



**The University of Jordan**

**Accreditation & Quality Assurance Center**

# **COURSE Syllabus**

1	Course title	Advanced Parasitology
2	Course number	0304767
3	Credit hours (theory, practical)	3
	Contact hours (theory, practical)	
4	Prerequisites/co-requisites	
5	Program title	Biological Sciences
6	Program code	
7	Awarding institution	University of Jordan
8	Faculty	Science
9	Department	Biology
10	Level of course	Master degree
11	Year of study and semester (s)	Second Semester 2016/2017
12	Final Qualification	M.Sc. in Biological Sciences
13	Other department (s) involved in teaching the course	none
14	Language of Instruction	English
15	Date of production/revision	2017

#### 16. Course Coordinator:

Ibrahim Mosleh, PhD  
 Office: 214 Biology building  
 Phone number: 22228  
 Email: i.mosleh@ju.edu.jo

#### 17. Other instructors:

None

#### 18. Course Description:

The course overviews the parasites and parasitism, host-parasite interactions, and a comprehensive review of the important parasites of humans and the diseases they cause. The main fields covered are:

- 1) Pathology and pathogenesis of parasitic infections.
- 2) Immunoparasitology with emphasis on the immunological aspects of parasitic infections, the parasite evasion mechanism, survival strategies adopted by parasites, and immunoprophylaxis.
- 3) Diagnosis of parasitic infections: Old and new approaches.
- 4) Molecular parasitology.

- 5) Chemotherapy of parasitic infections.
- 6) Control of parasitic infections.

The student must give a presentation and term papers within the scope of the major topics.

### 19. Course aims and outcomes:

#### A- Aims:

This course will enable students to explore and gain further understanding of parasitology through the investigation of different parasites that infect human.

Provide students with an advanced knowledge regarding parasitology.

**B- Intended Learning Outcomes (ILOs):** Upon successful completion of this course students will be able to ...

1. get a broad knowledge of the important parasites of human and their interaction with their hosts.
2. recognize the specific parasitic pathogens in relation to body system infections and in terms of their pathogenesis, transmission and diagnosis.
3. be familiar with important techniques of examining these parasites from clinical specimens.
4. have the skills of specimen collection, storage, transport, acceptability and processing procedures.
5. describe immunologic and serologic identification techniques, the prevention and control of significant parasites.
6. discuss and be familiar with new technology in current diagnosis of body system- parasitic diseases.
7. discuss the mechanisms used by the parasites to evade immune responses
8. understand the ways of treatments and control of the parasitic infections
9. to go into the molecular level to understand the parasite and its pathogenesis

### 20. Topic Outline and Schedule:

-Introduction:	
Parasitism, parasites, and parasitic infections	1 week
-Host-parasite interactions	2 weeks
-Pathogenesis of parasitic infections	2 weeks
-Mechanism of immunity to protozoal and helminthic infections with emphasis on:	2 weeks
Malaria	
Amebiasis	
Leishmaniasis	
Schistosomiasis	
Filariasis	
-Evasion of immune mechanisms and survival strategies of parasites with emphasis on:	2weeks
<i>Toxoplasma gondii</i>	
<i>Plasmodium</i>	
<i>Leishmania</i>	
<i>Entamoeba histolytica</i>	
-Immunoprophylaxis in parasitic infections (vaccination) with emphasis on:	2 weeks
Malaria vaccine	

*Schistosoma* vaccine

*Leishmania* vaccine

Other parasites

- Diagnosis of Parasitic infections 4 weeks  
 Old approaches: Microscopy, serology, and direct antigen detection  
 New approaches: Molecular based (classical PCR, RT-PCR, LAMP, Luminex xMAP technology, microarray, proteomics)  
 Advanced study of diagnosis of selected parasites
- Chemotherapy of parasitic infections and drug resistance 1week
- Molecular parasitology 1 week
- Prevention and control of parasitic infections 1 week

# Presentations and term papers within the scope of the major topics

**Grading:**

- Midterm Exam 30%
- Presentation and term paper 30%
- Final Exam 40%

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**Total 100%**

**Topics for the presentations** (within the scope of the major topics):

Advances in diagnostic parasitology: use of molecular probes (PCR)

Survival of *Leishmania* in professional phagocytes

*Entamoeba histolytica* virulence and virulence factors (extraintestinal strains)

Drug resistance to *E. histolytica*

Interaction of *E. histolytica* with host cells

*Cryptosporidium*: an emerging problem.

Interaction of *Plasmodium* with host cells

Antihelminthic drug resistance

Antileishmanial chemotherapy

Antigenic variation in *Leishmania*: A molecular approach

Antigenic variations in *Trypanosoma*

*Schistosoma* and urinary bladder cancer

**Vaccine projects:**

Malaria vaccine

*Trypanosoma* vaccine

*Schistosoma* vaccine

Vaccines to helminthes

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### 21. Teaching Methods and Assignments:

Development of ILOs is promoted through the following teaching and learning methods:

Interactive lecture using data show and overhead projector  
 Office hour discussions  
 Quizzes  
 Lab reports

### 22. Evaluation Methods and Course Requirements:

Opportunities to demonstrate achievement of the ILOs are provided through the following assessment methods and requirements:

Short answer questions during the lectures  
 Term paper  
 Presentation  
 Quizzes  
 Exams

### 23. Course Policies:

A- Attendance policies: Regular class attendance is expected, attendance by seating number.

B- Absences from exams and handing in assignments on time: Reporting a valid reason of absence is accepted.

C- Health and safety procedures: All students should comply with the university health and safety procedures

D- Honesty policy regarding cheating, plagiarism, misbehaviour: All students should comply with the university Honesty policy regarding cheating, plagiarism, misbehaviour

E- Grading policy: Depends on average

#### Grading:

-Midterm Exam	30%
-Presentation and term paper	30%
-Final Exam	40%

Total	100%
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**24. Required equipment:**

Available university services that support achievement in the course:

Data Show Projector, internet access

Posters of representing the life cycles of different parasites

**25. References:****Textbook:**

No textbook is required. Formal lectures are prepared from a large number of different types of references including books, review articles, and research articles.

**Reference books and websites:**

1. Franklin A. Neva and Harold W. Brown 2003. Basic Clinical Parasitology, 7th ed., Prentice Hall Int.
2. Animal Agents and Vectors of Human Diseases, 1985. Paul C. Beaver and Rodney C. Jung, 5th ed., Lea & Febiger
3. Google image demonstration parasitic stages and life cycles
4. Medline entrez

**26. Additional information:**

Name of Course Coordinator: Dr. Ibrahim Mosleh      Signature: ----- Date:

9/04/2017

Head of curriculum committee/Department: ----- Signature: -----

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Head of Department: .....      Signature: -----

Head of curriculum committee/Faculty: ----- Signature: -----

Dean: ----- -Signature: -----

Assurance

Copy to:  
Head of Department  
Assistant Dean for Quality

Course File