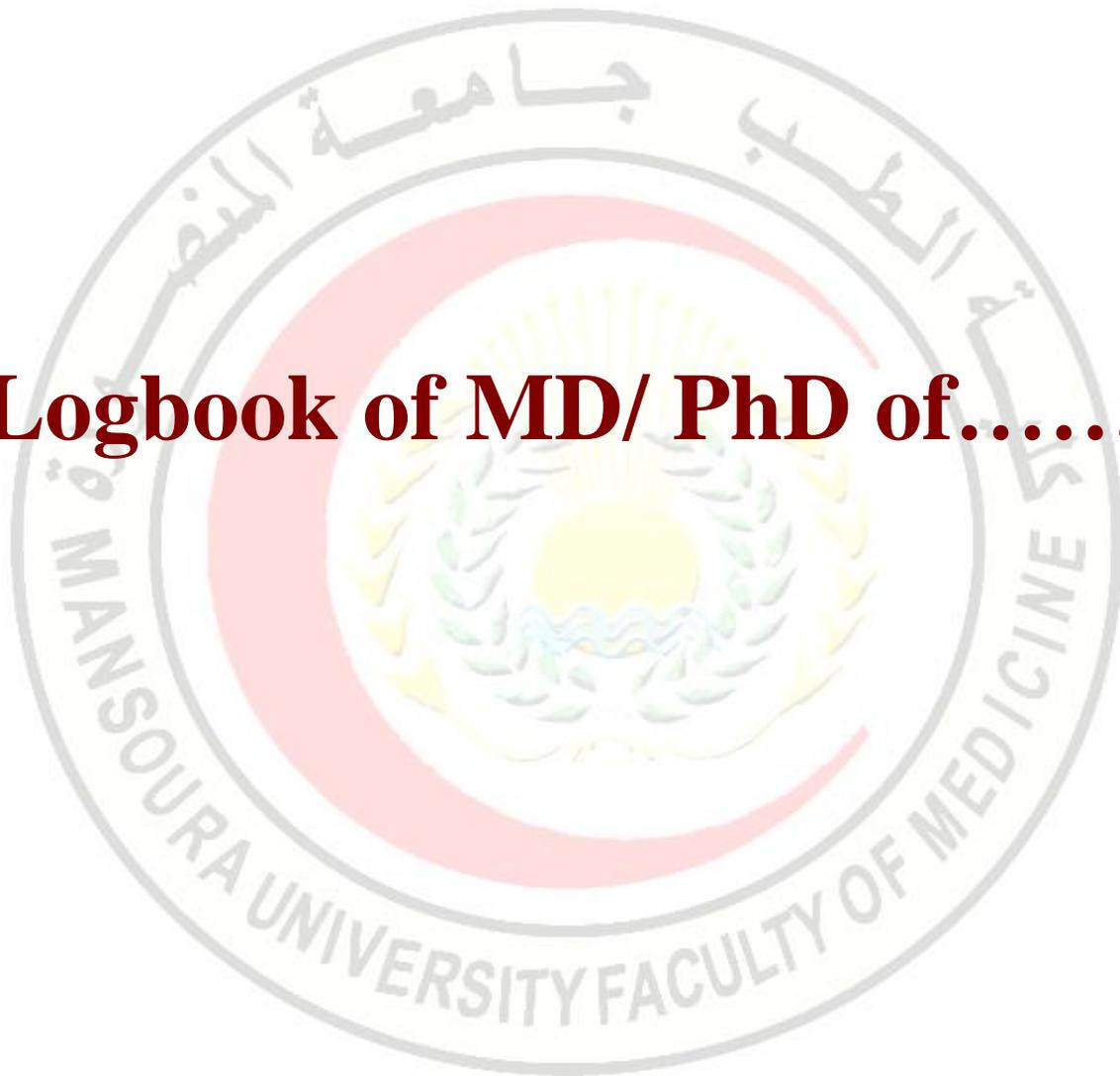


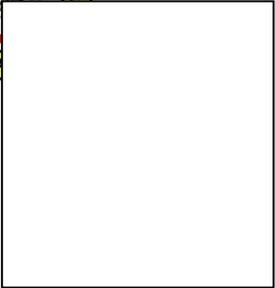


# Logbook of MD/ PhD of.....





# Personal Data



Name: .....

Department : .....

Mobile Number:.....

E-mail Address: .....

MD/PhD Degree:

Date of registration: ...../...../.....

Signature:

Head of the Department

Vice Dean for research and postgraduate study





### Aim of the Logbook.

To provide evidence that the candidate attained the desired level of competence required to gain the award. In this book, the candidate will document all academic and clinical skills he/she attained during their training.

### Important regulations (for MD/PhD candidates).

- To be legible for the first part MD exam you have to attend at least 70% of the lectures of each course in the semester as evidenced by the logbook
- To be legible for the (MCQ online) exam at the end of each of second part semesters you have to attend at least 70% of the lectures of each course/module in the semester as evidenced by the logbook.
- To be legible for the final MD/PhD exam .
  - 1- A time interval of 36 months must pass since the day of degree registration.
  - 2- You have to take your practical/clinical training three times/week for two years .
  - 3-You have to register 5 semesters on Ibn Ikhaym registration page.
  - 4- You have to attend 70% of the lectures of each course in the second part of MD/PhD degree.
  - 5- You have to fulfill and perform 70% of the practical skills documented in the logbook.



