



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

Academic Year	2023 / 2024	Semester	2
Module Code	BSPA2012		
Learning Module	Parasitology		
Pre-requisite(s)			
Medium of Instruction	Chinese and English		
Credits	2	Contact Hours	30
Instructor	Koi kuok ieng	Email	t1080@mpu.edu.mo
Office	--	Office Phone	--

MODULE DESCRIPTION

This subject is one of the foundational subjects of the Biomedical Sciences programme. The concept of medical parasitology and the basic techniques of parasitology laboratories will be introduced. This course covers the classification, identification, and pathology of pathogenic organisms, such as medical protozoa, medical helminth, and medical arthropods. The course is 2 credits, 30 hours, includes 24 lecture hours and 6 practical hours.

MODULE INTENDED LEARNING OUTCOMES (ILOS)

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

M1.	Demonstrate knowledge of and adhere to established guidelines for working with potential pathogens to ensure biohazard safety
M2.	Apply knowledge of specimen integrity. Evaluating patient samples for potential pathogens and indigenous parasites.
M3.	Specimen examination and evaluation after the application of microscopes and various techniques.
M4.	Identify the morphological characteristics of common pathogenic parasites, Nematoda, Trematoda, Cestode, Zoomastigophora, Sarcodina, and Sporozoa
M5.	Identify unknown organisms using the techniques described in the lab exercises. Develop laboratory skills and competencies for: a) isolation and identification of parasitic worms; b) culture of parasites; d) Publish the final parasitological report.
M6.	Give presentations on some common parasites including clinical symptoms, laboratory diagnostics and treatment.



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

PILOs	M1	M2	M3	M4	M5	M6
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, methodologies 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 develop research skills in medical laboratory technology and contribute to the health of the community	✓	✓	✓	✓	✓	
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
1	<p>1. Introduction. (4 hours)</p> <p>Definitions of medical parasitology; identification of classification, significance of parasitism in world affairs; outline of areas of responsibility for a selected group of parasites; host-parasite relationships; terminology in parasitology.</p>	4h
2	<p>2. Introduction to helminthology (10 hours)</p> <p>2.1. Class Nematoda (round worms) (4 hours)</p> <p>2.1.1. <i>Ascaris lumbricoides</i></p> <p>2.1.2. <i>Enterobius vermicularis</i></p> <p>2.1.3. <i>Strongyloides stercoralis</i></p> <p>2.1.4. <i>Trichinella spiralis</i></p> <p>2.1.5. <i>Trichuris trichiura</i></p> <p>2.1.6. Hook worms</p> <p>2.1.7. Filarial worms.</p>	4h



Week	Content Coverage	Contact Hours
3	<p>2.2. Class trematoda (flukes) (4 hours)</p> <p>2.2.1. Clonorchis sinensis</p> <p>2.2.2. Fasciola hepatica</p> <p>2.2.3. Fasciolopsis buski</p> <p>2.2.4. Paragonimus westermani</p> <p>2.2.5. Schistosoma japonicum</p> <p>2.3. Class Cestoda (tape worms) (2 hours)</p> <p>2.3.1. Taenia saginata.</p> <p>2.3.2. Taenia solium.</p> <p>2.3.3. Echinococcus granulosus.</p> <p>2.3.4. Diphyllbothrium latum.</p> <p>(The students should recognize the morphology of the worms, their life cycle, pathogenesis, diagnosis & treatment.)</p>	6h
4	<p>3. Introduction of protozoology (6 hours)</p> <p>3.1. Amoebae</p> <p>3.2. Blastocystis hominis</p> <p>3.3. Leishmania donovani</p> <p>3.4. Giardia lamblia</p> <p>3.5. Trichomonas vaginalis</p>	4h
5	<p>3.6. Plasmodium</p> <p>3.7. Toxoplasma gondii</p> <p>4. Arthropods (insects injurious to man) (2 hours)</p> <p>Class insecta: Mosquitoes, flies, bugs, lice and fleas.</p> <p>Class Arachnida: Ticks, mites and scorpion.</p> <p>Class Crustacea: Cyclops.</p> <p>Class Chilopoda: Centipede.</p> <p>Class Diplopoda: Diplopod.</p> <p>(Most of arthropods have been accused to transmit or cause serious diseases in humans so the students should identify the medical importance of arthropods plus other important points such as: insects' morphology; diseases transmitted or caused by arthropods; the causative organism; incubation period; signs & symptoms of the disease.)</p>	4h



Week	Content Coverage	Contact Hours
6	<p>4. Arthropods (insects injurious to man) (2 hours)</p> <p>Class insecta: Mosquitoes, flies, bugs, lice and fleas.</p> <p>Class Arachnida: Ticks, mites and scorpion.</p> <p>Class Crustacea: Cyclops.</p> <p>Class Chilopoda: Centipede.</p> <p>Class Diplopoda: Diplopod.</p> <p>(Most of arthropods have been accused to transmit or cause serious diseases in humans so the students should identify the medical importance of arthropods plus other important points such as: insects' morphology; diseases transmitted or caused by arthropods; the causative organism; incubation period; signs & symptoms of the disease.)</p> <p>6. Lab experiment (4 hours)</p>	6h
7	Final Exam (2hours).	2h

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	M6
T1. Lectures and videos	✓	✓	✓	✓	✓	✓
T2. Case studies	✓	✓	✓	✓	✓	✓
T3. Review Writing and presentation						✓
T4. Experiment	✓	✓	✓	✓	✓	

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. Experimental Skills Exam	10%	M1-M5
A2. Experimental Report	20%	M1-M5
A3. Final Exam	70%	M1-M6

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.Experimental Skills Exam	Demonstrate technical understanding and operational ability	Excellent	Good/ Very Good	Satisfactory	Marginal Pass	Fail; not reaching marginal levels
A2.Experimental Report	Report and summary of experimental results	Excellent	Good/ Very Good	Satisfactory	Marginal Pass	Fail; not reaching marginal levels
A3.Final Examination	Demonstrate the ability to understand and apply the subjects covered in the classroom	Excellent	Good/ Very Good	Satisfactory	Marginal Pass	Fail; not reaching marginal levels

REQUIRED READINGS

1. Diagnostic Medical Parasitology 6th Edition, 2016 · Lynne Shore Garcia
2. 人体寄生虫学, 复旦大学出版社, 2015, 程训佳



REFERENCES

1. 实验诊断学彩色图谱 2015 叶千红·韩秋生·徐国成 湖北科学技术出版社
2. 中国人体寄生虫分布与危害 2000

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/.