**Department :** **Clinical Laboratory Sciences**

**Course Number : CLS 412**

**Course Title : Medical Parasitology**

**Credit Hours : 3 + 1 = 4**

**Course Description:**

This course deals with the classification, morphological characteristics, life cycles, pathogenicity, epidemiology of parasites, namely:

Protozoa- pathogenic and non-pathogenic amoebae,free living pathogenic amoebae, intestinal and urogenital flagellates, blood and tissue flagellates, ciliates, malarial parasites and other coccidia.

Helminths- Cestodes (pseudophyllidea and cyclophyllidea), Nematodes (intestinal and tissue worms), Trematodes (Intestinal,hepatic and lung flukes).

The clinical presentation of the diseases caused by these parasites will be fully discussed, as well as their transmission, prevention and control, and laboratory diagnosis.

**CLS 412: Lectures Outline**

**Weeks Subjects**

1. Introduction to Parasitology - parasites and parasitism,

parasitic infections and diseases

The Protozoa: classification and structure of Protozoa

Of medical importance

2. Amoebae: Pathogenic (dysentery) amoeba

Entamoeba histolytica

Non-pathogenic amoebae: Entamoeba coli

Endolimax nana, Iodameba butschlii

Pathogenic free-living amoeba: Naegleria fowleri

Acanthamoeba sp

3. Intestinal and urogenital flagellates: Giardia sp.

Trichomonas sp.

Intestinal ciliates: Balantidium coli

4. Blood and tissues flagellates: Leishmania sp.

Trichomonas sp

5. Malaria Parasites : Plasmodium sp

Coccidia: Toxoplasma sp.

6. Coccidia contd...: Isospora, Sarcocystis

Cryptosporidium

7. Introduction to Cestodes: Pseudophyllidean tapeworm-

Diphyllobothrium latum

Cyclophyllidean tapeworm: T.saginata, T.solium, T.multiceps, Hymenolepis nana, Diphyllidium caninum,

Echinococcus granulosus.

Larval cestodes : cysticercus, hydatid cyst,

coenurus, plerocercoid

8. Introduction to Nematodes (Nematoda)

Intestinal worms:Ascaris sp.,Trichuris sp

Enterobius sp

9. Hookworm, Strogyloides sp

Tissuue worms: Filariae - Wuchereria sp, Brugia , Loaloa, Onchocereca, Dracunculus sp., -Larva migrans

10. Introduction to Trematodes - Intestinal flukes: F. buski, H. heterophyses, M. yokogawi

Hepatic flukes: F. hepatica, C. sinensis

11. Hepatic flukes contd… Opisthorchis, D. dendriticum

Pulmonary flukes: Paragonimus sp.

12. Indirect evidence of parasitic infection

**CLS 412: Laboratory Schedule**

**Weeks Subjects**

1. Introduction: Safety in the laboratory, Care of Instruments

Demonstration on the use of microscope, the different types of specimens examined, collection methods and materials.

2. A. Demonstration of microtitre plates

B. Demonstration of parasites. Draw and label

Protozoa: Amoebae – Entamoebae histolytica

Entamoeba coli, Iodamoeba butschlii, Endolimax nana

Pictures of Pathogenic free-living amoebae: Naegleria sp. Acanthamoebae sp.

3. A. Repeat of previous week parasites demonstrated

B. Protozoa; Intestinal flagellates- Giardia intestinalis

Trichomonas hominis

Ciliates - Balantidium coli

4. A. Repeat: Intestinal flagellates, Ciliates

B. Haemoflagellates: Leishmania sp., Trypanosomes

C. Demonstration : stool examination

5. A. Haemoflagellates continued

B. Coccidia: Malaria parasites (Plasmodium sp),

Toxoxplasma sp, --Isospora sp, --Cryptosporidium sp

C. Stains: Giemsa, Leishman, Methylene blue & Mayers haemalum

D. PRACTICAL QUIZ 1

E. Examination of stool specimens - students

6. A. Coccidia cont…

B. Examination of stool specimens - students

C. Practical Pamphlet - Dr. Bammeke

7. A. Entomology: Demonstration of some insects of medical importance:Musca domestica, Phlebotomus sp

mosquitoes

B. Demonstration : collection of blood specimens. Students to practice staining methods using Giemsa and Leishman stains

8. A. Helminths: Nematodes: Ascaris lumbricoides

Trichuris trichuria, Enterobius vermicularis

B. Entomology: repeat of previous week

C. Methods: Concentration of stool specimens.

9. A. Nematodes continued – reapeat of previous week

B. Hookworms, Strongyloides stercoralis, Dracunculus

medinensis, Filariae, Intermediate host - Cyclops

C. Examination of stool specimens by students

D. PRACTICAL QUIZ 2

10. A. Nematodes continued repeat of previous week

B. Helminths :Cestodes - Pseudophyllidean worm- Diphyllobotrium latum, Cyclophyllidean worm - Taenia saginata. Taenia solium, Echinococcus granulosus Hymenolepis nana

C. Examination of stool specimens by students

11. A. Cestodes continued,repeat of previous week

B. Helminths: Trematodes - Fasciolopsis buski. Fasciolopsis hepatica, Paragonimus sp

Schistosomes & The water snail intermediate hosts

12. A Trematodes continued,repeat of previous week.

B. Entomology - Glossina sp, Simulium sp. Flea.

C. UNKNOWN TEST

13. **Revision**

14. **Final Practical Examination**