**Bylaws of the MD/PhD**





## **Contents**

Section I: Scientific lectures.

Section II: Slides' box preparation

Section III: Procedures

Section IV: Seminars

Section V: Student teaching sections.

Section VI: Scientific activities (conferences/workshops)



# **Section I:**

# **Scientific Lectures**





**Name of the course: Histopathology of Parasites**

**Compulsory/Elective: compulsory**

**First/Second part: 1st**

**Credit hours: 1h**

**Semester: (spring/fall/summer) year.....**

**(1) Course aims:**

The broad aims of the course are as follows:

1. Enable the student to study the pathogenesis and immunopathology of parasitic diseases.
2. Help the student to have the fundamental knowledge about immunohistochemical study of parasitic diseases.
3. Qualify the student to recognize the recent molecular pathology principles and their possible application in Parasitology field.

**(2) Intended learning outcomes(ILOs)**

**A. Knowledge and Understanding**

- a1.** Identify the gross changes of different tissues in parasitic diseases.
- a2.** Distinguish the microscopic pathological changes in parasitic infections.
- a3.** Describe the immunohistochemical changes of tissues in parasitic morbidity.
- a4.** Define the principles of molecular pathology and application of its techniques in Parasitology field.
- a5.** Characterize the molecular pathological changes of tissues in parasitic disorders.

**B. Intellectual skills**

- b1.** Interpret the clinical, gross, and microscopic findings to reach the proper diagnosis.
- b2.** Choose the proper immunohistochemical techniques.



**Course content:**

<b>Subjects</b>	<b>Lecture</b>	<b>Total Teaching Hours</b>
<p><b>General pathology</b></p> <p>-The cell and human body- types of pathologic lesions</p> <p>-Diagnostic and Molecular pathology</p>	<p><b>1</b></p> <p><b>2</b></p>	<p><b>3 hours</b></p>
<p><b>Pathology of helminthic parasitic diseases</b></p> <p>-Trematodes</p> <p>-Cestodes</p> <p>-Nematodes</p>	<p><b>1x3</b></p>	<p><b>3 hours</b></p>
<p><b>Pathology of protozoal parasitic diseases</b></p> <p>-Amoeba and Flagellates</p> <p>-Malaria</p> <p>-Toxoplasma &amp; other Coccidia</p>	<p><b>1x3</b></p>	<p><b>3 hours</b></p>
<p><b>Immunopathology</b></p> <p>-Basics of immunopathology of parasitic infections &amp; special reference to granuloma</p>	<p><b>1x3</b></p>	<p><b>3 hours</b></p>
<p><b>Immunohistochemical study</b></p> <p>-Antigens and antibodies- sample preparation</p> <p>-Basic Immunohistochemistry techniques- applications in Parasitology</p>	<p><b>1</b></p> <p><b>2</b></p>	<p><b>3 hours</b></p>



Date	Title of the lecture	Lecturer's signature
	<b>General pathology</b> -The cell and human body- types of pathologic lesions	
	<b>Diagnostic and Molecular pathology</b>	
	<b>Pathology of helminthic parasitic diseases</b> -Trematodes	
	<b>Pathology of helminthic parasitic diseases</b> -Cestodes	
	<b>Pathology of helminthic parasitic diseases</b> -Nematodes	
	<b>Pathology of protozoal parasitic diseases</b> -Amoeba and Flagellates	
	<b>Pathology of protozoal parasitic diseases</b> -Malaria	
	<b>Pathology of protozoal parasitic diseases</b> -Toxoplasma & other Coccidia	
	<b>Immunopathology</b> -Basics of immunopathology of parasitic infections & special reference to granuloma	
	<b>Immunopathology</b> -Basics of immunopathology of parasitic infections & special reference to granuloma	
	<b>Immunopathology</b> -Basics of immunopathology of parasitic infections & special reference to granuloma	
	<b>Immunohistochemical study</b> -Antigens and antibodies- sample preparation	
	<b>Immunohistochemical study</b> -Basic Immunohistochemistry techniques-applications in Parasitology	



**Name of the course: Immunology of Parasitic Diseases**

**Compulsory/Elective: compulsory First/Second part: first**

**Credit hours: 2h Semester: (spring/fall/summer) year.....**

**(1) Course aims:**

1. Provide the student the knowledge about recent immunological principles, and their possible applications in Parasitology field.
2. Enable the student to understand the innate and adaptive (Humoral vs. Cell-mediated) immune responses to parasites of clinical importance.

**(2) Intended learning outcomes**

**A. Knowledge and Understanding**

- a1. Discuss the recent principles of immunology, and the new immunological diagnostic tools.
- a2. Explain host-parasite interactions, how parasites harm their hosts and the major immunological consequences underlying this process.
- a3. Explore immune responses to different parasitic diseases.
- a4. Recognize new control methods to soil-transmitted helminth infection.
- a5. Analyze the effect of gender and sex hormones on immunity and outcomes of protozoal infection.

