

**MEDICAL UNIVERSITY - PLOVDIV**  
**FACULTY OF MEDICINE**

**SYLLABUS**  
**IN**  
**EPIDEMIOLOGY, INFECTIOUS DISEASES,**  
**MEDICAL PARASITOLOGY AND**  
**TROPICAL MEDICINE**  
**(CYCLE OF MEDICAL PARASITOLOGY)**

**Approved by the Departmental Council on 31.01.2022**

**Confirmed by the Faculty Council - Protocol №7/13.07.2022**

# CYCLE OF MEDICAL PARASITOLOGY

## SYLLABUS

Discipline	Final exam/ semester	Auditorium classes				ECTS non- auditorium classes	ECTS total	Academic hours in years and semesters	
		Total	Lectures	Practices	ECTS			5 <sup>th</sup> year	
								IX	X
Medical Parasitology	X	41	26	15	5.0	3.2	8.2*	-	2/1

\*Credits for Epidemiology, Infectious Diseases, Medical Parasitology and Tropical Medicine

**DISCIPLINE:** Medical Parasitology

**TYPE OF DISCIPLINE ACCORDING TO THE UNIFORM STATE REQUIREMENTS:** Mandatory

**LEVEL OF QUALIFICATION:** Master degree /M/

**FORM OF TRAINING:** Lectures, practices

**YEARS OF TRAINING:** 5<sup>th</sup> year

**DURATION OF TRAINING:** 1 semester (X semester)

**ACADEMIC HOURS:** 26 hours of lectures, 15 hours of practices

**TECHNICAL EQUIPMENT APPLIED IN THE TRAINING:** Microscopes, permanent and temporary microscopic preparations, equipment used for serological tests, multimedia presentations

**FORMS OF EVALUATION:** Ongoing evaluation – oral examination, colloquia on different parts, tests; Final evaluation - test, written exam;

**ASPECTS OF EVALUATION CRITERIA:** Participation in discussions, evaluation of the tests;

**SEMESTER EXAM:** (joint exam with Epidemiology and Infectious Diseases)  
Yes /entry test, written exam/

**STATE EXAM:** No

**LECTURER:** Habilitated lecturer from the Department of Infectious Diseases, Parasitology and Tropical Medicine

**DEPARTMENT:** Infectious Diseases, Parasitology and Tropical Medicine, Section of Parasitology

### **ANNOTATION**

All clinical entities are to be presented based on the following algorithm – causative agent (morphology and life cycle), brief epidemiology (source of infection, infective form, mode of transmission), pathology and pathogenesis, clinical disease, complications, laboratory studies, parasitological diagnosis – materials and methods, differential diagnosis, treatment (medication, dosage, treatment regimen), prophylaxis.

### **BASIC AIMS OF THE DISCIPLINE:**

1. To present the modern theoretical knowledge of etiology, epidemiology, pathogenesis, clinical picture, laboratory tests, diagnosis, differential diagnosis, treatment and prevention of parasitic diseases.
2. To introduce students in practical skills of collecting and interpreting the data from a patient's medical history, physical examination and laboratory tests.
3. To introduce students in making a differential diagnosis and therapeutic plans.

### **EXPECTED RESULTS**

Upon completion of the training, students must have the following knowledge and skills:

1. To take a patient's medical history (history of travelling to an endemic region);
2. To be able to interpret the data from patients' physical examinations and laboratory tests;
3. To know the rules of collection, storage and transportation of biological materials (feces, blood, urine, cerebrospinal fluid, sputum) for parasitological examination;
4. To be able to make morphological diagnosis;
5. To know the principles of serological diagnosis;
6. To know the indications and contraindications for treatment of different parasitic diseases;
7. To know the main antiparasitic drugs;
8. In intestinal parasitic diseases with or without diarrhea:
  - to know the causative agents of intestinal parasitic infections;
  - to be able to examine permanent and temporary microscopic preparations in order to identify the causative agents;
  - to be able to do a transparent adhesive (cellophane) tape test to identify pinworm or pinworm eggs;
  - to be able to determine the different degrees of dehydration from clinical data;
  - to be able to make a differential diagnosis with other intestinal diseases and disorders;
  - to know the treatment of intestinal parasitic diseases;
9. In infections caused by blood or tissue parasites:
  - to be able to do a physical and neurological examination;
  - to be able to detect the signs of meningeal irritation in different age groups;
  - to know malaria diagnostic methods (preparation of thick and thin blood smears);
  - to be aware of trichinosis and artificial digestion;
  - to know the treatment of malaria, visceral leishmaniasis, cystic echinococcosis, trichinosis;

