



LEADING THE WAY
KHALIFAH • AMĀNAH • IQRA' • RAHMATAN LIL-ĀLĀMĪN
LEADING THE WORLD



AN INTERNATIONAL AWARD-WINNING INSTITUTION FOR SUSTAINABILITY

DEPARTMENT OF BASIC MEDICAL SCIENCES
KULLIYAH OF MEDICINE
INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA

PARASITOLOGY STUDY GUIDE

Academic Session 2023/2024

MASTER OF MEDICAL SCIENCES,
MASTER OF HEALTH SCIENCES
&
PhD IN HEALTH SCIENCES

GENERAL CONTENTS

GENERAL CONTENTS	3
PARASITOLOGY.....	4
<i>Directory of Course Instructors</i>	<i>4</i>
<i>List of Courses.....</i>	<i>4</i>
PARA 7261: Introduction to Medical Parasitology.....	5
<i>Section 1: Course Synopsis</i>	<i>5</i>
<i>Section 2: Learning Outcome</i>	<i>5</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>5</i>
<i>Section 4: Course Assessment</i>	<i>5</i>
<i>Section 5: Course Content.....</i>	<i>6</i>
<i>Section 6: Learning Resources</i>	<i>6</i>
PARA 7262: Opportunistic Infections	7
<i>Section 1: Course Synopsis</i>	<i>7</i>
<i>Section 2: Learning Outcome</i>	<i>7</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>7</i>
<i>Section 4: Course Assessment</i>	<i>7</i>
<i>Section 5: Course Content.....</i>	<i>8</i>
<i>Section 6: Learning Resources</i>	<i>8</i>
PARA 7263: Immunoparasitology.....	9
<i>Section 1: Course Synopsis</i>	<i>9</i>
<i>Section 2: Learning Outcome</i>	<i>9</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>9</i>
<i>Section 4: Course Assessment</i>	<i>9</i>
<i>Section 5: Course Content.....</i>	<i>10</i>
<i>Section 6: Learning Resources</i>	<i>10</i>
PARA 7264: Diagnostic Parasitology and Medical Entomology	11
<i>Section 1: Course Synopsis</i>	<i>11</i>
<i>Section 2: Learning Outcome</i>	<i>11</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>11</i>
<i>Section 4: Course Assessment</i>	<i>11</i>
<i>Section 5: Course Content.....</i>	<i>12</i>
<i>Section 6: Learning Resources</i>	<i>12</i>
PARA 7363: Tropical Diseases	13
<i>Section 1: Course Synopsis</i>	<i>13</i>
<i>Section 2: Learning Outcome</i>	<i>13</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>13</i>
<i>Section 4: Course Assessment</i>	<i>13</i>
<i>Section 5: Course Content.....</i>	<i>14</i>
<i>Section 6: Learning Resources</i>	<i>14</i>
PARA 7364: Control of Human Parasitic Diseases	15
<i>Section 1: Course Synopsis</i>	<i>15</i>
<i>Section 2: Learning Outcome</i>	<i>15</i>
<i>Section 3: Teaching Format and Guidelines</i>	<i>15</i>
<i>Section 4: Course Assessment</i>	<i>15</i>
<i>Section 5: Course Content.....</i>	<i>16</i>
<i>Section 6: Learning Resources</i>	<i>16</i>

Any absence due to sickness or any unforeseen circumstances must be notified to the course coordinators as soon as possible and must be supported by suitable documentation e.g. sick certification

PARASITOLOGY

Directory of Course Instructors

No.	Name	Email	Department
1.	Prof. Dr. Md Abdus Salam	abdussalam@iium.edu.my	Basic Medical Sciences, KOM
2.	Asst. Prof. Dr. Soraya Ismail	dr_soraya@iium.edu.my	Basic Medical Sciences, KOM
3.	Asst. Prof. Dr. Norazsida Ramli	hidayatulradziah@iium.edu.my	Biomedical Science, KAHS

List of Courses

	Course Title	Course Code	Course Classification	Credit Hours
1.	Introduction to Medical Parasitology	PARA 7261	Special Req	2
2.	Oppurtunistic Infections	PARA 7262	Core	2
3.	Immunoparasitology	PARA 7263	Core	2
4.	Diagnostic Parasitology and Medical Entomology	PARA 7264	Core	2
5.	Tropical Diseases	PARA 7363	Core	3
6.	Control of Human Parasitic Diseases	PARA 7364	Core	3

PARA 7261: Introduction to Medical Parasitology

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

This course provides basic knowledge of the morphology, geographical distribution, life cycle, pathogenesis, clinical manifestation, diagnosis and treatment of the different groups of parasites. It also covers the normal and abnormal body response to the above infections and the consequences on the body.