**B. Intellectual skills**

- B1. Select proper immunological diagnostic tools to justify their use, advantage and indications in the field of Parasitology.



**Course content:**

Subjects	Lectures	Total Teaching Hour
- Recent immunology principles	2 x2	4 hours
<b>A) Helminths</b> - B cells immune response to helminths - T cells immune response to helminths - Immunity against schistosomiasis - Immunity and new control methods to soil-transmitted helminth infections - Innate and adaptive immunity in <i>Fasciola</i> infection - Immunity to lymphatic filariasis	6 x2	12 hours
<b>B) Protozoa</b> - Host immunity against malaria - Immunity to <i>Toxoplasma gondii</i> - Host-parasite interactions in amoebic infection - <i>Giardia</i> immunity: an update - Immunity against <i>Leishmania</i> - Immunity against Chagas' disease - Sex-associated hormones and immunity to protozoa	7 x2	14hours



Date	Title of the lecture	Lecturer's signature
	<b>Recent immunology principles</b>	
	<b>Recent immunology principles</b>	
	<b>Immunity against schistosomiasis</b>	
	<b>Immunity against schistosomiasis</b>	
	<b>- Immunity and new control methods to soil-transmitted helminth infections</b>	
	<b>- Immunity and new control methods to soil-transmitted helminth infections</b>	
	<b>Innate and adaptive immunity in <i>Fasciola</i> infection</b>	
	<b>- Immunity to lymphatic filariasis</b>	
	<b>Host immunity against malaria</b>	
	<b>Immunobiology of the innate response to <i>Toxoplasma gondii</i></b>	
	<b>Host-parasite interactions in <i>Giardia</i> infection</b>	
	<b><i>Giardia</i> immunity: an update</b>	
	<b>Immunity against <i>Leishmania</i></b>	
	<b>- Immunity against Chagas' disease</b>	
	<b>Sex-associated hormones and immunity to protozoa</b>	



**Name of the course:** Molecular Parasitology

**Compulsory/Elective:** compulsory      **First/Second part:** first

**Credit hours:** 2h      **Semester:** (spring/fall/summer) year.....

Course Aims:

- To provide the students with information about the available molecular diagnostic tests used in diagnosis of parasitic diseases
- To teach the students the basics of molecular diagnostic techniques.
- To educate the students the application of certain molecular techniques to changes in gene structure and function
- To teach the students how to obtain a gene sequence from database

(2) Intended Learning Outcomes (ILOs):

A- Knowledge and Understanding

A1 List the principles of some molecular diagnostic techniques (PCR& RNAi) and recognize their Application in Parasitology.

A2-Identify recent molecular based assays (PCR-ELISA) used in diagnosis of parasitic diseases

A3-Name DNA vaccines developed against parasitic diseases

A4-Define principles of genetics and gene therapy

B-Intellectual skills

B1-Predict the proper DNA quantification method

B2-Select proper molecular diagnostic tools and justify their use, advantage and indications.

B3-Predict the role of stem cell in parasitic diseases



Subject	NO. of teaching/ Ws	Total teaching hours	
		Lecture/ week	Total
Nucleic acids structure and function	2	2	4
Basics of DNA and RNA extraction from worms e.g. schistosomes and protozoa e.g. Giardia DNA quantification methods	2	2	4
Basics of polymerase chain reaction	2	2	4
Methods of PCR product analysis	1	2	2
Restriction Endonucleases	1	2	2
Bioinformatics (general concepts & search database for specific sequence)	1	2	2
Modulation of gene expression by RNA interference	2	1	2
Transgenics and Gene therapy	2	1	2
Special topics in molecular parasitology.	4	1	4
-Recent advances in DNA vaccine development against certain parasites	2	1	
-Stem cell and its role in parasitic diseases	2	1	
-Recent diagnostic techniques in parasitology e.g. PCR-	2	1	



ELISA and oligochromatography PCR			2
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Date	Title of the lecture	Lecturer's signature
	<b>Nucleic acid structure and function</b>	
	<b>Nucleic acid structure and function</b>	
	<b>Basics of DNA and RNA extraction from worms (schistosomes), protozoa (Giardia)</b>	
	<b>DNA quantification methods</b>	
	<b>- Basics of polymerase chain reaction</b>	
	<b>- Basics of polymerase chain reaction</b>	
	<b>Methods of PCR product analysis</b>	
	<b>- Methods of PCR product analysis</b>	
	<b>Restriction endonuclease</b>	
	<b>Bioinformatics (general concepts)</b>	
	<b>Bioinformatics (search database for specific sequence)</b>	
	<b>Modulation of gene expression by RNA interference</b>	
	<b>Transgenics and gene therapy</b>	
	<b>Recent advances in DNA vaccine development against certain parasite</b>	
	<b>Recent advances in DNA vaccine development against certain parasite</b>	
	<b>Recent advances in DNA vaccine development against certain parasite</b>	



	<b>Recent advances in DNA vaccine development against certain parasite</b>	
	<b>Stem cell and its role in parasitic diseases</b>	
	<b>Stem cell and its role in parasitic diseases</b>	
	<b>Recent diagnostic techniques in parasitology (PCR-ELISA)</b>	
	<b>Recent diagnostic techniques in parasitology (oligochromatography PCR)</b>	

**Name of the course:** Advanced Immunology

**Compulsory/Elective:** elective **First/Second part:** second

**Credit hours:** 4h **Semester:** (spring/fall/summer) year.....

**Course aims:**

1. Enable the student to comprehend in depth all features of parasites biology, host-parasite relationships, environmental and host factors controlling parasitic diseases.
2. Help the student to recognize in-depth knowledge concerning the immune response patterns and host signaling pathways in parasitic infections as an essential prerequisite for the development of effective control programs.
3. Provide the student the substantial knowledge about the advanced immunological principles, and their possible applications in Parasitology field.
4. Qualify the student to update and use the gained scientific information in parasitic immunology regarding research and education fields.

