

**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> (Course Code and Title)	<b>Nil</b>
<b>Precursors:</b> (Course Code and Title)	<b>Nil</b>
<b>Equivalent Courses:</b> (Course Code and Title)	<b>Nil</b>
<b>Exclusive Courses:</b> (Course Code and Title)	<b>NS5004 Molecular and Cellular Neuroscience</b>

## Part II Course Details

### 1. Abstract

This course is designed for postgraduate students to explore the spectrum of cell and molecular biology while gaining knowledge from general concepts to recent research. Rather than attending traditional lectures, the students will learn through lectures and interactive approaches involving group presentations and in-classroom discussions. As this is a research-focused postgraduate course, the students will learn the concepts of experimental techniques in various cell and molecular biology areas. Besides, through discussions, the students will understand how to apply general concepts to develop experimental techniques for research. This course also encourages postgraduate students to develop interests and ideas for designing research projects.

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

No.	CILOs <sup>#</sup>	Weighting	Discovery-enriched curriculum related learning outcomes		
			A1	A2	A3
1.	Understand general concepts of cell and molecular biology	20%		✓	✓
2.	Understand frequently used experimental techniques in the cell and molecular biology field	20%		✓	✓
3.	Apply the knowledge to develop students' ideas	20%	✓	✓	
4.	Present and discuss recent research outcomes	20%	✓	✓	✓
5.	Write a report to describe students' ideas	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 real-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)

LTA	Brief Description	CILO No.					Hours/week
		1	2	3	4	5	
Lectures	Lectures will provide general concepts.	✓	✓				3 hours/week (Lecture + Tutorial)
Presentation	Students will present their understanding of general concepts and recent research outcomes.	✓	✓		✓		
Discussion	Students will be involved in classroom discussions to interact with others.			✓	✓		
Report writing	Students will describe their understanding of cell and molecular biology research.	✓	✓	✓		✓	

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

Assessment Tasks/Activities	CILO No.					Weighting	Remarks
	1	2	3	4	5		
Continuous Assessment: 100%							
Discussion in the class and attendance			✓	✓		20%	
Presentation skills	✓	✓		✓		40%	
Report writing skills	✓	✓	✓		✓	40%	
Examination: 0%							
						100%	

## 5. Assessment 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-)	Adequate (C+, C, C-)	Marginal (D)	Failure (F)
Presentation, 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

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)
Presentation, 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

## Part III Other Information

### 1. Keyword Syllabus

Cell cycle; DNA replication; transcription; epigenetics; translation; proteomics

### 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>