Section 2: Learning Outcome

1. Point out the morphology, geographical distribution, life cycle, pathogenesis, clinical manifestations, diagnosis, and treatment of the different groups of parasites, poisonous arthropods and venomous organisms.
2. Analyze and compare the normal and abnormal body response to the above infections and the consequences on the body.
3. Analyze the methods of control and prevention of particular disease in the affected community.
4. Distinguish the principles and applied aspects of parasitology and medical entomology.

Section 3: Teaching Format and Guidelines

1. Lecture
2. Assignment/ Quiz
3. Practical
4. Viva
5. Self-directed learning

Section 4: Course Assessment

Quiz	10%
Assignment	40%
Viva	50%

Section 5: Course Content

No.	Topic
1.	• Introduction to Medical Entomology • Introduction Parasitology
2.	• Introduction to Protozoology • Intestinal & Luminal Protozoa • Vectors of Diseases • Host-parasitic relationship
3.	Intestinal & Luminal Protozoa
4.	Blood Protozoa
5.	• Tissue Protozoa • Introduction to Helminthology
6.	Nematodes
7.	• Cestodes • Trematodes • Ectoparasites & pests
8.	• Myiasis • Venomous Organisms • Control of Vectors • Zoonosis • Immunity to parasite

Section 6: Learning Resources

Required Textbook

1. Ghosh, S., (2020). Paniker's Textbook of Medical Parasitology (9th ed.). Jaypee Brothers Medical Publishers

Recommended Textbook

1. Farrar, J., Hotez, P., Junghanss, T., Kang, G., Lalloo D., White. N. (2023) Manson's Tropical Medicine. (24rd. ed.). Elsevier
2. Morris J Brown, M. J., Sharma, Fras A. Mir, & Bennett, P. N. (2018). Clinical Pharmacology (12th ed.). Elsevier Ltd.

PARA 7262: Opportunistic Infections

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

The course covers the life cycle, pathogenesis and clinical manifestation, diagnosis and treatment of opportunistic infections, with emphasis in the immune-compromised patients.

Section 2: Learning Outcome

1. Point out and identify the clinical situations which predispose to the opportunistic infection.
2. Formulate the pathology and clinical signs of opportunistic infections.
3. Point out and differentiate the organisms.
4. Analyze the epidemiology of opportunistic infections.

Section 3: Teaching Format and Guidelines

1. Lecture
2. Seminar
3. Assignment
4. MCQ
5. Self-directed learning

Section 4: Course Assessment

MCQ	10%
Assignment	40%
Examination	50%

Section 5: Course Content

No.	Topic
1.	• Opportunistic protozoa diseases • Opportunistic helminth diseases
2.	Opportunistic bacterial diseases
3.	Opportunistic viral diseases
4.	Opportunistic fungal diseases

Section 6: Learning Resources

Required Textbook

1. Gupta, Ramesh & Gupta, Pallav. (2017). Pathology of Opportunistic Infections: An Illustrative Atlas. Switzerland: Springer

Recommended Textbook

1. Farrar, J., Hotez, P., Junghanss, T., Kang, G., Lalloo D., White. N. (2023) Manson's Tropical Medicine. (24rd. ed.). Elsevier
2. Morris J Brown, M. J., Sharma, Fras A. Mir, & Bennett, P. N. (2018). Clinical Pharmacology (12th ed.). Elsevier Ltd.

PARA 7263: Immunoparasitology

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

The course covers the life cycle, pathogenesis and immune responses to parasitic infections with emphasis in the immune-compromised patients.

Section 2: Learning Outcome

1. Point out and identify the characteristics of parasitic infections.
2. Analyze the mechanisms of evasion of parasites from the immune system and the immunological consequences of parasitic infections.
3. Distinguish the role of both the humoral and cellular immune response in parasitic infections.
4. Analyze the status of the immuno-compromised patient..

Section 3: Teaching Format and Guidelines

1. Lecture
2. Seminar
3. Assignment
4. Self-directed learning

Section 4: Course Assessment

Participation	10%
Assignment	40%
Examination	50%

Section 5: Course Content

No.	Topic
1.	• Parasites and parasitism. • The immune response. • Malarial infections. • African trypanosomes.
2.	• Experimental immunoparasitology • Intracellular Protozoa
3.	• Schistosomiasis • Trichinosis • Gastrointestinal nematodes • Nematodes which invade tissues
4.	• Ectoparasitic arthropods • Immunological control of parasitic infections

Section 6: Learning Resources

Required Textbook

1. Ryan, E.T, Hill, D.R, Solomon, T., Endy, T.P., & Aronson, N. (2019). Hunter's Tropical Medicine and Emerging Infectious Diseases, (10th ed). Elsevier.

Recommended Textbook

1. Lamb, T.J. (2012) Immunity to Parasitic Infection. John Wiley & Sons

PARA 7264: Diagnostic Parasitology and Medical Entomology

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

The course covers the diagnostic techniques, identification and characteristics in parasitology and medical entomology.