**(1) Intended Learning Outcomes (ILOs):**

On successful completion of the course, the candidate will be able to:

**A. Knowledge and Understanding**

- a1. Define principles of immunomics and its applicable techniques in Parasitology field.
- a2. Elucidate update in immunotherapy against parasitic diseases.



- a3. Explore the recent applications of helminthic therapy as an immunotherapy against auto-immune diseases and immune disorders.
- a4. Analyze the host-influences and-signaling pathways in parasitic infections.
- a5. Identify different parasitic antigens.
- a6. Recognize the different anti-parasitic blocking agents and the underlined targeted pathway/s.
- a7. Discuss methods used in production and application of monoclonal antibodies in parasitological studies.
- a8. Realize the utilization and usefulness of stem cells in the diagnosis and treatment of *Schistosoma*-induced hepatic fibrosis.
- a9. Explain recent advances in vaccine development against various parasitological infections.

## **B. Intellectual skills**

The Postgraduate Degree provides opportunities for candidates to achieve and demonstrate the following intellectual qualities:

- b1. Solve problem based exercises.
- b2. Demonstrate update in vaccination and immunotherapy for important public health parasitic problems.
- b3. Design guidelines for a control program for a particular parasitic disease/s and reveal potential targets for host-based specific antiparasitic chemotherapy.
- b4. Select proper immunological diagnostic tools and to justify their uses, advantages and indications.

## **C. Professional skills**

The Postgraduate Degree provides opportunities for candidates to demonstrate the following professional skills:

- c1. Apply the principles of diagnosis, treatment and control of parasitic diseases.



## D. Communication & Transferable skills

The Postgraduate Degree provides the opportunity to demonstrate the following transferable skills:

**d1.** Review the scientific literature on a given research topic.

Subjects	Lectures	Total Teaching Hours
- Immunomics	2x2	4
- Advances in role of immunotherapy against parasitic infections	2x2	4
- Update on influence of helminth infection on expression of parasitic and non-parasitic infections, autopy, asthma, diabetes, cancer and autoimmune diseases	4x2	8
- Analysis of host signaling pathways in parasitic infections and their blocking drugs		
- Monoclonal antibodies production and applications in Parasitology	4x2	8
- Current status of vaccine against schistosomiasis	4x2	8
- Stem cells applications in <i>Schistosoma</i> -induced liver injury and fibrosis	5x2	10
- Filaria vaccines	2x2	4
- Hookworm vaccines		
- Malaria vaccines		
- Vaccine development against Chagas' disease		
- <i>Leishmania</i> vaccination strategies	2	2
- <i>Toxoplasma</i> vaccines	2	2
- <i>Amoeba</i> vaccines		
- <i>Giardia</i> vaccines	3x2	6
- <i>Cryptosporidium</i> vaccines	2	2



	2	2
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Date	Title of the lecture	Lecturer's signature
	- Immunomics	
	- Immunomics	
	- Advances in role of immunotherapy against parasitic infections	
	- Advances in role of immunotherapy against parasitic infections	
	Update on influence of helminth infection on expression of parasitic and non-parasitic infections, autopy,	
	- Update on influence of helminth infection on expression of parasitic and non-parasitic infections, asthma,	
	Update on influence of helminth infection on expression of parasitic and non-parasitic infections, diabetes	
	- Update on influence of helminth infection on expression of parasitic and non-parasitic infections, cancer and autoimmune diseases	
	Analysis of host signaling pathways in parasitic infections and their blocking drugs	
	Analysis of host signaling pathways in parasitic infections and their blocking drugs	
	Analysis of host signaling pathways in parasitic infections and their blocking drugs	



	Analysis of host signaling pathways in parasitic infections and their blocking drugs	
	- Monoclonal antibodies production and applications in parasitology	
	- - Monoclonal antibodies production and applications in parasitology	
	- Monoclonal antibodies production and applications in parasitology	
	- Monoclonal antibodies production and applications in parasitology	
	- Current status of vaccine against schistosomiasis	
	- Current status of vaccine against schistosomiasis	
	- Current status of vaccine against schistosomiasis	
	- Current status of vaccine against schistosomiasis	
	- Current status of vaccine against schistosomiasis	
	Stem cells applications in <i>Schistosoma</i> -induced liver injury and fibrosis	
	- Stem cells applications in <i>Schistosoma</i> -induced liver injury and fibrosis	
	- Filaria vaccines	
	- Malaria vaccines	
	- Hookworm vaccines	
	- Vaccine development against Chagas' disease	
	- <i>Leishmania</i> vaccination strategies	
	- <i>Toxoplasma</i> vaccines	
	- Amoeba vaccines	
	- <i>Cryptosporidium</i> vaccines	
	- <i>Giardia</i> vaccines	



