

Current description of Medical Parasitology (MOOC).

Short description

This course is designed to provide basic knowledge on the life cycle, habitat, mode of transmission, the medical importance of the parasites, physiological effects of parasites and pathological conditions related to parasites which will enable you to manage parasitic disease. Medical parasitology is a specialized branch of science dedicated to the study of parasites that infect humans and cause diseases. It focuses on understanding the life cycles, transmission methods, clinical effects, and control measures associated with these parasites. Within this field, various types of parasites are investigated, including single-celled protozoa, multicellular helminths (worms), and parasites transmitted by arthropods. Medical parasitologists examine how these organisms interact with the human body, diagnose infections using various techniques, and contribute to epidemiological studies that guide public health interventions. Additionally, they play a vital role in research and innovation to combat parasitic diseases and improve healthcare outcomes.

Long description

The course will equip students with knowledge about the life cycle, habitat, mode of transmission, the medical importance of the parasites, physiological effects of parasites and pathological conditions related to parasites which will help the students to be able to apply knowledge of parasites in the management of parasitic diseases. Medical parasitology is a specialized branch of parasitology that focuses on the study of parasites that infect humans and cause diseases. It plays a crucial role in understanding, diagnosing, and managing parasitic infections that affect human health. This field encompasses a wide range of parasites, including protozoa, helminths, and arthropods, all of which can have significant impacts on the well-being of individuals and populations.

1. **Scope and Importance:** Medical parasitology is the scientific study of parasites that infect humans, their life cycles, transmission, pathology, epidemiology, and control. Parasites are organisms that live on or inside other organisms (hosts) and derive their nutrients at the expense of the host. They can cause a variety of diseases, ranging from mild discomfort to life-threatening conditions, making medical parasitology a critical field of study in healthcare and public health.
2. **Types of Parasites:** Medical parasitology deals with three main groups of parasites:
Protozoa: Which are single-celled organisms, some of which are responsible for diseases like malaria, amoebiasis, and sleeping sickness. Helminths: Helminths are multicellular worms, including nematodes (roundworms), trematodes (flukes), and cestodes (tapeworms). Infections with helminths can lead to conditions such as intestinal worms, schistosomiasis, and cysticercosis. Arthropods: Certain insects and arachnids act as vectors for parasitic diseases. Examples include mosquitoes transmitting malaria and ticks transmitting Lyme disease.
3. **Life Cycles and Transmission:** Understanding the life cycles of parasites is crucial for diagnosing and preventing infections. Parasites often have complex life cycles that involve different stages and hosts. Knowledge of how parasites are transmitted from one host to another is essential in devising control measures.

4. **Pathology and Clinical Manifestations:** You study the impact of parasites on the human body. Parasitic infections can lead to a wide range of symptoms, depending on the type of parasite and the host's immune response. Some infections are asymptomatic, while others can cause severe illness and even death.
5. **Diagnosis:** Accurate diagnosis is essential for effective treatment and control of parasitic infections. Medical parasitologists develop and implement various diagnostic techniques, including microscopy, serological tests, molecular methods (PCR), and imaging techniques like ultrasound and endoscopy.
6. **Epidemiology:** Epidemiology is a key aspect of medical parasitology, involving the study of how parasites spread within populations. This includes tracking the incidence and prevalence of parasitic diseases, identifying risk factors, and understanding the dynamics of disease transmission. Epidemiological data guides public health interventions.
7. **Treatment and Control:** You collaborate with healthcare professionals to develop treatment protocols and control strategies. Treatment typically involves antiparasitic drugs, while control measures may include vector control, sanitation improvements, and health education.
8. **Public Health Impact:** Parasitic infections have a significant impact on public health, particularly in developing countries. Medical parasitologists contribute to efforts aimed at reducing the burden of parasitic diseases, which often disproportionately affect marginalized communities.
9. **Research and Innovation:** Continuous research in medical parasitology is essential to understand evolving parasite-host interactions, drug resistance, and the development of new diagnostic tools and therapies. This field is constantly evolving as new technologies and insights emerge.

