

BMS8103: CELL AND MOLECULAR BIOLOGY RESEARCH

Effective Term

Semester A 2025/26

Part I Course Overview

Course Title

Cell and Molecular Biology Research

Subject Code

BMS - Biomedical Sciences

Course Number

8103

Academic Unit

Biomedical Sciences (BMS)

College/School

College of Biomedicine (BD)

Course Duration

One Semester

Credit Units

3

Level

R8 - Research Degree

Medium of Instruction

English

Medium of Assessment

English

Prerequisites

Nil

Precursors

Nil

Equivalent Courses

Nil

Exclusive Courses

NS5004 Molecular and Cellular Neuroscience

Part II Course Details

Abstract

BMS8103 is designed for graduate students with a background in cell and molecular biology, as well as biochemistry. This course focuses on recent research in the fields, aiming to deepen students' understanding of complex biological systems through critically analyzing research papers. The course emphasizes experimental approaches, research logic, and interpretation of cutting-edge findings. Students will be encouraged to integrate this knowledge to formulate and refine their own research ideas. Evaluation will be based on students' ability to analyze scientific papers, deliver effective oral presentations, and demonstrate clear scientific writing. This is not an introductory course; it requires active engagement with original research and a strong command of core cell and molecular biology principles. The course is fully based on coursework and is intended to foster the skills necessary for independent scientific inquiry.

Course Intended Learning Outcomes (CILOs)

CILOs		Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Present and discuss recent research outcomes	30	x	x	x
2	Apply the knowledge to develop students' ideas	20	x	x	
3	Write a report to describe students' ideas	20	x	x	x
4	Understand frequently used experimental techniques in the cell and molecular biology field	20		x	x
5	Understand general concepts of cell and molecular biology	10		x	x

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.

Learning and Teaching Activities (LTAs)

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

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks ("- for nil entry)	Allow Use of GenAI?
1	Discussion in the class and attendance	1, 2	20	–	No
2	Presentation skills	1, 4, 5	40	Oral presentations must be primarily prepared and delivered by the student. Up to 20% of AI-resembled content is permissible, as determined by similarity detection tools or instructor evaluation. Reading directly from a prepared script during the presentation is not allowed. Students are responsible for ensuring that their work reflects their own understanding and original expression. Excessive reliance on AI-generated content may result in penalties or failure of the course.	Yes

3	Report writing skills	2, 3, 4, 5	40	Final submissions must be primarily written by the student. Less than 20% of AI-resembled text is acceptable, as determined by similarity detection tools or instructor judgment. Students are responsible for ensuring that their submissions reflect their own understanding and expression. Overreliance on AI-generated text will be penalized or result in failing the course.	Yes
---	-----------------------	------------	----	---	-----

Continuous Assessment (%)

100

Examination (%)

0

Minimum Continuous Assessment Passing Requirement (%)

50

Minimum Examination Passing Requirement (%)

0

Assessment Rubrics (AR)**Assessment Task**

Presentation, discussion, critique etc. (for students admitted before Semester A 2022/23 and in Semester A 2024/25 & thereafter)

Criterion

Ability to show the learning progress, analyse and express the synthesis of ideas

Excellent

(A+, A, A-) 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.

Good

(B+, B, B-) 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.

Fair

(C+, C, C-) 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.

Marginal

(D) Barely satisfactory performance on a number of CILOS. Sufficient familiarity with the subject matter to enable the student to progress without repeating the course.

Failure

(F) 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

Assessment Task

Presentation, discussion, critique etc. (for students admitted from Semester A 2022/23 to Summer Term 2024)

Criterion

Ability to show the learning progress, analyse and express the synthesis of ideas

Excellent

(A+, A, A-) 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.

Good

(B+, B) 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.

Marginal

(B-, C+, C) 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.

Failure

(F) 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**Keyword Syllabus**

transcription; translation; epigenetics; proteomics

Reading List**Compulsory Readings**

Title	
1	Nil

Additional Readings

Title	
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	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