**Name of the course:** Advanced molecular biology

**Compulsory/Elective:** elective      **First/Second part:** second

**Credit hours:** 4h      **Semester:** (spring/fall/summer) year.....

**(2) Course Aims:**

- To enable students to study a wide range of molecular biology topics in depth.
- To provide the candidate with the recent molecular tools used in parasitology and their possible application in diagnosis of human parasitic and zoonotic diseases.
- To provide the candidate with mode of action and mechanism of resistance of different anti-parasitic agents at the molecular level.
- Provide the student the substantial knowledge about epigenetics principles, and their importance in the Parasitology field.
- To enhance students' conceptual, analytical and generic skills to use them in the PhD program.

**(3) Intended Learning Outcomes (ILOs):**

**A- Knowledge and Understanding:**



- A1 Explain the principles of molecular diagnostic techniques and recognize their application in Parasitology
- A2 Define the principles of epigenetic control and recognize its importance in parasitology
- A3 Identify cloning vectors
- A4 Recognize different methods of DNA sequencing
- A5 List methods of gene expression
- A6 Know the basics of electrophoresis
- A7 Explain gene library, hybridization technique and gene probes

**B- Intellectual skills.**

- B1 Select the suitable cloning vector
- B2 Select proper molecular diagnostic tools and to justify their use, advantage and indicate
- B3 Predict the suitable electrophoresis method according to the sample
- B4 Apply alignment to multiple sequences
- B5 Analysis of sequence data

Subject	NO. of teaching Ws	Total teaching hours	
		Lecture / week	Total



Nucleotide sequencing of DNA	2	2	4
Gene libraries	2	1	2
Cloning vectors	2	1	2
Hybridization and gene probes	2	2	4
Epigenetic control	1	2	2
Applications of gene cloning	2	1	2
Expression of foreign genes	3	2	6
Analyzing genes and gene expression	2	2	4
Electrophoresis	3	2	6
Analysis of sequence data	3	3	9
Sequence alignment and phylogenetic analysis	3	3	9
Special topics in molecular parasitology:			
- Genotyping in protozoa ( <i>Giardia &amp; toxoplasma</i> )	2	2	4
- Molecular diagnosis of human parasites	3	2	6

Date	Title of the lecture	Lecturer's signature
	Nucleotide sequencing of DNA	
	Nucleotide sequencing of DNA	
	Nucleotide sequencing of DNA	



	Nucleotide sequencing of DNA	
	- Gene libraries	
	- Gene libraries	
	Cloning vectors	
	Cloning vectors	
	Hybridization and gene probes	
	Epigenetic control	
	- Epigenetic control	
	Applications of gene cloning	
	Expression of foreign genes	
	Analyzing genes and gene expression	
	Electrophoresis	
	Analysis of sequence data	
	Sequence alignment and phylogenetic analysis	
	Genotyping in protozoa ( <i>Giardia</i> )	
	Genotyping in protozoa ( <i>Toxoplasma</i> )	
	Molecular diagnosis of human parasites	

**Name of the course:** Medical Parasitology

**Compulsory/Elective:** compulsory **First/Second part:** second

**Credit hours:** 21h lectures/15 practical

**Semester:** (spring/fall/summer) year.....



## (1) Course aims:

- Provide the students with knowledge about the recent issues of Medical Parasitology and diagnosis of parasitic diseases.
- Enable the students to update their scientific information in parasite biology, life cycles, host–parasite relationship, environmental and host factors regulating parasitic diseases.
- Help the student to recognize the latest epidemiology and transmission patterns of parasites as an essential prerequisite for the development of effective control programs.
- Enable the student to recognize the general outlines of parasite treatment and control and their impact on health, welfare and productivity of human being.
- Provide the student with updated information and researches concerned with parasitic diseases, as well as their laboratory diagnosis.
- Enable the student to master different diagnostic techniques.

## (2) Intended Learning Outcomes (ILOs):

### A. Knowledge and Understanding

- a 1 Point out the latest update on morphological characteristics and classification of medically important parasites.
- a 2 Identify morphological characteristics of medical mollusks, their modernized classification, biology and medical importance.
- a 3 Recognize the updated geographical distribution of important medical parasites.
- a 4 Describe the recently published data on life cycles, methods of transmission, habitat, infective and diagnostic stages of parasites.
- a 5 Demonstrate ultra-structure and molecular biology of different parasitic stages.
- a 6 Describe biology and metabolism of different parasites.
- a 7 Explain new update on host-parasite interaction, and the pathological factors mastering the parasitic harm to their hosts.
- a 8 Explain-host parasite interaction in opportunistic, nosocomial and zoonotic infections.
- a 9 Recognize clinical picture related to parasitic infection and the progress in diagnostic techniques used for detecting parasites.
- a 10 Develop and maintain basic knowledge for efficient consultation in diagnostic parasitology.
- a 11 Discuss the major groups of antiparasitic drugs, their method of application and what is new in this field.