In conclusion, medical parasitology is a multidisciplinary field that plays a critical role in safeguarding human health. By studying parasites, their life cycles, transmission, and impact on human populations, medical parasitologists contribute to the development of effective prevention, diagnosis, and treatment strategies to combat parasitic diseases and improve the overall well-being of individuals and communities worldwide.

Scenario outline trailer

Describe why people should take the course

Studying medical parasitology is very important as parasitic diseases are currently considered a serious public health problem worldwide, of course with more severe consequences in countries with less economic development, our country is also included in countries with less economic development so it is very important to take this course as medical parasitology is the science which deals with parasitism, means the relationship between parasite, host and environment, this course of medical parasitology will help learners to understand the characteristics of the parasites, the types of hosts they infect, the effects of their infection which will help in the decision of the ways to fight the parasitic diseases. So when this course is taken it will help in the protection of healthy people and curative treatment of parasitic diseases.

Who has what role in the light of bringing the message above?

Facilitators in the parasitology department from the School of Medicine in collaboration with the General Nursing department from the School of Nursing and Midwifery at the University of Rwanda and referral hospitals will bring their experience and expertise to facilitate the learning of this course.

Scenario outline MOOC

Introducing the core of the MOOC

Welcome to the Course by the Course Leaders

Dear participants, Warm welcome to this course” **medical parasitology**”.
This course is designed to enable you to protect healthy people for parasitosis and to provide care to patients with parasitic diseases.

Learning outcomes

At the end of this course , you will be able to:

1. Describe the life cycle, habitat, mode of transmission, and medical importance of the parasites
2. Explain the physiological effects of parasites and pathological conditions related to parasites
3. Apply knowledge of parasites in the management of parasitic diseases

Indicative contents

1. General Introduction

2. Protozoology

- General features of protozoa and Classification of Protozoa

Amoeba

- Intestinal amoeba
- Pathogenic intestinal amoeba
- Entamoeba histolytica

Flagellates

- Intestinal and Genital
- Hemoflagellates

Sporozoa

- Malaria

- Opportunistic Coccidian Parasites
- 3. Helminthology**
- **Introduction to Helminths**
- Cestodes
- Trematodes or Flukes
- Nematodes
- Intestinal Nematodes
- Nematodes of Lower Animals that Rarely infect Man
- Somatic Nematodes

Topic 1: General Introduction

This topic will set the baseline of understanding the basic parasitology through the study of the physiological effects of parasites to guide the learners in the comprehensive of health problems relates to parasites while they are making decisions, it set comprehensive understanding of medical parasitology, which will help in handling parasitic diseases and close monitoring.

In the end, this topic will complement the next topics and next topics will use all concepts found in this topic in order to have a comprehensive knowledge and skills for diseases caused by parasites and provide care to the community and patients.

Topic 2: Protozoology

This topic is essential for understanding the pathological conditions related to protozoa to provide healthcare. It describes the approaches to identifying life-threatening conditions related to protozoa and providing life-saving interventions to patients.

In the end, this topic will complement the previous topics and will use all concepts found in previous topics to have a complete kit of knowledge and skills for diseases caused by protozoa and provide care to the community and patients.

Topic 3: Helminthology

This topic is essential for understanding the pathological conditions related to helminths in order to provide healthcare. It describes the approaches to identifying life-threatening conditions related to helminths and providing life-saving interventions to patients.

In the end, this topic will complement the previous topics and will use the concepts found in previous topics to have comprehensive knowledge and skills for diseases caused by helminths and provide care to the community and patients.

Integrated assessment/Case-based Proficiency Check

This section will assist to check if the participants achieved the learning outcomes of this course and possible actions to be taken as forward. It will be a comprehensive quiz which integrates practical-based case studies with MCQs answers, True/false, matching and drag and drop questions. Each topic will be represented to ensure all aspects of this course are covered. The grade for the certificate will be 80%. Those who are not able to demonstrate the achievement of this grade will not be certified and will be requested to revisit the course until the achievement of this target (80%).

Closing remarks/Goodbye

Dear participants of this course, thank you very much for your active participation, engagement and contribution to the improvement of this for future learning. The application of learnt knowledge and skills from this will a valuable contribution to the quality care in community and health facilities in protecting healthy people and treating those who are suffering.