunocytochemistry and immunohistochemistry; DNA and RNA extraction; PCR and gel electrophoresis; gene cloning; online resources

### 2. Reading List

#### 2.1 Compulsory Readings

Nil

#### 2.2 Additional Readings

1.	How to write dissertations & project reports (2nd edition), McMillan, Weyers, Pearson Education books ISBN 13: 9780273743835, ISBN10: 027374383X
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 8th Edition. Lodish, Berk, Kaiser, Krieger, Bretscher, Ploegh, Amon, Martin. ISBN-13: 978-1464183393, ISBN-10: 1464183392
4.	<a href="http://www.protocol-online.org/prot/Molecular_Biology/">http://www.protocol-online.org/prot/Molecular_Biology/</a>
5.	<a href="http://collections.plos.org/ploscompbiol/tensimplerules.php">http://collections.plos.org/ploscompbiol/tensimplerules.php</a>
6.	<a href="http://www.invitrogen.com/site/us/en/home/References/Molecular-Probes-The-Handbook.html">http://www.invitrogen.com/site/us/en/home/References/Molecular-Probes-The-Handbook.html</a>