### B. Intellectual skills

The postgraduate degree provides opportunities for candidates to achieve and demonstrate the following intellectual qualities:

- b1 Interpret the clinical and laboratory findings to develop the problem solving skills and reach the proper diagnosis.



- b2** Recommend methods for proper diagnosis of different parasitic problems and choose the optimal cost-effective test.
- b3** Compare between different lines of prevention of parasitic infection.
- b4** Design guidelines for a control program for a particular parasitic disease.
- b5** Stratify self-learning skills in data collection and group discussion.

### **C. Professional/practical skills**

The postgraduate degree provides opportunities for candidates to demonstrate the following professional/practical skills:

- c1** Identify the laboratory hazards and biosafety measures in Parasitology Laboratory and safety requirements for waste disposal.
- c2** Identify nosocomial and laboratory-acquired infection in Parasitology laboratory.
- c3** Apply quality assurance measures during examination of different samples e.g. blood, stool, soil, urine, etc.....
- c4** Demonstrate and perform methods for collection and preservation of different specimens.
- c5** Stratify and control the principles of examination of laboratory specimens (body fluids, excreta or infected tissues) using different preservatives and a range of appropriate techniques in the Parasitology laboratory (concentration and staining).
- c6** Demonstrate and perform methods for microscopic examination of stool specimens
- c7** Demonstrate and conduct methods for microscopic examination of stool specimens using different stains
- c8** Demonstrate and perform techniques used in stool culture:
- c9** Demonstrate and perform techniques used for stool ova count:
- c10** Diagnose and quantify different parasitic stages that may be recovered from stool, soil and urine samples, etc.....
- c11** Demonstrate and perform thin and thick blood film using different stains:
- c12** Demonstrate and perform techniques used in culture of protozoa.
- c13** Prepare and examine mounted slides and identify different parasites & mollusks, their different stages and body parts using microscope.
- c14** Demonstrate methods used in production of polyclonal antibodies in mammals.
- c13** Practice the currently used techniques in immuno-parasitological diagnosis:
- c14** Understand the rationale and the principals of:



- c15 Interpret on the results of different parasitological diagnostic methods.
- c16 Apply the principles of diagnosis, treatment and control of parasitic diseases.
- c17 Utilize suitable statistics and apply quality control and quality assurance procedures as demanded in research.

**D. Communication & Transferable skills**

The Postgraduate Degree provides the opportunity to demonstrate the following transferable skills:

- d1 Retrieve recent data from web sites and review the scientific literature on a research topic.
- d2 Manage time efficiently.
- d3 Work in a multidisciplinary care team to solve community parasitic problems.
- d4 Communicate effectively and respectfully with colleagues, supervisors and staff members
- d5 Able to react positively with health care professionals, national campaigns and health authorities as regards newly emergent parasitic diseases or outbreaks caused by parasites.
- d6 Apply presentation skills to present their performance.
- d7 Establish a concise scientific activity according to standard scientific thinking and integrity.

**Curriculum structure and contents.**

**a. Lectures (315 hours)**

Subjects	Lectures Hours	Total Teaching Hours
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<p><b>I. Helminthology: (module 1)</b></p> <p><b>Trematode infections:</b></p> <ul style="list-style-type: none"> <li>-Introduction &amp; General morphology of trematodes 4</li> <li>-Biology &amp; metabolism 4</li> <li>-Fasciolidae 4</li> <li>-Schistomatidae 4</li> <li>-Heterophyidae &amp; Opisthorchioidea 4</li> <li>-Paramphistomatoidae &amp; Clinostomatoidea 8</li> <li>&amp; Diplostomatidae</li> <li>-Strigeiformes 4</li> <li>-Echinostomatiformes 4</li> <li>-Plagiorchiiformes 4</li> </ul>		<b>120</b>
<p><b>Cestode infections:</b></p> <ul style="list-style-type: none"> <li>- Introduction to cestodes 5</li> <li>-Biology &amp; metabolism 5</li> <li>-Bothriocephaloidea &amp; Taeniidae 10</li> <li>-Hymenolepididae &amp; Dilepididae 10</li> <li>-Davaineidae &amp; Anoplocephalidae 5</li> <li>-Mesocestoididae &amp; Dioecocestidae &amp; Proteocephalata 5</li> <li>&amp;Tetraphyllidea &amp; Trypanorhyncha</li> </ul>		
<p><b>Nematode infections:</b></p> <ul style="list-style-type: none"> <li>-Phylum Nematoda: Form, Function, and Classification 3</li> <li>-Biology &amp; metabolism 3</li> <li>-Enoplida 3</li> <li>- Oxyrida 3</li> <li>-Ascaridida 3</li> <li>- Rhabditida 3</li> <li>- Ancylostomatida &amp; Strongylida 4</li> <li>- Trichostrongylida &amp; Metastrongyloidea 3</li> <li>- Dracunculoidea &amp; Filarioidea 3</li> <li>- Spirurina 3</li> <li>-Larva migrans 3</li> <li>-Nematomorpha &amp;Acanthocephala 3</li> <li>-Pentastomida: Tongue Worms &amp; Pentastomiasis 3</li> </ul>		



