

Ministry of Higher Education and Scientific research



**Department of Medical Laboratory Technology**

**College of Erbil Health Technical College**

**University of Erbil Polytechnic University**

**Subject: protozoology**

**Course Book: second stage (year 2) Semester: 4**

**Lecturer's name:** Dr. Hemdad Hawez Mawlood (PhD in Medical and Molecular parasitology and Mrs Hawri Hawar Muhammad Msc in Medical Parasitology)

**Academic Year: 2022-2023**

## Course Book

1. Course name	Protozoology
2. Lecturer in charge	Dr.Hemdad Hawez Mawlood
3. Department/ College	MLT/Erbil Health Technical College
4. Contact	E-mail: hemdad.mawlood@epu.edu.iq Tel: 009647504489480
5. Time (in hours) per week	Theory: 2 Practical: 3
6. Office hours	11 hours
7. Course code	
8. Teacher's academic profile	<p><b>Currently</b> Ph. D in Molecular Parasitology between University of zakho (Kurdistan)/Tennessee State University(USA) and University of Tennessee at Knoxville(USA).</p> <p><b>From</b> 10/2004 to 2/2007 Master in Medical Parasitology University of Alqadisiya (South of Iraq).</p> <p><b>From</b> 10/1994 to 7/1998 Bachelor of Science in Biology from University of Salahaddin.</p> <p><b>From</b> 2017 –till now lecturing Clinical Parasitology for second grade in MLT Dep/Erbil Health Technical college.</p> <p><b>From</b> 10/2012 to 07/2014 lecturing Medical parasitology for second grade in Erbil Medical Technology Institute Erbil, Kurdistan <b>and</b> Researching for PhD at University of Zakho.</p> <p><b>From</b> 11/2014 to 5/2015 researching and study in Tennessee State University and Southern Hills Medical Centres in United states of America.</p> <p><b>From</b> 3/2016 to 6/2016 researching and training PCR-RFLP Technique for genotyping; Mice injection and cell culture for <i>T. gondii</i> at University of Tennessee at Knoxville/USA</p> <p><b>From</b> 10/ 2010 to 10/2012 researching and working as MICROBIOLOGIST 2 Certified at Tennessee Health Department Laboratory Service/USA for following issues</p> <p>1. Surveillance for the confirmation of: <i>Streptococcus pnunoniae</i>, <i>Haemophilus influenza and typing</i>, <i>Neisseria meningitides</i> and grouping, <i>Streptococcus pyogenes</i> (Group A</p>

	<p><i>Streptococci</i>) and <i>Staphylococcus aureus</i>.</p> <p>2.Screened for sexually transmitted diseases by Nucleic Acid Amplification Techniques by Genprobe; specifically, <i>Chlamydia trachomatis</i> and <i>Neisseria gonorrhoeae</i>.</p> <p>3.detected microorganisms in water samples and wastewater, the methods were performed by Environmental Protection Agency (EPA). the following organism were detected: <i>Escherichia coli</i>, <i>Fecal coliform</i>, <i>Enterococcus species</i>, <i>Heterotrophic bacteria</i>, <i>Cryptosporidium</i> and <i>Giardia lumbria</i></p>
<p><b>9. Keywords</b></p>	<p>Common parasites in Kurdistan , <i>Protozoa parasites</i>, <i>worms</i>,<i>Ectoparasite</i></p>
<p><b>10. Course overview:</b> I Explain the view of course by following points:</p> <p>1.parasitology classes it is important for each student of our department because in future when the student graduated in college and get Bachelor’s degree in Medical Laboratory Technology he or she doesn’t have chance to find out the job without parasitic diagnosis skills.</p> <p>2.The principle of relation between parasite and hosts it is a major part of this classes especially human beings because human it has considered an intermediate host of many parasites.</p> <p>3. during the course student should be understood the major type of protozoa parasites and worms especially all parasites which are available in Kurdistan, also should be know the type of hosts and mechanism of pathogenicity of each parasite.</p> <p>4.Diagnostic of parasites it is topic of each subjects and follow up new techniques for diagnostic of parasites especially molecular technique and genotyping of parasites.</p> <p>5.After graduation all students just need it minor review of techniques in general hospitals and private labs.</p>	
<p><b>11. Course objective:</b> During Medical parasitology classes student, they learnt and earned knowledge of:</p> <p>1.the life cycle, lab diagnostic, pathogenicity, treatment infective stage, intermediate and final host of most protozoa parasites.</p> <p>2. life cycle, lab diagnostic, number of intermediate hosts, final host, and treatment of each cestoda, Nematode and other type of parasite worms</p> <p>3.diffrent between Ectoparasits and endoparasites and pathogenicity of Ectoparasites with the life cycle and diagnostic of Ectoparasites in Kurdistan region/Iraq</p>	
<p><b>12. Student's obligation</b> For each student is obligated to know:</p> <p>1.draw and label all stages of parasites in lab.</p> <p>2.bring fresh samples of blood, urine, sputum and stool to lab. for diagnostic common parasites in Erbil such as <i>Giardia lumbria</i> and <i>Entamoeba histolytica</i> in stool, <i>Plasmodium sp</i> in blood, <i>Trichomonas vaginalis</i> in urine.</p> <p>3.Attending all students in theory and practical classes are obligated</p>	

