	KULLIYYAH OF MEDICINE & HEALTH SCIENCES
Course/Course Code	Medical Parasitology/ PPB62303
Topic	Parasitology Practical 2: Intestinal Protozoa
Year/Semester/Session	2 (Cohort 5) / 3 / 2018 (3)
Date	
Time	
Student's Name/ ID	
Lecturer's Name	Dr. Lee Ii Li

At the end of the practical session, students should be able to:

TLO No	Topic Learning Outcome (TLO)	Course Learning Outcome (CLO)
1	Identify intestinal protozoa by stages and their distinctive morphological features	5

References	1. Franklin A.N. & Harold W. (1998). **Basic and Clinical Parasitology** (6th Edition) New York Prentice Hall.
	2. Viqar, Z., & Loh, A.K. (1996) **Handbook of Medical Parasitology** (3rd Edition).
	3. Mak, J.W. & Choong, M.F. (2012). **Atlas of Medically Important Parasites** (3rd Edition) UY Printers.

Introduction:

Diagnosis of intestinal protozoa infections is mainly based on the identification of parasitic stages in stool samples. Thus, it is important for students to have knowledge of collecting diagnostic stages of protozoa and identifying the parasites based on morphology of the parasites. Human intestine may be infected with both pathogenic and non-pathogenic protozoa. Hence it is essential for the students to be able to differentiate pathogenic from non-pathogenic protozoa based on characteristics of the organisms.

Principle:

Identification is based on the morphology of stained parasites.

Material/Reagents Preparation:

Materials:

1. Protozoa stained slides
2. Microscope
3. Lens paper

Procedures:

1. Observed the prepared slides of parasites.
2. Draw and label the morphological features of the parasites.

ACTIVITIES

TLO1:	**Identify intestinal protozoa by stages and their distinctive morphological features**

	Description on intestinal protozoa		Morphology
	AMOEBA		
1.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Entamoeba histolytica* Trophozoite No permanent body shape, pseudopodium, nucleus Direct smear, rectal biopsy, mucosal scraping	
2.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Entamoeba histolytica* Cyst Spherical, thick wall, 1 – 4 nuclei Direct smear	
3.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Blastocystis hominis* Cyst Cell wall with a rim of cytoplasm, large membrane-bound cell body Direct smear	
4.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Entamoeba coli* Cyst Spherical, thick wall, 8 nuclei Direct smear	
5.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Iodamoeba butschlii* Cyst One usually eccentrally-placed nucleus, large glycogen vacuole Direct smear	

6.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Iodamoeba butschlii* Trophozoite Nucleus with large karyosome, cytoplasm with vacuoles of ingested bacteria/ debris Direct smear	
7.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Giardia intestinalis* Trophozoite Oval or pear-shaped, 2 prominent nuclei Direct smear, duodenal aspirate	
8.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Giardia intestinalis* Cyst Oval, 4 nuclei and remnants of axostyle Direct smear, duodenal aspirate	
9.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Chilomastrix mesnili* Trophozoite Pear-shaped, 1 large nucleus, 3 flagella, distinct oral groove (cytostome) Direct smear	
10.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Chilomastrix mesnili* Cyst One large nucleus, lemon-shaped with side knob, cytostome with a curved shepherds crook fibril Direct smear	
11.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Dientamoeba fragilis* Trophozoite Present only as trophozoites, 1 – 3 nuclei, cytoplasm is usually vacuolated and may contain ingested debris Direct smear	

CILIATE			
12.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Balantidium coli* Trophozoite Covered by cilia, has kidney-shaped macronucleus Direct smear	
SPOROZOA - COCCIDIA			
13.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Isospora belli* Oocyst Thick wall, contains 2 sporocysts Direct smear, duodenal aspirates, intestinal biopsy	
14.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Cryptosporidium* sp. Oocyst Size: 4-5µm, red-stained oocysts against blue-green background Direct smear, Ziehl-Neelsen staining, duodenal aspirate	
SPOROZOAN - MICROSPORIDIA			
15.	**Example** **Stage** **Feature** **Diagnostic Techniques**	*Microsporidium* sp. Spore Size: 1-2µm Direct smear, gram-chromotrope Kinyoun staining, duodenal aspirate	