Section 2: Learning Outcome

1. Point out and identify the specimens and techniques relevant in diagnostic parasitology and medical entomology.
2. Point out and differentiate the characteristics of parasites and arthropods.
3. Distinguish the diagnostic techniques used in the field.
4. Point out and identify the role of flies in myiasis and forensic medical entomology.

Section 3: Teaching Format and Guidelines

1. Lecture
2. Seminar
3. Practical
4. Assignment
5. Self-directed learning

Section 4: Course Assessment

Participation	10%
Assignment	40%
Examination	50%

Section 5: Course Content

No.	Topic
1.	Section 1. Specimens and Techniques • Laboratory set up and equipment (including microscopes). • Collection of specimens (sampling and factors involved). • Faecal specimens and techniques. • Blood specimens. • Urine specimens. • Vaginal and urethral specimens. • Skin specimens.
2.	Section 2. Identification of Organisms • Protozoa (keys) – Malaria – Amoebas (cysts and trophozoites) – Flagellates – Other protozoa • Helminthes – Nematode eggs and larvae – Microfilariae – Gross worms – Other helminths
3.	Section 3. Basic Entomological Techniques • Insect collection methods. • Mosquitoes – identification • Fly – Diptera identification • Maintenance of insects in the laboratory • Preservation/mounting of insects

Section 6: Learning Resources

Required Textbook

1. Practical Guide to Laboratory Techniques in Medical Parasitology, (2016). UKM Press. ISBN 9789674124182

Recommended Textbook

1. Procop & Komen, Color Atlas and Textbook of Diagnostic Microbiology, (2016) Lippincott Williams and Wilkins.
2. Basic Laboratory Methods in Medical Parasitology, (1991). WHO. ISBN 9241544104,

PARA 7363: Tropical Diseases

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

This course covers the life cycle, pathogenesis and clinical manifestation, diagnosis and treatment of infections in the Tropics.

Section 2: Learning Outcome

1. Point out the parasites and compare their life cycle, pathology, clinical manifestation, diagnosis and treatment of various tropical diseases.
2. Analyze the pathogenesis and clinical manifestations of the tropical parasitic diseases
3. Formulate the methods for laboratory diagnosis and treatment of the various tropical diseases.

Section 3: Teaching Format and Guidelines

1. Lecture
2. Seminar
3. Assignment
4. Self-directed learning

Section 4: Course Assessment

Participation	10%
Assignment	40%
Examination	50%

Section 5: Course Content

No.	Topic
1.	Parasitic diseases
2.	Bacterial diseases
3.	Viral diseases
4.	Fungal diseases

Section 6: Learning Resources

Required Textbook

1. Ryan, E.T., Hill, D.R., Solomon, T., Aronson, N.E., Endy, T.P. (2020). Hunter's Tropical Medicine and Emerging Infectious Diseases (10th ed.). Elsevier.

Recommended Textbook

1. Farrar, J., Hotez, P., Junghanss, T., Kang, G., Lalloo D., White. N. (2014) Manson's Tropical Medicine. (23rd. ed.). Saunders Ltd.

PARA 7364: Control of Human Parasitic Diseases

Course Coordinator: Asst. Prof. Dr. Soraya Ismail

Section 1: Course Synopsis

The course covers the epidemiology and control of various parasitic disease, vector borne organisms and control strategies.

Section 2: Learning Outcome

1. Point out and analyse the epidemiology of parasitic infection.
2. Analyse the role of intermediate hosts and vectors in the transmission of parasites.
3. Analyse the role of intermediate hosts and vectors in the transmission of parasites.

Section 3: Teaching Format and Guidelines

1. Lecture
2. Seminar
3. Assignment
4. Self-directed learning

Section 4: Course Assessment

Participation	10%
Assignment	40%
Examination	50%

Section 5: Course Content

No.	Topic
1.	• Epidemiology and geographical distribution of parasites. • Health education and control • Vectors and vector control strategy
2.	• Control of vector-borne diseases • Control of malaria • Control of Chagas disease • Human African trypanosomiasis
3.	• Control of water-borne diseases • Control of soil-transmitted helminthiasis • Control of lymphatic filariasis and onchocerciasis
4.	• Control of schistosomiasis and other trematodes • Control of cestodes • Future challenges and prospects

Section 6: Learning Resources

Required Textbook

1. Ryan, E.T., Hill, D.R., Solomon, T., Aronson, N.E., Endy, T.P. (2020). Hunter's Tropical Medicine and Emerging Infectious Diseases (10th ed.). Elsevier.

Recommended Textbook

1. Molyneux, D.H. (2007). Control of Human Parasitic Diseases, Volume 61. Academic Press