### **13. Forms of teaching**

Updating lectures by Power points, using white board during explanation like life cycle and scientific name of parasites also practical parasite book it be available in lab to see image of each parasites and compare with the parasites in microscope

### **14. Assessment scheme**

Each lecture especially practical lecture the quiz is requirement in next week and monthly seminar is requirement with the scores. The seminar is run by two or three students. Also, monthly and final semester exams are required.

### **15. Student learning outcome:**

The outcome of this learning are:

1. students know how diagnosis most and common parasites by different techniques especially immunology and molecular techniques both of techniques available in private labs.
2. Students know what type of samples used for detecting parasites and using concentration method to detection ova of worms from stool.
3. during detecting parasites in fresh samples. preparation and fixed those parasites in slide by Canada balsam for keeping those slide in parasitology lab for next stage students.
4. using Realtime –PCR for detecting common parasites in clinical lab like *T. gondii*, *E. histolytica*, *Giardia lamblia*...etc.

### **16. Course Reading List and References:**

▪ Using diagram of life cycles from CDC (centre of control disease and control) website and using those books below:

1. Elizabeth A. Zeibig (2013.) Clinical Parasitology a Practical Approach 2<sup>nd</sup> edition. Elsevier St. Louis, Missouri, USA.
2. John W. Ridley. (2012). Parasitology for Medical and Clinical Laboratory Professionals. Delmar, Cengage Learning, USA.
3. Larry, R.; John, J and Steve, N (2013). Foundations of Parasitology .9<sup>edition</sup> McGraw Hill. Florida USA.
4. Using different Journals about medical parasitology such as: Journal of Bacteriology & Parasitology, Applied parasitology, Experimental parasitology, Parasitology international, Korean Journal of parasitology and European Journal of Parasitology with other international Journals.