<p><b>II. Protozoa: (module 2)</b></p> <ul style="list-style-type: none"> <li>-Parasitic Protozoa: Form, Function, and Classification</li> <li>-Biology &amp; metabolism</li> <li>-Types of Reproduction&amp; division</li> <li>-Amebida</li> <li>-Schizopyrenida               <ul style="list-style-type: none"> <li>-Kinetoplasta: Trypanosomes and other Flagellated</li> </ul> </li> <li>Protozoa</li> <li>-Apicomplexa: Gregarines, Coccidia, Malaria Organisms and Piroplasm</li> <li>-Ciliophora</li> <li>-Microsporidia &amp; Myxozoa</li> <li>-Endosymbionts</li> </ul>	<p>10 10 10 10 10 10 10 10 10 10 10 10</p>	<p>100</p>
<p><b>III. Entomology: (module 3)</b></p> <ul style="list-style-type: none"> <li>- Arthropod: Classification &amp; General Form</li> <li>-Arthropod External Morphology</li> <li>-Development Host Specificity</li> <li>-Biology</li> <li>-Diptera, Flies               <ul style="list-style-type: none"> <li>Suborder: Nematocera</li> <li>Suborder: Brachycera</li> </ul> </li> <li>-Muscomorpha</li> <li>-Myiasis</li> <li>-Siphonaptera</li> <li>-Hemiptera</li> <li>-Phthiraptera</li> <li>-Dermaptera</li> <li>-Neuroptera</li> <li>-Lepidoptera</li> <li>-Coleoptera</li> <li>-Strepsiptera</li> <li>- Hymenoptera</li> <li>-Parasitic Arachnids</li> <li>-Parasitic Crustaceans</li> <li>-Wolbachia Bacteria&amp; Parasitoid Insects</li> <li>-Leeches</li> <li>- Control of Arthtopods</li> <li>-Genetic Control of Arthtopods</li> </ul>	<p>2 2 2 2 4 4 4 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2</p>	<p>50</p>



<p><b>IV. Malacology (module 4)</b>            Class Gastropoda            -General morphology &amp; anatomy            -Biology            -Prosobranchia spp.            -Pulmonata spp.            -Land snails            -Slugs            -Control of mollusks</p>	<p>4 4 5 5 4 4 4</p>	<p><b>30</b></p>
<p><b>IV. Nosocomial &amp; zoonosis</b>            -Zoonotic infections            -Nosocomial &amp; opportunistic infections</p>	<p>9 6</p>	<p><b>15</b></p>



Date	Title of the lecture	Lecturer's signature
	Introduction & General morphology of trematodes	
	Biology & metabolism	
	-Fasciolidae	
	-Schistomatidae	
	Heterophyidae & Opisthorchioidae	
	- Paramphistomatoidae & Clinostomatoides	
	Diplostomatidae	
	Strigeiformes	
	Echinostomatiformes	
	Plagiorchiformes	
	- Introduction to cestodes-Biology & metabolism	
	Bothriocephaloidea & Taeniidae	
	Hymenolepididae & Dilepididae	
	Davaineidae	
	Mesocestoididae	
	Dioecocestidae	
	Trypanorhyncha	
	Proteocephalata	
	Tetraphyllidea &	
	Anoplocephalidae	
	Phylum Nematoda: Form, Function, and Classification	
	-Biology & metabolism	
	Enoplida	
	- Oxyrida	
	Ascaridida	
	Rhabditida	



	Ancylostomatidea & Strongylidea	
	Trichostrongylidea & Metastrongyloidea	
	Dracunculoidea & Filarioidea	
	- Spirurina	
	Larva migrans	
	Nematomorpha & Acanthocephala	
	Pentastomida: Tongue Worms & Pentastomiasis	
	Parasitic Protozoa: Form, Function, and Classification	
	-Biology & metabolism	
	-Types of Reproduction & division	
	-Amebida	
	Schizopyrenida	
	Kinetoplasta: Trypanosomes and other Flagellated Protozoa	
	Apicomplexa: Gregarines, Coccidia, Malaria Organisms and Piroplasms	
	Ciliophora	
	Microsporidia & Myxozoa	
	Endosymbionts	
	Arthropod: Classification & General Form	
	-Arthropod External Morphology	
	Development Host Specificity	
	-Biology	
	Diptera, Flies	
	Suborder: Nematocera	
	Suborder: Brachycera	
	Muscomorpha	
	Myiasis	
	-Siphonaptera	



	Hemiptera	
	Phthiraptera	
	Dermaptera	
	Neuroptera	
	Lepidoptera	
	Coleoptera	
	Strepsiptera	
	Hymenoptera	
	Parasitic Arachnids	
	Parasitic Crustaceans	
	<i>Wolbachia</i> Bacteria& Parasitoid Insects	
	Leeches	
	Control of Arthtopods	
	Genetic Control of Arthtopods	
	Class Gastropoda	
	-General morphology & anatomy& Biology	
	Prosobranchia spp.	
	Pulmonata spp.	
	Land snails	
	Slugs	
	Control of mollusks	
	Zoonotic infections	
	Nosocomial & opportunistic infections	



