

Course Syllabus

offered by College/School/Department of Biomedical Sciences
with effect from Semester A 2016/2017

Part I Course Overview

Course Title: Advanced Cell and Molecular Biology

Course Code: BMS8103

Course Duration: One semester

Credit Units: 2

Level: R8

Proposed Area: Arts and Humanities
(for GE courses only) Study of Societies, Social and Business Organisations
 Science and Technology

Medium of Instruction: English

Medium of Assessment: English

Prerequisites: Nil
(Course Code and Title)

Precursors: Nil
(Course Code and Title)

Equivalent Courses: Nil
(Course Code and Title)

Exclusive Courses: Nil
(Course Code and Title)

Part II Course Details

1. Abstract

(A 150-word description about the course)

This course aims to introduce to postgraduate research students the scope of Cell and Molecular Biology with a strong emphasis on first-hand experience. The students will learn about advanced 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. It also aims to encourage students to consider 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)

(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.	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%			

* If weighting is assigned to CILOs, they should add up to 100%.

[#] Please specify the alignment of CILOs to the Gateway Education Programme Intended Learning outcomes (PILOs) in Section A of Annex.

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	
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	✓				2 hours/week (26 hours in total)
Reading and presentation		✓	✓			
Data analysis and discussion				✓		
Report writing					✓	

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: 100%						
Examination on pre-course reading assignment and lecture materials	✓	✓			40%	
Scientific presentation of data in the format of graphs and figures; Discussion		✓	✓		30%	
Written manuscript in journal publication format				✓	30%	
					100%	

* The weightings should add up to 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-)	Adequate (C+, C, C-)	Marginal (D)	Failure (F)
Examination	Ability to show the learning progress, analyse and express the synthesis of ideas and knowledge; Ability to synthesize, state and apply the principles and subject matter learnt in the course	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
Presentation and discussion						
Written manuscript						

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.)

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

(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.)

Nil

2.2 Additional Readings

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

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 8 th Edition. Lodish, Berk, Kaiser, Krieger, Bretscher, Ploegh, Amon, Martin. ISBN-13: 978-1464183393, ISBN-10: 1464183392
4.	http://www.protocol-online.org/prot/Molecular_Biology/
5.	http://collections.plos.org/ploscompbiol/tensimplerules.php
6.	http://www.invitrogen.com/site/us/en/home/References/Molecular-Probes-The-Handbook.html