<b>17. The Topics and No. of Lectures</b>	<b>Lecturer's name (2hrs.)</b>
<p>1.Parasitic diseases continue to be a <b>major public health</b> problem all over the world with associated <b>high degree of mortality and morbidity</b></p> <p>2.Host and type of parasite and type of relation between two organism and source of parasite infection,</p> <p>3.explain portal to entrance the parasites to human bodies.</p> <p>4. A parasite may live in or on the tissues of its host without causing evident harm. However, in majority of cases the parasite has the capacity to produce damage.</p> <p>5. Immunological protection against parasitic infections is much less efficient than it is against bacterial and viral infections.</p> <p>6.Explain type of samples and lab techniques for detecting stage of parasites such as ova of worms, Trophozoite and cyst of protozoa parasites.</p> <p>7.Explain method of prevention and medicines against parasite</p> <p>8.Explain all phylum of protozoa parasites such as: Sarcocystophora, Apicomplexa and ciliophora.</p> <p>9.Explain all Amoeba of intestine and different between them.explain common flagellate's parasites like Giardia lamblia, Trichomonas vaginalis, Chilomastix mesnili .explain Balantidium coli only parasite related to ciliophora</p> <p>12.Explain all type of Trypanosoma and Leishmania ,Explain all type of <i>plasmodium sp</i></p>	<p>Introduction of Protozoology</p> <p>Define of parasitology and type parasite and hosts</p> <p>How parasite enter the body?</p> <p>Pathogenicity of protozoa</p> <p>Immunity of protozoa</p> <p><b>Mid term</b> Laboratory diagnosis of protozoa</p> <p>Treatment and prevention of protozoa infection</p> <p>Taxonomy of protozoa</p> <p>Intestinal protozoa and mastigophora</p> <p>Ciliophora</p> <p>Haemoflagellates</p> <p>Apicomplexa</p> <p><b>Final exam</b></p>

<b>18. Practical Topics</b>	Lecturer's name 3 hrs.
1.Lab requirements and define some terms related with parasitology lab and type of samples for detecting parasites.	Introduction of parasitology
2.Describe morphology of cyst and trophozoite, infective stage and lab diagnosis and show slide to student of both stage	Entamoeba histolytica
3.Describe morphology of cyst and trophozoite, infective stage and lab diagnosis and illustrated both stages by slide then differentiation with <i>E. histolytica</i> .	Entamoeba coli (non-pathogenic)
4.Explian other amoebas with the stages and illustrated each one by slide.	Other Amoebas
5. Describe morphology of cyst and trophozoite, infective stage and lab diagnosis and show slide to student of both stage.	Giardia lamblia
6.Explian Direct method (General Stool Examination) How fill out the form of GSE in hospitals and private labs. Flotation method with the procedure Sedimentation method	Fresh stool sample by PVA Concentration method Concentration method
7.Trpanosoma species, morphology of each genus then illustrated by slides. and Lishmania spices, morphology of each genus then illustrated by slides.	Haemoflagellata
11.Describe morphology of cyst and trophozoite, infective stage, lab diagnosis and show slide to student of both stage	Balantidium coli
12.Explian GUE and vaginal swab for detecting <i>Trichomonas vaginalis</i> .	Final exam

<b>19. Examinations:</b> <b>1. Compositional:</b> In this type of exam the questions usually starts with Explain how, What are the reasons for...?, Why...?, How....? With their typical answers Examples should be provided <b>2. True or false type of exams:</b>  In this type of exam a short sentence about a specific subject will be provided, and then students will comment on the trueness or falseness of this particular sentence. Examples should be provided <b>3. Multiple choices:</b> In this type of exam there will be a number of phrases next or below a statement, students will match the correct phrase. Examples should be provided.	
<b>20. Extra notes:</b> Here the lecturer shall write any note or comment that is not covered in this template and he/she wishes to enrich the course book with his/her valuable remarks.	
<b>21. Peer review</b>	<b>پیداچوونہوہی ھاوہل</b>
This course book has to be reviewed and signed by a peer. The peer approves the contents of your course book by writing few sentences in this section. (A peer is person who has enough knowledge about the subject you are teaching, he/she has to be a professor, assistant professor, a lecturer or an expert in the field of your subject). ئەم کۆرسبووکە دەبیت لەلایەن ھاوہلیکی ئەکادیمیەوہ سەیر بکریت و ناوہرۆکی بابەتەکانی کۆرسەکە پەسەند بکات و جەند وشەییەک بنووسیت لەسەر شیاوی ناوہرۆکی کۆرسەکە و واژووی لەسەر بکات. ھاوہل ئەو کەسەییە کە زانیاری ھەبیت لەسەر کۆرسەکە و دەبیت پلەمی زانستی لە مامۆستا کەمتر نەبیت.	

Review by:

Assistant prof. Qaraman Kh.Mama

Biology Dep.College of science /Salahaddin University