



FACULTY OF HEALTH SCIENCES AND SPORTS
BACHELOR OF SCIENCE IN BIOMEDICAL TECHNOLOGY (MEDICAL LABORATORY TECHNOLOGY)
LEARNING MODULE OUTLINE

Academic Year	2024-2025	Semester	1
Module Code	BSGB1101		
Learning Module	General Biology		
Pre-requisite(s)	Nil		
Medium of Instruction	Chinese & English		
Credits	3	Contact Hours	45
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MODULE DESCRIPTION

General biology is the fundamental subject for all life sciences and will be the basic knowledge required for future professionals. This course covers the beginning of life phenomena, including the structure, function, and maintenance mechanisms of biological individuals, while also understanding the concept of the interaction and evolution of life phenomena and biomedical science. The course focuses on the life phenomena and activities, emphasizing the coordination of biological structure and function, the mechanisms of life activities, and their regulatory controls. This course will try to introduce new information on the frontiers of science and follow the pace of scientific advancement. Basic operations in laboratory will be covered and include microscope techniques to improve their understanding of different scientific concepts.

MODULE INTENDED LEARNING OUTCOMES (ILOS)

On completion of this learning module, students will be able to:

M1.	Provide a basic and comprehensive introduction to biology and life sciences, establish the concepts of life sciences, and lay the foundation for studying life sciences.
M2.	Familiarize and master the chemical basis of biology, cellular biology, human tissue and organ formation, structural characteristics, and physiological functions.
M3.	Proficiency in scientific inquiry: Students should be able to design and conduct experiments, analyze data, and draw conclusions based on empirical evidence.
M4.	Understanding of ethical and social implications of biological research, able to make informed decisions based on their understanding.
M5.	Master basic laboratory skills, cultivate the ability to analyze and solve problems.



These ILOs aims to enable students to attain the following Programme Intended Learning Outcomes (PILOs):

PILOs	M1	M2	M3	M4	M5
P1. To demonstrate understanding of a range of subjects, fields, principles and approaches relevant to medical laboratory technology					
P2. To demonstrate understanding of theories, analytical approaches and practices that underpin medical laboratory operations and management					✓
P3. To demonstrate understanding of major trends and issues related to medical laboratory technology					
P4. To apply professional knowledge and skills to analyse, interpret and solve problems, challenges and risks in medical laboratory practice					
P5. To critically appraise and interpret scientific and clinical literature and apply evidence-based practice					
P6. To acquire and apply research skills in medical laboratory technology			✓		✓
P7. To demonstrate effective communication and teamwork skills					✓
P8. To maintain professional and ethical standards in medical laboratory practice and research				✓	

MODULE SCHEDULE, COVERAGE AND STUDY LOAD

Week	Content Coverage	Contact Hours
2	Bio 00 - subject outline (1hr)	1
2	Bio 01 - Nature of science (2hrs)	2
3	Bio 02 - Basic of life (3hr)	3
5	Bio 03 - Microscope (3hr)	4
7	Bio 04 - Nutrition (3hr)	3
8	Bio 05 - Circulation (3hr)	3
9	Bio 06 - Osmoregulation & excretion (3hr)	3
10	Bio 07 - Immune (4hr)	4
11	Bio 08 - Gas exchange (2hr)	3
12	Bio 09 - Integration Coordination (3hr)	3
14	Bio 10 – Reproduction (4hr)	4
7	Lab 01 - Use of Microscope	4
8	Lab 02 - Blood typing	1
9	Lab 03 - Urinalysis test strip	1
12	Lab 04 – Vital capacity	2
9	Midterm exam	2
16	Final exam	2



TEACHING AND LEARNING ACTIVITIES

In this learning module, students will work towards attaining the ILOs through the following teaching and learning activities:

Teaching and Learning Activities	M1	M2	M3	M4	M5	
T1. Lectures	✓	✓	✓	✓		
T2. Videos and animations	✓	✓			✓	
T3. Lab Practices			✓		✓	

ATTENDANCE

Attendance requirements are governed by the Academic Regulations Governing Bachelor's Degree Programmes of the Macao Polytechnic University. Students who do not meet the attendance requirements for the learning module shall be awarded an 'F' grade.

ASSESSMENT

In this learning module, students are required to complete the following assessment activities:

Assessment Activities	Weighting (%)	ILOs to be Assessed
A1. Lab Practice	20%	M3, M5
A2. Mid-term exam	40%	M1, M2, M3, M4, M5
A3. Final exam	40%	M1, M2, M3, M4, M5

This learning module is graded on a 100- point scale, with 100 being the highest possible score and 50 being the passing score.

Any students scoring less than 35% of the total mark in the final examination will be given an "F" grade for the module even if the overall grade is 50% or higher.

The assessment will be conducted following the University's Assessment Strategy (see www.mpu.edu.mo/teaching_learning/en/assessment_strategy.php). Passing this learning module indicates that students will have attained the ILOs of this learning module and thus acquired its credits.

MARKING SCHEME

Assessment Activities	Assessment Criteria	Mark Ranges				
		88-100	73-87	58-72	50-57	<50
A1. Lab practices	Master relevant experimental skills or operations, data handling and lab report etc.	Excellent	Good/ Very Good	Satisfactory	Marginal Pass	Fail; not reaching marginal levels
A2. Midterm exam and final exam	Demonstrate the ability to identify and apply appropriate concepts, methods and techniques	Excellent	Good/ Very Good	Satisfactory	Marginal Pass	Fail; not reaching marginal levels



REQUIRED READINGS

傅松濱 等 (2018) 醫學生物學 第九版 人民衛生出版社

REFERENCES

1. Lisa A. Urry, Michael L. Cain, Steven A. Wasserman, Peter V. Minorsky, Jane B. Reece (2021) Campbell Biology 12th edition, Pearson
2. Cecie Starr, Christine A. Evers, Lisa Starr (2020) Biology: Today and Tomorrow with Physiology, 6th Edition, Cengage
3. Eric Simon, Jean Dickey, Jane Reece (2019) Campbell Essential Biology with Physiology 6th Edition, Pearson

STUDENT FEEDBACK

At the end of every semester, students are invited to provide feedback on the learning module and the teaching arrangement through questionnaires. Your feedback is valuable for instructors to enhance the module and its delivery for future students. The instructor and programme coordinators will consider all feedback and respond with actions formally in the annual programme review.

ACADEMIC INTEGRITY

The Macao Polytechnic University requires students to have full commitment to academic integrity when engaging in research and academic activities. Violations of academic integrity, which include but are not limited to plagiarism, collusion, fabrication or falsification, repeated use of assignments and cheating in examinations, are considered as serious academic offenses and may lead to disciplinary actions. Students should read the relevant regulations and guidelines in the Student Handbook which is distributed upon the admission into the University, a copy of which can also be found at www.mpu.edu.mo/student_handbook/.