## Section II:

# Slides' box preparation





### List of requirements (Slides' box preparation)

Slides' classification	Total number required (50)	No. of slides carried out	Supervisor's signature
<b>Protozoa</b>	<b>20</b>		
<b>Helminths</b>	<b>20</b>		
<b>Arthropode</b>	<b>10</b>		

### Slides' log

Protozoa			
N.	Parasite name	Date	Signature of supervisor
<u>1</u>			
<u>2</u>			
<u>3</u>			
<u>4</u>			
<u>5</u>			
<u>6</u>			
<u>7</u>			
<u>8</u>			



<u>9</u>			
<u>10</u>			
<u>11</u>			
<u>12</u>			
<u>13</u>			
<u>14</u>			
<u>15</u>			
<u>16</u>			
<u>17</u>			
<u>18</u>			
<u>19</u>			
<u>20</u>			

**Helminths**

N.	Parasite name	Preparation (staining)	Signature of supervisor
<u>1</u>			
<u>2</u>			
<u>3</u>			



<u>4</u>			
<u>5</u>			
<u>6</u>			
<u>7</u>			
<u>8</u>			
<u>9</u>			
<u>10</u>			
<u>11</u>			
<u>12</u>			
<u>13</u>			
<u>14</u>			
<u>15</u>			
<u>16</u>			
<u>17</u>			
<u>18</u>			
<u>19</u>			
<u>20</u>			



## Arthropode

N.	Parasite name	Preparation	Signature of supervisor
<u>1</u>			
<u>2</u>			
<u>3</u>			
<u>4</u>			
<u>5</u>			
<u>6</u>			
<u>7</u>			
<u>8</u>			
<u>9</u>			
<u>10</u>			



# **Section III:**

## **Procedures/operations**





### List of requirements

Name of the procedure	Total number required	Observer	Assistant	Independent
<b>Direct stool examination</b>	<b>20</b>			
<b>Concentration of stool by sedimentation / floatation</b>	<b>20</b>			
<b>Staining of stool</b>	<b>20</b>			
<b>Urine examination</b>	<b>10</b>			
<b>Blood films</b>	<b>20</b>			
<b>ELISA</b>	<b>5</b>			
<b>IHA</b>	<b>5</b>			



## Practical Procedures' log

<b>Direct stool examination</b>				
N.	Date	Examination findings	Level of participation	Signature of supervisor
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
<u>7</u>				
<u>8</u>				
<u>9</u>				
<u>10</u>				
<u>11</u>				
<u>12</u>				
<u>13</u>				



<u>14</u>				
<u>15</u>				
<u>16</u>				
<u>17</u>				
<u>18</u>				
<u>19</u>				
<u>20</u>				

**Concentration of stool by sedimentation / floatation**

N.	Date	Examination findings	Level of participation	Signature of supervisor
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
<u>7</u>				
<u>8</u>				



<u>9</u>				
<u>10</u>				
<u>11</u>				
<u>12</u>				
<u>13</u>				
<u>14</u>				
<u>15</u>				
<u>16</u>				
<u>17</u>				
<u>18</u>				
<u>19</u>				
<u>20</u>				

<b>Staining of stool</b>				
<b>N.</b>	<b>Date</b>	<b>Examination findings</b>	<b>Level of participation</b>	<b>Signature of supervisor</b>
<u>1</u>				
<u>2</u>				



<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
<u>7</u>				
<u>8</u>				
<u>9</u>				
<u>10</u>				
<u>11</u>				
<u>12</u>				
<u>13</u>				
<u>14</u>				
<u>15</u>				
<u>16</u>				
<u>17</u>				
<u>18</u>				
<u>19</u>				



<u>20</u>				
<b>Urine examination</b>				
N.	Date	Examination findings	Level of participation	Signature of supervisor
<u>1</u>				
<u>2</u>				
<u>3</u>				
<u>4</u>				
<u>5</u>				
<u>6</u>				
<u>7</u>				
<u>8</u>				
<u>9</u>				
<u>10</u>				

<b>Blood films</b>				
N.	Date	Examination findings	Level of participation	Signature of supervisor



<u>1</u>					
<u>2</u>					
<u>3</u>					
<u>4</u>					
<u>5</u>					
<u>6</u>					
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<u>8</u>					
<u>9</u>					
<u>10</u>					
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<u>14</u>					
<u>15</u>					
<u>16</u>					
<u>17</u>					



<u>18</u>					
<u>19</u>					
<u>20</u>					

**ELISA**

Date	finding	Level of participation	Signature of supervisor

**IHA**

Date	finding	Level of participation	Signature of supervisor



**Level of participation:**

Observer

Assistant

Independent



**Section IV:  
Seminars**











## 2- Performance

Topic	Date	Supervisor signature



# **Section VI:**

## **Student teaching sections.**















# Section VII:

**Scientific activities**

**(Conferences/workshops)**





### List of requirements

<b>Conferences</b>			
<b>Total number required</b>	<b>Attendance</b>	<b>Organization</b>	<b>Presentation</b>
<b>3</b>	<b>3</b>		<b>1 poster</b>
<b>Workshops</b>			
<b>Total number required</b>	<b>Attendance</b>	<b>Organization</b>	<b>Presentation</b>
<b>1</b>	<b>1</b>		