10. In parasitic diseases with rash or skin lesions:

- to be able to make an accurate and complete description of rash or skin lesions;
- to know types of tissue specimens and testing in cutaneous leishmaniasis;

## LECTURES

### **LECTURE №1 – 2 hours**

Introduction to clinical parasitology. Parasitism, parasites and hosts. Basic pathogenetic mechanisms. Classification of parasitic diseases. Amoebiasis (intestinal and extraintestinal). Diseases caused by free-living amoebae – naegleriasis, acanthamoebiasis.

### **LECTURE №2 – 2 hours**

Visceral leishmaniasis (Mediterranean type). Old World cutaneous leishmaniasis. Trichomoniasis. Giardiasis.

### **LECTURE №3 – 2 hours**

Malaria.

### **LECTURE №4 – 2 hours**

Balantidiasis. Toxoplasmosis (congenital and acquired). Opportunistic infections – pneumocystosis, cryptosporidiosis.

### **LECTURE №5 – 2 hours**

Taenia saginata (beef tapeworm) infection. Taenia solium (pork tapeworm) infection. Cysticercosis. Hymenolepiasis. Dipylidiasis. Diphyllbothriasis. Coenurosis. Cystic echinococcosis. Alveolar hydatid disease.

### **LECTURE №6 – 2 hours**

Fascioliasis. Dicrocoeliasis. Trichinosis.

### **LECTURE №7 – 2 hours**

Enterobiasis (pinworm infection). Ascariasis. Trichuriasis (whipworm infection). Strongyloidiasis. Trichostrongylidosis.

### **LECTURE №8 – 2 hours**

Rare nematode infections – dioctophymosis, gongylonematosis, tominxosis, hepaticoliasis, dirofilariasis. Toxocariasis (visceral larva migrans). Miasis. Arthropods - mosquitoes, phlebotomies, blood-sucking flies, bedbugs, fleas, ticks - pathogenic action, epidemiological role.

### **LECTURE №9 – 2 hours**

Introduction to tropical medicine. Parasitic diseases in the tropics. African trypanosomiasis (sleeping sickness). American trypanosomiasis (Chagas disease).

**LECTURE №10 – 2 hours**

Malaria in the tropics. Treatment of drug-resistant malaria. WHO's strategy for malaria elimination.

**LECTURE №11 – 2 hours**

Visceral leishmaniasis (Indian type, South-American type). New World cutaneous leishmaniasis. Mucocutaneous leishmaniasis.

**LECTURE №12 – 2 hours**

Sparganosis. Opisthorchiasis. Clonorchiasis. Fasciolopsiasis. Metagonimiasis. Heterophyiasis. Nanophyetiasis. Paragonimiasis. Schistosomiasis.

**LECTURE №13 – 2 hours**

Hookworm infections – ancylostomiasis, necatoriasis. Strongyloidiasis. Dracunculiasis. Filariasis – wuchereriasis, brugiasis, loiasis, onchocerciasis, mansonellosis, acantoheylonematosi (dipetalonematosi).

**PRACTICES****PRACTICAL №1 – 2 hours**

Introduction to clinical parasitology. Diagnostic approach to patients with suspected parasitic diseases. History taking and physical examination of patients with parasitic diseases. Basic laboratory methods in the diagnosis of parasitic infections. Structure and organization of parasitology laboratories. Personal safety standards. Registration and control of parasitic diseases. Clinical follow-up of patients with parasitic diseases. Control and surveillance of imported parasitic infections.

**PRACTICAL №2 – 2 hours**

Protozoan infection – visceral leishmaniasis (Mediterranean type). Intestinal protozoan infections – giardiasis, amoebiasis. Protozoan infections associated with immunodeficiency – toxoplasmosis, pneumocystosis, cryptosporidiosis. Naegleriasis, acanthamoebiasis.

**PRACTICAL №3 – 2 hours**

Malaria.

**PRACTICAL №4 – 2 hours**

Cestode infections – taeniasis (pork tapeworm infection), cysticercosis, taenia saginata (beef tapeworm) infection, hymenolepiasis, diphyllbothriasis (fish tapeworm infection), cystic echinococcosis (hydatid disease), alveolar echinococcosis. Trematode infections – fascioliasis, dicrocoeliasis.

### **PRACTICAL №5 – 2 hours**

Cutaneous leishmaniasis, mucocutaneous leishmaniasis. African trypanosomiasis (sleeping sickness), American trypanosomiasis (Chagas disease). Opportunistic infections – cyclosporiasis, isosporiasis, microsporidiosis, sarcocystosis.

### **PRACTICAL №6 – 2 hours**

Trematode infections – paragonimiasis, clonorchiasis, opistorchiasis, fasciolopsiasis, metagonimiasis, schistosomiasis. Nematode infections – hookworm infections (ancylostomiasis, necatoriasis), filariasis (wuchereriasis, brugiasis, onchocerciasis, loiasis).

### **PRACTICAL №7 – 2 hours**

Nematode infections – enterobiasis (pinworm infection), ascariasis, trichuriasis (whipworm infection), trichinosis, strongyloidiasis (threadworm infection), toxocariasis (visceral larva migrans).

### **PRACTICAL №8 – 1 hours**

Ectoparasites.

## **BIBLIOGRAPHY**

1. Paniker's Textbook of Medical Parasitology, 8<sup>th</sup> ed., 2018. Revised and edited by Sougata Ghosh. Jaypee Brothers Medical Publishers (P) Ltd.
2. Essentials of Medical Parasitology, 1<sup>st</sup> ed., 2014. Apurba Sankar Sastry, Sandhya Bhat K. Jaypee Brothers Medical Publishers (P) Ltd.
3. Human parasitology, 4<sup>th</sup> ed., 2013. Burton J. Bogitsh, Clint E. Carter, Thomas N. Oeltmann. Elsevier.
4. Atlas of Medical Parasitology, 1<sup>st</sup> ed., 1996. Shiba Kumar Rai, Shoji Uga, Nobumasa Kataoka, Takeo Matsumira. Kyokuseisya Co.,Ltd.
5. Basic laboratory methods in medical parasitology, 1991. World Health Organization, Geneva.
6. Centers for Disease Control and Preventions. [www.cdc.gov](http://www.cdc.gov).
7. World Health Organization. [www.who.int](http://www.who.int).

## **CONSPECTUS**

### **MEDICAL PARASITOLOGY**

Medical students 5<sup>th</sup> year

### **LOCAL PARASITIC INFECTIONS**

1. Tertian malaria – life cycle, clinical disease, complications, diagnosis and treatment
2. Quartan malaria – life cycle, clinical disease, complications, diagnosis and treatment
3. Visceral leishmaniasis – Mediterranean type

4. Naegleriasis, Acanthamoebiasis
5. Trichomoniasis
6. Giardiasis
7. Cryptosporidiosis
8. Toxoplasmosis
9. Pneumocystosis
10. Balantidiasis
11. Enterobiasis (pinworm infection)
12. Ascariasis
13. Trichuriasis (whipworm infection)
14. Trichinosis
15. Toxocariasis (visceral larva migrans)
16. Taeniasis (pork tapeworm infection). Cysticercosis
17. Taeniarhynchosis (beef tapeworm infection)
18. Hymenolepiasis (dwarf tapeworm infection)
19. Diphyllbothriasis (fish tapeworm infection)
20. Cystic echinococcosis (hydatid disease)
21. Alveolar echinococcosis (alveococcosis)
22. Fascioliasis (liver fluke disease). Dicrocoeliasis

### **TROPICAL PARASITIC INFECTIONS**

1. Tropical malaria – life cycle, clinical disease, complications, diagnosis and treatment
2. Ovale malaria – life cycle, clinical disease, complications, diagnosis and treatment
3. Amoebiasis – intestinal and extraintestinal
4. Visceral leishmaniasis – Indian type
5. Visceral leishmaniasis – South-American type
6. Cutaneous leishmaniasis
7. Mucocutaneous leishmaniasis
8. African trypanosomiasis (sleeping sickness)
9. American trypanosomiasis (Chagas disease)
10. Hookworm infections – ancylostomiasis and necatoriasis
11. Strongyloidiasis
12. Filariasis – wuchereriasis, brugiasis
13. Loiasis
14. Onchocerciasis
15. Opisthorchiasis, clonorchiasis
16. Fasciolopsiasis, metagonimiasis, heterophyiasis
17. Paragonimiasis
18. Urogenital schistosomiasis
19. Intestinal schistosomiasis
20. Japanese schistosomiasis